CLOSURE PLAN

CLOSED LOOP REFINING & RECOVERY 1655 AND 1675 WATKINS ROAD COLUMBUS, OHIO 43207

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Prepared for:

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1.0 INTRODUCTION

This Resource Conservation Recovery Act (RCRA) Closure Plan addresses closure of the Closed Loop Refining & Recovery (Closed Loop) facility (subject property) in Columbus, Ohio, as shown in Figure 1. This Closure Plan has been prepared pursuant to applicable rules in Title 40 of the Code of Federal Regulations (CFR), Part 265, Subpart G and Ohio Environmental Protection Agency (Ohio EPA) Rules 3745-66-11 through 3745-66-20 of the Ohio Administrative Code (OAC). This Closure Plan includes the following:

- Description of the facility
- Description of the closure area
- Description of the remedial technique, decontamination procedures, and cleanup goals
- Copy of the health and safety plan under which the Closure Plan will be performed
- Schedule for completion of the proposed work
- Cost estimate to complete closure activities
- An Engineering Evaluation/Cost Analysis report

1.1 General Description

The subject property is currently owned by Garrison Southfield Park LLC (Garrison Southfield) and was formerly owned by MS-South LLC. Closed Loop leased the subject property (which will sometimes be referred to in this plan as the "Closed Loop facility" or the 1655 or 1675 Watkins Road warehouses) and accepted electronic waste (e-waste) at the facility from 2012 through early 2016, when it ceased operations and abandoned the subject property. Closed Loop's principal operations involved the receipt, storage, and disassembling of cathode ray tube (CRT) containing materials. The subject property currently maintains containerized CRT-related materials, CRT demanufacturing areas, and residual lead dust contamination. Figures 2 and 3 shows the approximate layout of the subject property. Closed Loop operated under EPA Generator ID No. OHR000167718 (see Appendix B). The United States Environmental Protection Agency (U.S. EPA) RCRAInfo website indicates that lead waste (D008) materials were previously generated at the subject property by Closed Loop. This RCRA Closure Plan includes an *Engineering Evaluation/Cost Analysis* report for

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compliance with Title 40 CFR Section 300.700 to facilitate cost recovery under the Comprehensive Environmental Response, Compensation and Liability Act. The *Engineering Evaluation/Cost Analysis* report is included as Appendix A.

1.2 Administrative Procedures

In accordance with OAC 3745-66-12(A), a copy of the approved Closure Plan and associated revisions to the Plan will be maintained at the 1675 Watkins Road warehouse or at another location in Columbus, Ohio, designated by Garrison. These documents will be maintained until certification of closure has been approved by the Ohio EPA.

The approved Plan will be amended whenever there are unexpected events during closure that require plan modification. In accordance with OAC 3745-66-12(C)(2), any changes to the Plan will be requested in writing to the Ohio EPA no later than 30 days after an unexpected event has occurred which affects the Closure Plan.



2.0 FACILITY DESCRIPTION

Closed Loop operated a CRT-related material storage facility within warehouses at 1675 and 1655 Watkins Road in Columbus, Franklin County, Ohio. These structures are commercial warehouses surrounded by commercial and industrial properties; a residential neighborhood is approximately 300 feet west of the warehouses. The 1675 Watkins Road warehouse is an approximately 290,000-square foot warehouse structure a 9.210-acre on parcel (Parcel ID: 010-001672-00). The Closed Loop portion of the 1655 Watkins Road warehouse includes approximately 145,000 square feet of the approximately 218,000-square foot structure on an 8.28-acre parcel (Parcel ID: 010-010674-00). If this operation had been a legitimate recycling facility, the North American Industry Classification System for Closed Loop would be 42393, which includes recyclable material merchant wholesalers.

Available information indicates that the two warehouses were constructed on former agricultural land in the late 1970s. City directories indicate that prior occupants of the 1675 Watkins Road warehouse were Applied Distribution (1981), Shoney's Restaurant/Shonac Corporation (1985 to 2002), and Value City Department Stores (2003). City directories indicate that prior occupants of the 1655 Watkins Road warehouse were Lima Terminal Warehouse (1981), Play and Sports Distributors (1985 to 1992), and multiple tenants in 2013 (MS South, Capital Plumbing & Mechanical, and PCG Trading). Closed Loop began operations in the 1675 Watkins Road warehouse in 2012, pursuant to a lease with MS-South LLC, and in the 1655 Watkins Road warehouse in 2014, pursuant to a temporary occupancy agreement with Garrison Southfield. Closed Loop ceased operations and abandoned the subject property in 2016.

Previous reporting by Atwell, LLC (2017), indicates the following general information about Closed Loop operations:

- E-waste materials received included: CRTs, projection televisions, and other electronic waste for disassembly and recycling of some components
- Closed Loop disassembled televisions and computer monitors (CRT-containing devices) by separating plastics, precious metals, and CRT glass
- Closed Loop then mechanically crushed the CRT glass (funnel and panel) components



- Materials (plastics, metals, crushed glass) were repackaged in open-top cardboard Gaylord containers
- Processed CRT glass was stockpiled onsite in Gaylord boxes

2.1 Previous Investigations

2.1.1 2013 Ohio Environmental Protection Agency Complaint Investigation

During September 2013, Ohio EPA performed a complaint investigation of the Closed Loop operation at 1675 Watkins Road to assess the management of CRTs. The assessment resulted in an October 17, 2013, Notice Of Violation (NOV) letter that identified the exterior storage of "...approximately 300 pallets of broken CRTs outside in cardboard gaylords..." and "...approximately 450 pallets of televisions..." outside and west of the warehouse. The inspection also noted that Gaylord containers were not being properly labeled. The NOV letter required that the identified violations be corrected.

On June 10, 2014, Ohio EPA issued Closed Loop *Director's Final Findings & Orders* and *Expedited Settlement Agreement* (DFFO/ESA) related to the September 2013 complaint investigation which included the following additional information:

- An October 10, 2013 follow-up inspection identified that approximately 90% of the CRTs that had stored outside had been moved inside
- November 1, 2013 correspondence from Closed Loop documented that the observed materials that had been stored outside had been moved inside the building and were being labeled
- Closed Loop's obligations under the expedited settlement agreement would terminate upon
 Ohio EPA's receipt of a \$2,200 civil penalty

2.1.2 2015 Ohio Environmental Protection Agency Letter

During January 2015, Ohio EPA performed an inspection of the 1675 Watkins Road warehouse and documented CRT-related material handling information (Appendix B), as summarized below:

• Closed Loop operated a CRT "breaker" (crusher) that generated a "phosphor cake (D008) from a wash process and baghouse dust (D008) from the air filtration system." Garrison is unaware of any previous wet washing activities. The Ohio EPA noted that both



waste streams "will be recycled for their heavy metal content." Ohio EPA also noted that the crusher generates "lead dust/floor sweepings (D008)" that were managed as a hazardous waste for offsite disposal.

- Closed Loop generated glycol (non-hazardous) which was transported offsite for recycling.
- Closed Loop operated as a small quantity generator of hazardous waste under "the conditional exclusion for used Cathode Ray Tubes in OAC 3745-51-38."
- Closed Loop generated approximately 1,700 pounds of floor sweeping (D008) waste per month in one to two Gaylord containers. Ohio EPA notes that this waste stream was being transported offsite for disposal.
- Closed Loop had generated less than one Gaylord container of phosphor cake and baghouse dust that was identified as a potential D008 waste.

2.1.3 2015 AECOM Technical Services, Inc. Assessment

During late 2015, AECOM Technical Services, Inc. (AECOM), performed a *Baseline Environmental Conditions and Closure Cost Evaluation* of the subject property. The purpose of this evaluation was to assess potential hazardous materials contained in the two warehouses. Selected tables, figures, and analyses from the AECOM report are included in Appendix B.

AECOM's site assessment included collection of 19 dust samples from the floor and horizontal surfaces in the 1675 Watkins Road and 1655 Watkins Road warehouses (eleven and eight samples respectively), for analysis of the eight RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) as totals. An additional five dust samples from the 1675 Watkins Road warehouse and four dust samples from the 1655 Watkins Road warehouse were also analyzed by the Toxicity Characteristic Leaching Procedure (TCLP) for the eight RCRA metals. Indoor airborne sampling was also performed for analysis of mercury.

A summary of the analytical results for the 1655 Watkins Road warehouse indicates:

Lead was detected in each total dust sample at concentrations ranging from 2,300 to 13,000 milligrams per kilogram (mg/kg), exceeding the Ohio Voluntary Action Program (VAP) generic direct-contact residential soil standard (GDCSS) of 400 mg/kg.



- Chromium was reported to exceed the residential GDCSS of 120 mg/kg in two samples.
- Barium, cadmium, mercury, and silver were detected in each total dust sample at concentrations below their respective Ohio VAP residential GDCSS.
- Arsenic and selenium were not detected in total or TCLP dust samples.
- Lead was reported in three of four TCLP dust sample results at concentrations of 92 to 180 milligrams/liter (mg/L), which exceed the characteristically hazardous concentration of 5.0 mg/L for lead.
- Remaining TCLP dust sample results were below detection limits and/or their respective characteristically hazardous concentration limits.

A summary of the analytical results for the 1675 Watkins Road warehouse indicates:

- Lead was detected in each total dust sample at concentrations ranging from 2,200 to 15,000 mg/kg, exceeding the Ohio VAP residential GDCSS of 400 mg/kg.
- Barium, cadmium, chromium, mercury, and silver were detected in each total dust sample at concentrations below their respective Ohio VAP residential GDCSS.
- With the exception of one total dust sample where total selenium was detected at a concentration below its Ohio VAP residential GDCSS, arsenic and selenium were not detected in total or TCLP dust samples.
- Lead was reported in each of the five TCLP dust samples at concentrations of 11 to 220 mg/L,
 which exceed the characteristically hazardous concentration of 5.0 mg/L for lead.
- Remaining TCLP dust sample results were below detection limits and/or their respective characteristically hazardous concentration limits.

AECOM reported that indoor air mercury concentrations ranged from less than the detection limit to 0.044 milligrams per cubic meter and that mercury results were below the Occupational Safety and Health Administration permissible exposure limit of 0.10 milligrams per cubic meter (NIOSH 2015).



2.1.4 2016 Ohio Environmental Protection Agency Letter

During March 2016, Ohio EPA performed an inspection of the Watkins Road warehouses and documented additional CRT-related findings (Appendix B), as summarized below.

- "Closed Loop failed to demonstrate that processed CRT glass stored at Closed Loop's Watkins Road Facility was not speculatively accumulated..."
- Closed Loop had "been processing/breaking up to 350,000 pounds per week (of CRTs) for continued storage."
- The crusher process generated a "phosphor powder (D008) from a wash process, baghouse dust (D008) from the air filtration system and lead dust/floor sweepings (D008)."
 Note that Garrison is unaware of any previous wet washing activities.
- Ohio EPA noted that these wastes are transported to "Petro-Chem in Detroit, Michigan, for hazardous waste disposal."
- Three partially full Gaylord containers were observed in the crusher room and labeled as hazardous waste.
- The *Field Activity Report* noted "several 'satellite' gaylords of hazardous floor sweepings" in unspecified areas of the 1675 Watkins Road warehouse.
- Ohio EPA's review noted that between October 2014 and November 2015 Closed Loop had accumulated containers weighing between 629 and 4,060 pounds of D008 waste.

2.1.5 2017 Atwell LLC Assessment

During 2016, Atwell performed site investigation activities that culminated in preparation of their May 4, 2017 report entitled *Evaluation of E-Waste Inventories and Remediation/Closure Options for 1655 and 1675 Watkins Road, Columbus, Ohio*. A copy of the Atwell report is presented in Appendix B; significant findings are summarized below:

• The Watkins Road warehouses are approximately 90% full of CRT devices, super sacks, and cardboard Gaylord containers (measuring approximately 4-foot square and high) containing crushed CRT glass on wooden pallets. Throughout the majority of the warehouse space, the



Gaylord containers are stacked three high. Many Gaylord containers are deteriorated, which Atwell notes "may be a function of Closed Loop's practice to repurpose the same boxes used to transport intact CRTs to the site..." Atwell notes that there are only a few accessible aisles between the stockpiled CRT materials and that many containers are not readily accessible.

- The majority of containers in the 1675 Watkins Road warehouse contain crushed CRT glass; former aisle ways have containers with "whole unprocessed CRT units (televisions, computer monitors, and/or intact CRT tubes)." The 1675 warehouse also includes a demanufacturing line and a glass crushing process area.
- The majority of containers in the 1655 Watkins Road warehouse appear to contain "intact CRT units (televisions and computer monitors)." A "small demanufacturing line where Closed Loop would manually separate the CRT tubes from plastic and metal housings associated with whole televisions and or/computer monitors" is also present in the north portion of this warehouse.
- Eight types of containerized CRT-related materials were identified on the site, as summarized below.
 - Whole CRT tubes only in Gaylord containers and on wood pallets
 - Complete CRT units on wood pallets (wrapped in plastic, not in Gaylord containers)
 - Complete CRT units in Gaylord containers on wood pallets
 - Projection lamps in Gaylord containers on wood pallets (1655 Watkins Road only)
 - CRT crushed glass in Gaylord containers on wood pallets (1675 Watkins Road only)
 - Scrap plastic in Gaylord containers on wood pallets
 - Scrap metal with glass in Gaylord containers on wood pallets
 - CRT panel glass with metal bands on wood pallets and in super sacks



- Atwell estimated that the two Watkins Road warehouses contained approximately 128,187,373 pounds (64,093 tons) of CRT-related material.
- Based on this analysis, and after discussion with vendors, Atwell estimated the cost to remove and recycle or dispose (landfill) containerized CRT-related materials at approximately \$12,480,000. An additional approximate \$415,000 was estimated to decontaminate lead-dust from the site warehouses.
- Atwell also observed that: "Costs, however, may be significantly higher and depend upon the material quantities, transportation fuel costs, and the availability of previously-identified landfills, lead smelters, or other disposal/recycling outlets to accept such high volumes of e-waste at the time the removal efforts are launched. Costs may also increase depending upon the extent of Ohio EPA's oversight over RCRA closure of the Site. At this time, it is not possible to project with any reasonable certainty how these and other variables will ultimately impact the bottom line."

2.1.6 2017 Atwell Interim Health and Safety Plan

During 2017, Atwell developed an *Interim Health and Safety Plan* to "...establish safe working procedures to be followed while abandoned cathode ray tubes (CRT) and associated products, wastes, and/or recyclable materials from Closed Loop's former site operations remain" in the site buildings. The Plan described procedures for accessing the site buildings, site inspections, site maintenance activities, and site stabilization activities.

2.2 Descriptions of Non-Processed Cathode Ray Tubes and Processed Cathode Ray Tube Glass

2.2.1 Accumulated Materials

As noted in Section 2.1, Atwell performed an analysis of containerized CRT-related materials in the Watkins Road warehouses. Based on Atwell's analysis, the following are estimated weights of CRT-related material in the 1675 Watkins Road warehouse:



| • | Projection lamps | |
|---|--|--|
| • | CRT crushed glass | |
| • | Scrap plastic | |
| • | Scrap metal with glass324,648 pounds | |
| • | CRT panel glass with metal bands | |
| | Estimated total weight | |
| This a | nalysis was summarized as follows: | |
| • | Non-processed CRTs | |
| • | CRT crushed glass | |
| • | Recyclable plastic, glass, and steel515,041 pounds | |
| Based on Atwell's analysis, the following are estimated weights of CRT-related material in the 1655 Watkins Road warehouse: | | |
| • | Whole CRT tubes | |
| • | Complete CRT units (shrink wrapped)841,582 pounds | |
| • | Complete CRT units (in Gaylord containers) | |
| • | Projection lamps | |
| • | CRT crushed glass | |

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¹ Based on consultation with Ohio EPA, approximately 185,975 pounds of projection lenses were removed from 1655 Watkins Road and recycled as part of a pilot project in mid-2019, i.e., after the Atwell report was issued. *See* Appendix B (AKT Peerless Environmental Services, *Projection Lens Remediation and Recycling — Summary of Activities* [January 6, 2020]).



| • | Scrap plastic |
|--------|--------------------------------------|
| • | Scrap metal with glass |
| • | CRT panel glass with metal bands |
| | Estimated total weight |
| This a | nalysis was summarized as follows: |
| • | Non-processed CRTs |
| • | CRT crushed glass |
| • | Recyclable plastic, glass, and steel |

2.2.2 Former Processing Areas

The 1675 Watkins Road warehouse includes two demanufacturing areas. One area is an approximately 80-foot long demanufacturing line consisting of a steel conveyor system and Gaylord containers for placing processed CRT components. Based on available information, this demanufacturing line was likely utilized by Closed Loop from the time of their initial operations in 2012 until they ceased operations in 2016. Hazardous wastes associated with this area are anticipated to include lead (D008).

The second area includes a semi-enclosed room with a CRT crusher that discharged into a second room with conveyor system and baghouses. The CRT crusher is approximately 40-foot long with CRT feed area, crushing elements, limited dust control system, and outfeed drops and conveyors. The conveyor system includes a series of rubber conveyor belts that lead to areas where personnel would have picked and sorted crushed CRTs. The conveyor room includes containerized CRT-related materials that are included in the total weight estimates for the subject property. Based on available information, this crusher unit was likely utilized by Closed Loop from the time of their initial operations in 2012 until the unit reportedly broke down in 2015. Hazardous wastes associated with this area are anticipated to include lead (D008).

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The 1655 Watkins Road warehouse includes a single demanufacturing area. The area is an approximately 30-foot long demanufacturing line consisting of a steel conveyor system and Gaylord containers for processed CRT components. Based on available information, this demanufacturing line was likely utilized by Closed Loop from approximately 2014 until they ceased operations in 2016. Hazardous wastes associated with this area are anticipated to include lead (D008).

In addition to these observations, EnSafe Inc. observed one Gaylord container in the southeast corner of the 1675 Watkins Road warehouse that was labeled as hazardous waste (D008). Additional containers of waste material may be present. During closure of the warehouses, containers identified as containing waste related materials will be tested and managed in accordance with Section 12 and Section 13.

2.2.3 Additional Materials

In addition to CRT-related materials and demanufacturing equipment, the Watkins Road warehouses also include non-CRT-related materials used to support the Closed Loop operations. These materials include, but are not limited to:

- New paint containers (two 5-gallon containers)
- New adhesive containers (three 5-gallon containers)
- Commercial quantities of maintenance chemicals
- Empty 300-gallon tote (glycol)
- Various conveyor components and other steel items

2.3 Physical Setting and Hydrogeology

The subject property is located on the southeast side of Columbus. The surface elevation for the subject property is between 760 and 770 feet above mean sea level and the topography is generally level.

Review of soil boring information obtained from the Ohio Department of Natural Resources Water Well Log Search website identified three water wells located within approximately 1,800 feet of the subject property (Appendix B). The site is likely underlain by clay soil (surface to approximately 10 feet below ground surface [bgs]), clayey sand and gravel (10 to at least 50 feet bgs), and sand and gravel below 50 to 80 feet bgs. Groundwater was reported at 35 to 52 feet bgs.



3.0 DESCRIPTION OF UNIT TO CLOSE

The Watkins Road property includes two units to be closed, as follows:

- Warehouse space at the south end of the 1655 Watkins Road
- Warehouse and office space at 1675 Watkins Road

A description of each unit (including period of use, dimensions, construction details, and associated wastes) is presented in Section 2. Section 2 also includes a brief discussion of the hydrogeologic setting for the Watkins Road warehouse.

As described in Section 2, the Watkins Road warehouses include containerized CRT-related materials consisting of unprocessed CRTs and processed CRT glass, two demanufacturing lines (one within the 1655 Watkins Road warehouse and one within the 1675 Watkins Road warehouse), and a glass crushing machine (1675 Watkins Road warehouse). The interior of each warehouse is also contaminated with lead dust.





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4.0 TOPOGRAPHIC MAP

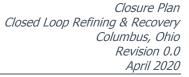
The approximate facility geographic coordinates of the 1655 Watkins Road warehouse property are latitude 39°53'58.22" north and longitude 82°57'1.24" west. The approximate facility geographic coordinates of the 1675 Watkins Road warehouse property are latitude 39°54'4.70" north and longitude 82°57'0.53" west. Figure 1 presents a copy of the U.S. Geological Survey 7.5 Minute Series topographic map for the facility and surrounding area.

A detailed facility map is described in Section 5.





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5.0 DETAILED DRAWING OF UNIT TO BE CLOSED

Figures 2 and 3 show the layout of the Watkins Road warehouses including an approximate delineation of accumulated CRT-related material and demanufacturing areas.





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6.0 LIST OF HAZARDOUS WASTES

This section includes a summary of hazardous wastes that were previously transported offsite based on information provided in Section 2. Available information indicates that the Watkins Road warehouse operated as a small quantity generator of hazardous waste, generating the following hazardous waste type:

| Chemical Name | United States Environmental Protection Agency Hazardous Waste Number | Chemical Abstracts Service Registry Number |
|---------------|--|---|
| Lead | D008 | 7439-92-1 |

In addition to the above, prior testing by AECOM (2015), as discussed in Section 2.1.2, indicates that the following hazardous constituents identified by Ohio EPA as potentially being present in CRT-related materials are not present at hazardous concentrations:

| Chemical Name | United States Environmental Protection Agency Hazardous Waste Number | Chemical Abstracts Service Registry Number |
|---------------|--|---|
| Arsenic | D004 | 7440-38-2 |
| Barium | D005 | 7440-39-3 |
| Cadmium | D006 | 7440-43-9 |
| Chromium | D007 | 7440-47-3 |
| Mercury | D009 | 7439-97-6 |
| Selenium | D010 | 7782-49-2 |

An inventory of CRT-related material and estimated quantities is presented in Section 2.2. Section 2.2 also includes a discussion of observed hazardous waste (D008) on the subject property.





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7.0 REMOVAL OF MATERIALS

This section describes the activities that will be performed to remove CRT-related material from the subject property. Following the removal of CRT-related material, the warehouse interior will be decontaminated. Decontamination efforts are described in Section 11. As applicable, Sections 7, 9, and 11 include a summary of the methods to be utilized to identify and manage hazardous waste, solid waste, and debris generated during the closure activities.

7.1 Closure Performance Standards

This Closure Plan has been prepared in general accordance with the closure performance standard specified in OAC 3745-66-11(A and B). Completion of this closure will accomplish the following:

- Minimize the need for further maintenance
- Control, minimize, or eliminate, to the extent necessary to protect human health and the
 environment, post closure escape of hazardous waste, hazardous constituents, leachate,
 contaminated run off, or hazardous waste decomposition products to the groundwater, or
 surface waters, or to the atmosphere

7.2 Method of Closure

Closure of the Watkins Road warehouses will be accomplished by the removal of containerized CRT-related materials, demanufacturing equipment, and lead-containing dust. Upon completion of closure, the warehouses will be available for unrestricted use.

As previously discussed, the majority of CRT-related materials in the 1655 Watkins Road warehouse generally include containerized non-processed CRTs in Gaylord boxes or on pallets. The majority of CRT-related materials in the 1675 Watkins Road warehouse generally include containerized processed CRT-glass with a lesser amount of non-processed CRTs in Gaylord boxes or on pallets. As the final disposition of non-processed CRT-related materials and processed CRT glass will be different, this Plan anticipates two phases for removal of containerized CRT-related materials from the Watkins Road warehouses.

Phase I includes establishment of a contamination reduction zone (CRZ) and a clean loading zone (CLZ) within the 1655 Watkins Road warehouse, followed by removal of non-processed CRT-related materials. Phase III will consist of decontamination of the 1655 Watkins Road warehouse pursuant to Section 11.



Following completion of Phase I activities at 1675 Watkins Road, Phase II removal activities will commence in the 1675 Watkins Road warehouse with establishment of a CRZ and a CLZ, followed by removal of non-processed CRT-related materials and processed CRT glass from the 1675 Watkins Road warehouse. Phase III will consist of decontamination of the 1675 Watkins Road warehouse pursuant to Section 11.

The following subsections describe the general processes for removing containerized materials from the Watkins Road warehouses. Figures documenting the proposed CRZ, CLZ, and CRT-related material removal processing areas are included as Figures 4 and 5.

7.2.1 Contamination Reduction Zones and Clean Loading Zones

Prior to implementing removal activities, CRZ and CLZ structures will be constructed along the west side of the 1655 Watkins Road warehouse and the 1675 Watkins Road warehouse, as applicable. Prior to construction of the CRZ and CLZ structures, the interior warehouse area where these structures will be constructed will be cleared of CRT-related materials, and surrounding warehouse walls, flooring, or ceiling (including any doors or other warehouse features) inside of these structures will be decontaminated in accordance with Section 11 of this Closure Plan, as applicable. The CRZ and CLZ will be equipped with PVC strip doors (between the warehouse and CRZ and between the CRZ and CLZ). A negative pressure air machine will operate in the CRZ to reduce the potential for airborne lead-containing dust to pass through the CRZ and into the CLZ. A physical barrier will be installed at the entrance of the CLZ from the CRZ to prevent tow motors from entering the CLZ.

To reduce the potential for lead dust migration from the subject property, the CLZ will be equipped with personnel and equipment (tow motors, handcarts, and related materials) that will be restricted to the CLZ. Equipment being used inside contaminated areas of the subject property will be restricted from entering the CLZ without being fully decontaminated in accordance with Sections 11 and 7.2.

The office area of the 1675 Watkins Road warehouse will be utilized as a CRZ for personnel entering and leaving the Watkins Road warehouses. Personal protective equipment will be donned and doffed in this area in accordance with the Site-Specific Health and Safety Plan (Section 10).

7.2.2 Containerized Material Transfer (Interior of Warehouses)

Containerized materials inside of the warehouse will be transferred to the container packaging area via forklift. To reduce the potential generation of dust, forklift travel areas will be cleaned using wet washing techniques in accordance with Section 7.2.6.

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In rare instances, it is anticipated that the condition of Gaylord boxes will be such that a stack of boxes (box stack) will be unsafe to move and the box stack will be allowed to fall to the floor, will be pushed over, or will be pulled down in a manner designed to protect site workers. When box stacks are collapsed, steps will be taken to reduce the potential for generation of dust and any spilled material will be promptly cleaned up, containerized, and the new container transferred to the CRT-related material packaging area via forklift. Damaged containers deemed unacceptable for further use will be managed in accordance with Section 7.2.3.

7.2.3 Container Processing

Containerized materials inside of the warehouse will be processed in a dedicated area prior to being transferred through the CRZ to the CLZ. The container processing area will be designed to standardize the inspection, cleaning, packaging, and documentation of containerized material prior to being transported offsite. The activities performed in the container processing area are summarized below:

- Containers will be inspected to assess if the container is in a condition suitable for offsite shipment. The inspection process will include evaluation of the structural integrity of the Gaylord box (if present) and wood pallet or supersack (as applicable), inspection of existing plastic stretch film or shrink wrap (plastic wrap) and banding, and an inspection for dust (on the exterior of the container, plastic wrap, and/or pallet).
- Visible dust on exterior surfaces of containers, plastic wrap, and pallets will be cleaned using
 a vacuum equipped with a high efficiency particulate air (HEPA) filter such that the exterior
 of the container, plastic wrap, and pallet are free of visible dust.
- The contents of damaged containers deemed unacceptable for transport will be transferred to new containers. The empty damaged container, plastic lining (if present), plastic wrap (if present), and pallet will be separated. The interiors of empty containers and separated pallets may be inspected for lead dust and CRT-related contamination; identified contamination may be cleaned with a vacuum equipped with a HEPA filter and the containers/pallets stored for offsite recycling. Containers, pallets, and plastic that are not cleaned will be containerized and managed as hazardous waste (D008).



- Containers deemed suitable for offsite transportation will be prepared for offsite shipment by:
 - Banding/rebanding Gaylord boxes, oversized CRTs, and other items as applicable to pallets
 - Containers with damaged or missing plastic wrap will be wrapped where required for shipment per Department of Transportation (DOT) regulations
- Containers that are ready for shipment will be transferred to the scale where the total gross weight of each container (to the nearest pound) will be measured using a scale.
 The total gross weight will be recorded in a site log and on the container.
- Prior to offsite shipment, containers of CRT-related materials will be labeled as follows.
 - Containers destined for recycling will be labeled in accordance with OAC 3745 51 39 (A)(2) with the following statements:
 - "Used Cathode Ray Tubes Contain Leaded Glass" or "Leaded Glass From Televisions or Computers" and
 - "Do Not Mix With Other Glass Materials."
 - Containers destined for disposal as hazardous waste will be labeled and marked in accordance with OAC 3745-52-30 to 32.
 - Containers destined for disposal as non-hazardous or construction and demolition debris will be labeled as non-hazardous waste with the site name and address.

7.2.4 Offsite Transportation

Properly packaged and labeled containers will be transferred from the container processing area, through the CRZ, and into the CLZ utilizing separate tow motors restricted to the container processing area and CRZ. These tow motors will not enter the CLZ. Tow motors restricted to the CLZ will take the containers into the CLZ chamber for temporary (generally less than 72 hour) storage or immediate transfer into trucks, as applicable.



Each truckload of CRT-related materials transferred offsite for recycling will utilize a bill-of-lading with the following information:

- Shipper information (Closed Loop EPA ID No., address, contact, and contact phone number)
- Receiver/destination information (business name, address, contact, and contact phone number)
- Transporter information with trailer numbers and trailer seal numbers
- Pick up date
- Number of packages with package content descriptions
- Shipping weight in pounds net weight and total gross weight
- Shipper and transporter signatures
- A packing list with each container and individual container net weights

For truckloads of CRT-related materials that will be transferred offsite for disposal at a Subtitle C (hazardous waste) landfill, a uniform hazardous waste manifest (U.S. EPA Form 8700-22) and, if necessary, the continuation sheet (U.S. EPA Form 8700-22A) will be utilized in accordance with OAC 3745-52-20, OAC 3745-52-21, and 40 CFR 262.21.

7.2.5 Offsite Material Management

Based on the available information, it is currently anticipated that containerized materials at the subject property will be managed as follows:

- Processed CRT glass.....lead smelter or pretreatment and solid waste landfill
- Floor sweepingshazardous waste or non-hazardous waste landfill



7.2.6 Cleaning Activities to Reduce Lead Dust Generation

To reduce the potential for lead-dust generation, the following procedures will be performed on a daily (during operations where there is a potential to stir up lead-containing dust) basis, at a minimum, and on as needed basis, to control the transfer of lead-containing dust.

- Newly exposed floor areas (e.g., areas where containerized materials were removed during the prior day) will be cleaned with a wet sweeping method, or equivalent sweeping methods that utilize acceptable dust control measures.
- To reduce the potential generation of dust, forklift travel areas will also be cleaned with a
 wet sweeping method, or equivalent sweeping methods that utilize acceptable dust control
 measures.
- The floor of the CRZ will be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable dust control measures.
- The CLZ will be inspected daily for dust accumulation. If elevated dust accumulation is observed, the area will be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable dust control measures.

7.3 Closure Reporting

The qualified, independent, registered, professional engineer, or his representative, will be present during certain critical activities during closure. These critical activities include, but may not be necessarily limited to, removal of CRT-related material, decontamination of processing equipment, and decontamination of warehouse surfaces. The professional engineer, or his representative, will document observed field activities in a field notebook, as appropriate.

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The professional engineer, or his representative will notify (either by telephone or email) Ohio EPA's facility inspector at least 5 days prior to implementation of significant site activities, as identified below:

- Initiation of offsite transportation of Phase I unprocessed CRT-related material
- Initiation of offsite transportation of Phase II processed CRT glass
- Initiation of Phase III warehouse decontamination activities

It is currently anticipated that separate closure reports will be submitted for the 1655 Watkins Road and 1675 Watkins Road warehouses. Upon completion of closure activities for each warehouse, the warehouse interior closure activities will be certified by an Ohio registered professional engineer to meet the overall RCRA closure performance standard in OAC 3745-66-11(A and B), OAC 3745-66-14, and OAC 3745-66-15 ("clean closure"). Garrison Southfield will submit each closure report to the Ohio EPA summarizing the closure activities and requesting concurrence that the applicable former electronic waste storage area has been closed. At a minimum, each closure report will include the following information:

The following certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

- Reference to the approved Closure Plan
- The volume of waste transported offsite
- Closure activity correspondence after Ohio EPA approval of the Closure Plan



- Details of sampling and analysis methods
- Laboratory records (including bench sheets if requested by Ohio EPA)
- A narrative describing closure activities
- Details of removal activities, including representative photographs
- Signature of Garrison Southfield and of a qualified, independent, registered, professional engineer



8.0 SCHEDULE FOR CLOSURE

The anticipated closure schedule is presented below. As shown, Garrison Southfield will notify the Ohio EPA 30 days prior to the initiation of field activities. Significant activities are anticipated to require the following time frames, although COVID-19 related delays may impact the schedule:

Building 1655

| • | Removal of Processed CRTs (up to 580 days) | |
|---------------|---|--|
| • | Decontamination of Warehouses (90 days)580 to 670 days | |
| • | Closure Documentation (60 days following decontamination)670 to 730 days | |
| Building 1675 | | |
| • | Removal of Processed and Non-Processed CRTs (up to 490 days)730 to 1,220 days | |
| • | Decontamination of Warehouses (180 days) | |
| • | Closure Documentation (60 days following decontamination) | |

Based on the above, it is anticipated that a closure report documenting CRT-related material removal and warehouse decontamination activities can be completed within approximately **1,460** days of Closure Plan approval and following any COVID-19 related schedule delays (as applicable).





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9.0 AIR EMISSIONS AND WASTEWATER

9.1 Air Emissions

As described in Section 7.2, this Plan incorporates steps that will be taken to reduce the potential for generation of fugitive dusts during CRT-related material removal and warehouse decontamination activities. These steps include, but may not be limited to, the following:

- Construction of negative-pressure isolation chambers where equipment, CRT-related material, and personnel enter and leave the warehouse
- HEPA vacuuming exteriors of containers prior to offsite transfer to reduce fugitive dust emissions during transportation
- Engineering controls inside of the warehouses to reduce dust emissions that may include wet washing of floors in equipment and personnel traffic areas
- Interior warehouse monitoring for dust
- Personnel lead monitoring
- Modification of proposed controls, as necessary, to limit dust generation

9.2 Wastewater

As described in Section 7.2, it is anticipated that activities performed as part of this Closure Plan will generate wastewater from the washing of floors and from the decontamination of warehouse surfaces.

This Plan envisions that wastewater generated during dust suppression and warehouse decontamination activities may contain lead at concentrations greater than 5 mg/L (e.g., would be considered a hazardous [D008] waste). The wastewater will either be containerized in portable tanks or totes pending offsite disposal or will be treated and discharged to the City of Columbus sanitary sewer system in accordance with the Clean Water Act, Ohio EPA water pollution control rules, and local industrial discharge requirements. Treatment of wastewater will include management in a temporary onsite wastewater treatment unit that incorporates the following elements:

A wastewater discharge permit will be established with the City of Columbus



- Wastewater will be transferred into tanks for storage and batch treatment to reduce lead concentrations to levels acceptable for discharge to the City of Columbus
- Prior to discharge, wastewater will be evaluated on a batch basis for the constituents required by the City of Columbus
- Assuming batch wastewater meets City of Columbus industrial discharge requirements, the wastewater will be discharged to the sanitary sewer system and the volume of water recorded
- In the event that wastewater does not meet discharge criteria, it will be retreated and retested or will be transferred offsite for additional treatment and/or disposal at a permitted facility.
- The Sampling and Analysis Plan (Appendix E) discusses waste analysis of wastewater and characterization of generated sludge, as applicable.



10.0 PERSONNEL SAFETY AND FIRE PROTECTION

In accordance with 29 CFR 1910.120 contractors working on the site will perform activities in accordance with the Site-Specific Health and Safety Plan. A copy of the Site-Specific Health and Safety Plan for contractors performing Phase I and II removal activities, contractors performing Phase III decontamination activities, engineering observation of site activities and sample collection, and visitors is presented in Appendix C. Contractors and visitors will either have to follow the Health and Safety Plan in Appendix C or prepare a health and safety plan that is at least as stringent as the one in Appendix C.







11.0 DECONTAMINATION EFFORTS

This section describes the activities that will be performed to decontaminate CRT-related material containers prior to offsite transportation; decontaminate warehouse floors, walls, ceilings, and structural elements containing lead-bearing dusts; and decontaminate reusable equipment. This section also includes a summary of the methods that will be utilized to identify and manage hazardous waste, solid waste, and debris that will be generated during the decontamination activities.

11.1 Cathode Ray Tube Related Materials

Prior to transporting existing Gaylord containers of CRT-related materials offsite, the containers, and associated wood pallets will be visually inspected and decontaminated of visible dust as described in Section 7.2. Dust and associated HEPA filters will be containerized in appropriate DOT-approved containers and considered hazardous for lead (D008) unless analytical testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L).

11.2 Cathode Ray Tube Demanufacturing Equipment

Demanufacturing equipment will be cleaned of gross contamination using a vacuum equipped with a HEPA filter. Following removal of gross contamination, the following additional activities will be performed:

- For demanufacturing equipment that will be managed as recyclable scrap metal, this
 equipment will be rendered unusable and placed into containers for transfer to an offsite
 recycling facility.
- For demanufacturing equipment that cannot be recycled (e.g., non-metallic equipment), this equipment will be placed in portable containers pending sampling, analysis, and offsite disposal. Containers will remain closed pending receipt of analytical results. If analytical testing demonstrates the equipment is considered hazardous (D008) for lead (i.e., the material is found to contain lead at greater than 5.0 mg/L), the equipment will be transported offsite as a hazardous waste. Otherwise, the equipment will be managed as a non-hazardous solid waste.



- For equipment that may be subject to reuse (e.g. glass crushing machine), the following decommissioning and decontamination process will be implemented:
 - The machine will be secured, and the contractor will verify that utilities (including hydraulics) to the machine are properly shut off and deenergized. The contractor will also be responsible for placing locks and tags on the utilities to confirm safe and redundant lockout.
 - During decontamination, methods that prevent the transport of any machine fluids, decontamination residues, or wash waters outside the designated decontamination area will be employed. If pits, sumps, or trenches are identified in (or near) the decontamination area, these will be plugged in accordance with Section 11.3.
 - Unprocessed CRTs, processed CRT glass, and related materials will be removed from the glass crushing machine and placed into appropriate containers for management in accordance with Section 7.2.5.
 - Hydraulic and lubricating oils (as applicable) associated with the equipment will be drained and collected for management as used oil in accordance with OAC 3745-279.
 - Lead-containing dust on, in, and surrounding the glass crushing machine will be removed using a vacuum equipped with HEPA filter.
 - After the equipment has been decommissioned, the following procedure will be implemented depending on whether the machine will be sold for use in a similar industry or will be scrapped:
 - o If the equipment will be transported offsite for use in a lead processing facility, it will be further dismantled, as applicable, to facilitate transport. In the event additional, previously inaccessible areas inside the equipment are found to contain dust, they too will be decontaminated. The equipment will be prepared for offsite transport and moved out of the warehouse prior to warehouse decontamination or will be wrapped in plastic to prevent warehouse decontamination activities from recontaminating the equipment.



If the equipment will be sold for scrap, the equipment will be dismantled, rendered unusable, and placed into portable containers for transfer to an offsite recycling facility. Loose dust will be removed, as applicable, during dismantling operations using a vacuum equipped with HEPA filter. Non-scrap materials (e.g., rubber belts) will be placed in portable containers pending sampling, analysis, and offsite disposal. Containers will remain closed pending receipt of analytical results. If analytical testing demonstrates the non-scrap material is considered hazardous (D008) for lead (i.e., the material is found to contain lead at greater than 5.0 mg/L), the equipment will be transported offsite as a hazardous waste. Otherwise, the non-scrap material will be managed as a non-hazardous solid waste.

11.3 Warehouse Elements

After removing equipment and debris from the decontamination area, gross contamination including (but not limited to) debris, grime, dust, or any residual demolition debris will be removed from surface areas. The goal of this cleaning is to remove material that is easily mobilized and to facilitate final decontamination. These surfaces will include, but will not be limited to, warehouse roof support structures, columns, walls, floors, and any warehouse heating units.

Decontamination of warehouse elements will generally proceed from the warehouse ceilings and roof support structures to the floor to reduce the potential of recontaminating previously cleaned surfaces. During decontamination, methods that prevent the transport of any decontamination residues or wash waters outside the designated decontamination area will be employed. If pits, sumps, or trenches are identified in (or near) a decontamination area, these will be plugged during these activities. If the pits, sumps, or trenches are full of debris or sludge and the drains to these areas cannot be identified with any certainty, the following (minimum) precautions will be employed before generating any wastewater in the area:

- Remove standing water and gross contamination from the pits, sumps, or trenches
- Install safety barriers as necessary to prevent risk to workers from the open pits, sumps, or trenches
- Identify the location of any drainage connections
- Securely plug any drainage conveyance from the pits, sumps, or trenches



In adjacent areas, outside the area to be decontaminated, where pits, sumps, or trenches are present that have the potential to convey decontaminating residues or wash water away from the decontamination area, additional precautions will be employed to prevent decontamination residues from entering these conveyances. These precautions will include isolating the conveyances from the decontamination area by constructing barriers to prevent airborne or waterborne contamination from leaving the decontamination area. The barriers will be subject to the approval of the certifying professional engineer's representative. At a minimum, sheeting used for barriers will be secured to the floor in a manner to prevent contamination from spreading to the conveyance. A second barrier will be placed over the conveyance. The barrier will be inspected on a daily basis until it is determined that the barrier is no longer needed.

Following completion of the work described in this Plan, sheeting materials used for barriers and other spent protective materials will be removed, placed into appropriate DOT-approved containers, tested, and properly disposed. Spent protective materials will be considered hazardous for lead (D008) unless representative analytical testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L).

11.3.1 Warehouse Ceiling

The contractor will use methods as necessary to prevent the transport of any decontamination materials outside of the designated decontamination area. If present, any floor drains or open pipes in the area during these activities will be temporarily plugged.

Decontamination of ceilings will be performed to remove loose particles that could be released and recontaminate lower warehouse elements. As such, ceilings will be decontaminated using a vacuum equipped with a HEPA filter to remove any loose particles. Additional cleaning of horizontal and vertical components will be performed in accordance with the procedures for structural elements described in Section 11.3.2.

Dust will be containerized in appropriate DOT-approved containers and be considered hazardous for lead (D008) unless analytical representative testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L).

11.3.2 Warehouse Structural Elements

Warehouse structural elements include, but are not limited to, roof support structures, warehouse columns, any horizontal or vertical pipes, sky lights, ventilation ducting, and additional items, as



applicable. The contractor will use methods as necessary to prevent the transport of any decontamination materials outside of the designated decontamination area. If present, any floor drains or open pipes in the area during these activities will be temporarily plugged.

To reduce the potential for cross contamination and to reduce the volume of wastewater generated, it is anticipated that following gross removal of dusts using a vacuum equipped with a HEPA filter, structural elements will be decontaminated by hand wiping with solvent-soaked launderable or disposable wipes. The solvent proposed for cleaning is Simple Green, or an approved equivalent that is orally non-toxic and readily biodegradable; a copy of the Simple Green product safety data sheet and technical specifications is presented in Appendix D. Wiping will be determined to be adequate when the area appears visually clean. Representative photographs documenting the results of cleaning activities will be collected and included in the project file.

The launderable wipes will be collected and managed in accordance with OAC 3745-51-06(A)(3)(e), including but not limited to the following:

- Wipes will be stored in containers labeled as containing "recyclable wipes"
- Wipes will be stored in containers that will have no free liquids
- Wipes will be transported to an offsite laundry or cleaning facility that is subject to regulation under Section 402 or Section 307(b) of the Clean Water Act

If used, disposable wipes will be placed in appropriate DOT-approved containers and be considered hazardous for lead (D008) unless analytical representative testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L).

11.3.3 Walls and Floors

The contractor will clean solid-surface walls and floors using methods as necessary to prevent the transport of any decontamination materials outside of the designated decontamination area. If present, any floor drains or open pipes in the area during these activities will be temporarily plugged. Further, prior to implementing any wet cleaning measures, the contractor will evaluate the surface to be cleaned and areas where cleaning fluids could be reasonably anticipated to migrate to confirm that decontamination fluids are retained inside the warehouse structure. In addition to pipes



or open floor drains, potential features that could represent unacceptable transport pathways include (but are not limited to) the following:

- Open joints between the wall and concrete floor
- Loading dock levelers
- Doorways (man door or overhead doors)
- Ventilation openings
- Deteriorated concrete flooring that will not retain water
- Other areas, as determined by the certifying professional engineer or their representative

Depending on the nature of potential migration pathways present, wet cleaning methods may not be the best management practice. If wet cleaning methods are determined to not be the best management practice, then the procedures in Section 11.3.2 will be employed on painted wall section(s) and applicable floor section(s). For unfinished drywall surfaces, these surfaces will be cleaned using a vacuum equipped with a HEPA filter.

Following the physical removal of gross contamination using a vacuum equipped with a HEPA filter, floors and walls will be cleaned using a triple wash/rinse procedure. The wash and rinse steps will include the following steps.

- Wash the surface with a detergent solution using a high pressure, low volume washer.
 The detergent proposed for cleaning is Simple Green, or an approved equivalent that is orally non-toxic and readily biodegradable. A copy of the Simple Green product safety data sheet and technical specifications is presented in Appendix D.
- The surface will be washed in sections from top to bottom (walls) and from adjoining clean areas towards areas not yet decontaminated, to reduce the potential for cross contamination.
- Following washing, each section will be rinsed thoroughly with water. Rinsing will be performed in three separate cycles.



- After each wash/rinse cycle, the decontamination fluids will be collected and containerized pending management as wastewater or as a hazardous (D008) waste.
- Subsequent to washing and rinsing, any remaining wet areas will be mopped or vacuumed and containerized.

Containerized decontamination fluids and rinsate will either be managed as wastewater or as hazardous for lead (D008) unless analytical representative testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L). If decontamination fluids and rinsate will be managed as a hazardous waste for lead (D008) the fluids will be containerized in appropriate DOT-approved containers.

11.3.4 Open Pipes and Drains, Cracked Flooring, or Flooring with Gaps

In the event that that open pipes and drains, cracked flooring, or flooring with significant gaps are encountered, these areas will be inspected to evaluate the potential for migration of lead bearing dusts below the warehouse floor. Prior to inspection, residual debris (if any) will be removed and the area cleaned using a vacuum equipped with a HEPA filter to remove any loose particles. The area will be visually inspected to assess the potential for vertical migration of contaminants considering the following:

- Indications of the presence of water to transport dust particles into the open pipe or through the concrete flooring. If vertical migration appears likely, then this closure plan will be amended so that the potential for vertical migration can be evaluated.
- Ability to seal the open pipe or flooring to allow decontamination activities described in this plan to proceed. If the opening can be sealed with an expandable plug (floor drains) or expandable foam to seal cracks and gaps, then the opening will be sealed and closure activities described in this plan will proceed. If sealing appears that it will be ineffective to control decontamination fluids, then this closure plan will be amended.

Dust and debris (if any) will be containerized in appropriate DOT-approved containers and be considered hazardous for lead (D008) unless analytical representative testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L).



11.3.5 1675 Watkins Road Crusher Room

The interior drywall warehouse walls enclosing the crusher room are cracked and portions have been displaced by Gaylord containers of CRT-related materials. Therefore, to facilitate warehouse decontamination, these walls will be decommissioned prior to interior decontamination of the warehouse structure. Decommissioning of these walls will include (at a minimum) the following activities:

- Exposed and readily accessible wall sections will be decontaminated of gross dust contamination using a vacuum equipped with a HEPA filter
- Drywall will be removed in sections using methods that reduce the generation of drywall dust; removed drywall will be placed in portable containers pending sampling, analysis, and offsite disposal. Containers will remain closed pending receipt of analytical results. If analytical testing demonstrates the drywall is considered hazardous (D008) for lead (i.e., the material is found to contain lead at greater than 5.0 mg/L), the drywall will be transported offsite as a hazardous waste. Otherwise, the drywall will be managed as construction and demolition debris waste.
- Metal framing elements will be removed and placed into a separate container for offsite recycling.

11.3.6 1675 Watkins Road Office Area

The office area will be decontaminated as part of closure activities. Decontamination of the office area is anticipated to include (at a minimum) the following:

• Drop ceilings, carpeting, furniture, and equipment in the office area will be removed from the office area and placed in portable containers pending sampling, analysis, and offsite disposal. Containers will remain closed pending receipt of analytical results. If analytical testing demonstrates the office area debris is considered hazardous (D008) for lead (i.e., the material is found to contain lead at greater than 5.0 mg/L), the office area debris will be transported offsite as a hazardous waste. Otherwise, the office area debris will be managed as a non-hazardous solid waste.



- Remaining surfaces will be decontaminated to assure that lead dust has been removed.
 Procedures utilized to decontaminate office surfaces are anticipated to include the following:
 - Surfaces will be decontaminated of gross dust contamination using a vacuum equipped with a HEPA filter.
 - The contractor will use methods as necessary to prevent the transport of any decontamination materials outside of the designated decontamination area. If present, any floor drains or open pipes in the area during these activities will be temporarily plugged as described in Section 11.
 - Office ceilings and walls will be decontaminated by hand wiping with solvent-soaked launderable wipes. The solvent proposed for cleaning is Simple Green, or an approved equivalent that is orally non-toxic and readily biodegradable. A copy of the product safety data sheet and technical specifications is presented in Appendix D. Wiping will be determined to be adequate when the area appears visually clean. Representative photographs documenting the results of cleaning activities will be collected and included in the project file. The launderable wipes will be collected and managed in accordance with OAC 3745-51-06(A)(3)(e), as described in Section 11.3.2.
 - Floors will be wet washed using mops and brushes or a high pressure, low volume power washer following the general procedures described in Section 11.3.3.
 - Containerized decontamination fluids and rinsate will be managed as wastewater or as hazardous for lead (D008) unless analytical representative testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L). If decontamination fluids and rinsate will be managed as a hazardous waste for lead (D008) the fluids will be containerized in appropriate DOT-approved containers.

11.4 Reusable Equipment

Prior to removing reusable equipment (e.g., hand tools and portable industrial vehicles) from the subject property, the equipment will be decontaminated. The specific protocol for decontaminating reusable equipment will depend on the equipment; however, it is anticipated that the following general procedures will be applicable.





Small hand tools, cameras, and other portable equipment will be decontaminated in the manner described for similar items within the Site-Specific Health and Safety Plan (Section 11).

Larger equipment will be decontaminated in an area where decontamination fluids can be collected and will not escape the warehouse. The general procedure for decontamination of this equipment will be the same as for walls and floors, as described in Section 11.3.3.

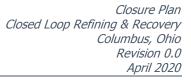


12.0 REMEDIAL STANDARDS

The primary standard for decontamination activities associated with the subject property will be a performance-based standard.

Decontamination activities will be performed to a "clean debris surface." As defined in OAC 3745-270-45, Table 1, a "clean debris surface" will be considered a surface that has been decontaminated and is free of visible dust. For warehouse components (e.g., walls, floors, and structural elements) where prior tenant activities may have caused discoloration of surfaces, a "clean debris surface" will be considered one that has been decontaminated and is free of visible dust or grime, except that residual staining consisting of light shadows, slight streaks, or minor discolorations, and dust in cracks, crevices, and pits may be present provided that such staining and dust in cracks, crevices, and pits must be limited to no more than 5% of each square inch of surface area.

In the event that the above standard proves to be impractical, Garrison Southfield reserves the right to amend this Closure Plan. An amended Closure Plan may include performance of an alternative remedy, an alternate sampling approach, or a proposal to use risk assessment to document that residual concentrations do not pose a threat to human health or the environment.







13.0 SAMPLING AND ANALYSIS PLAN

Sampling and analysis of waste related materials will be performed to evaluate appropriate disposal requirements. At a minimum, initial waste characterization samples will be analyzed for the eight RCRA metals by the Toxicity Characteristic Leaching Procedure; subsequent samples may be reduced to lead only upon concurrence of the waste disposal facility. Additional analyses may also be performed as requested by the disposal facility receiving waste materials.

These activities will follow the Sampling and Analysis Plan found in Appendix E. The health and safety protocols described in Section 10 will also be followed.





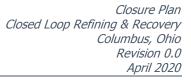


14.0 COST ESTIMATE

A written cost estimate for implementation of the activities described herein has been prepared and is summarized below with detailed costing backup presented in Attachment C of Appendix A. As shown, removal and offsite disposal/recycling of CRT-related material, decontamination of the subject property, and preparation of the closure report is anticipated to cost approximately \$16,674,396. Additional post-closure costs are not anticipated.

Building 1655

| • | Removal of Non-Processed CRTs | \$1,982,974 |
|---|---|--------------|
| • | Decontamination of Warehouse | \$646,680 |
| • | Closure Documentation | \$30,000 |
| | Building 1655 Closure Cost (Subtotal) | \$2,659,654 |
| Building 1675 | | |
| • | Removal of Processed and Non-Processed CRTs | \$12,999,942 |
| • | Decontamination of Warehouse | \$969,800 |
| • | Closure Documentation | \$45,000 |
| | Building 1675 Closure Cost (Subtotal) | \$14,014,742 |
| Estimated Total Closure Cost:\$16,674,396 | | |







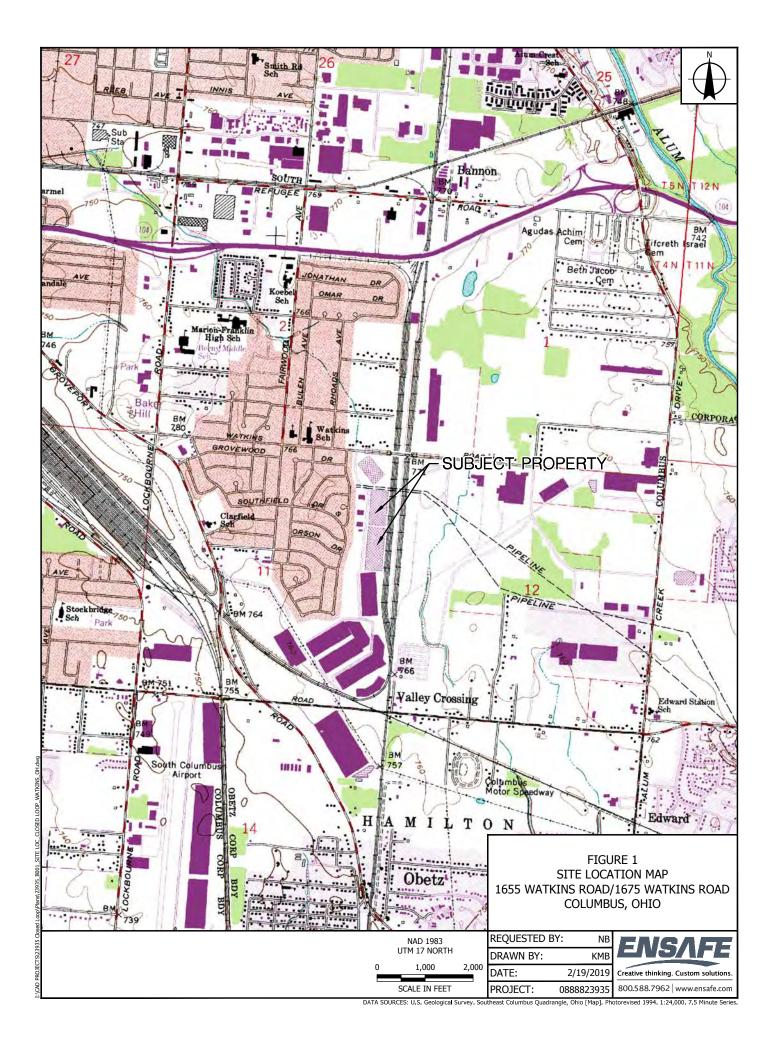
15.0 REFERENCES

- AECOM. Baseline Environmental Conditions and Closure Cost Evaluation; The Closed Loop Inc. Facility; 1675 and 1655 Watkins Road; Columbus, Ohio. (2015).
- Atwell, LLC. Evaluation of E-Waste Inventories and Remediation/Closure Options for 1655 and 1675 Watkins Road, Columbus, Ohio. (May 4, 2017).
 - Interim Health and Safety Plan; Former Closed Loop Facility; 1655 and 1675 Watkins Road, Columbus, Ohio. (March 7, 2017; updated December 21, 2017).
- AKT Peerless Environmental Services. *Projection Lens Remediation and Recycling Summary of Activities; Former Closed Loop Facility; 1655-1675 Watkins Road.* (January 6, 2020)
- City of Columbus. Sewer use codes. Retrieved from: https://library.municode.com/oh/columbus/codes/code_of_ordinances. (2018).
- Envirofacts. Closed Loop (1675 Watkins Road, Columbus, Ohio) NAICS. Retrieved from: https://iaspub.epa.gov/enviro/fii_query_dtl.disp_program_facility?p_registry_id=110066960 649. (2018)
- Environmental Data Resources Inc. *The EDR City Directory Abstract; 1655 Watkins Road,* 1655 Watkins Road, Columbus, Ohio 43201. Inquiry Number 3795824.6. 440 Wheelers Farm S Road, Milford, Connecticut 06461. (November 25, 2013).
 - The EDR City Directory Abstract; 1675 Watkins Road, 1675 Watkins Road,
 Columbus, Ohio 43201. Inquiry Number 3795851.6. (November 25, 2013).
- Global Realty Services Group. *Phase I Environmental Site Assessment, Property Reference:* 1655 Watkins Road, Columbus, Ohio 43207. (December 9, 2013).
 - Phase I Environmental Site Assessment, Property Reference: 1675 Watkins Road,
 Columbus, Ohio 43207. (December 13, 2013).
- Ohio Department of Natural Resources. Water well log information. Retrieved from: https://apps.ohiodnr.gov/water/maptechs/wellogs/appNEW/ERINMapSearch.shtml. (2018)



- Ohio Environmental Protection Agency. *Closed Loop Refining and Recovery, Inc.; Notice of Violation;* NOV; RCRA C Hazardous Waste; Franklin County; OHR000167718; Closed Loop Glass Solutions, LLC; Notice of Violation; NOV; RCRA C Hazardous Waste; Franklin County; OHR000201145. (2016)
 - Closed Loop Refining and Recovery; Notice of Violation NOV; RCRA C Hazardous Waste; Franklin County; OHR000167718. (2015).
 - CRT-related constituents. Retrieved from: https://www.epa.ohio.gov/ocapp/p2/mercury_pbt/e-waste#131707718-hazardous-components-of-e-waste. (2018).
- U.S. EPA. *Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA*. OSWER Directive 9360.0-32, Washington, DC. (1993).
 - Use of Non-time Critical Removal Authority in Superfund Response Actions. (2000).
 - List of Lists. Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Section 112(r) of the Clean Air Act. EPA 550-B-15-001. (2015).







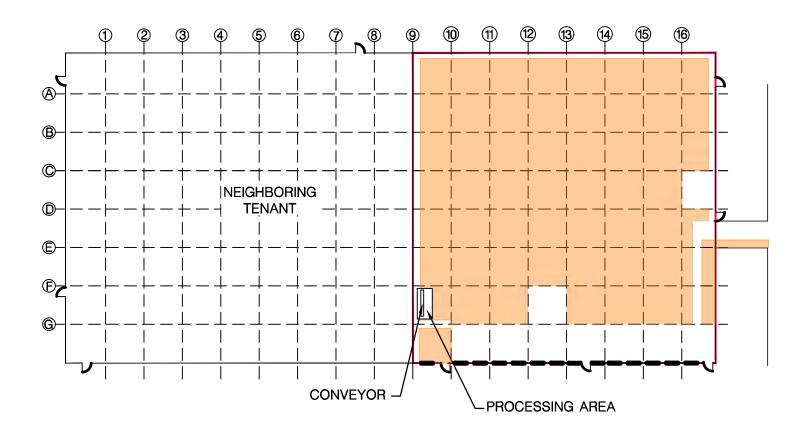


FIGURE 2 SITE LAYOUT MAP 1655 WATKINS ROAD COLUMBUS, OHIO

LEGEND

CLOSED LOOP LEASE SPACE

CRT - RELATED MATERIALS IN BOXES

LOADING DOCK DOORS

NAD 1983 STATE PLANE
OHIO SOUTH FEET

0 50 100

SCALE IN FEET

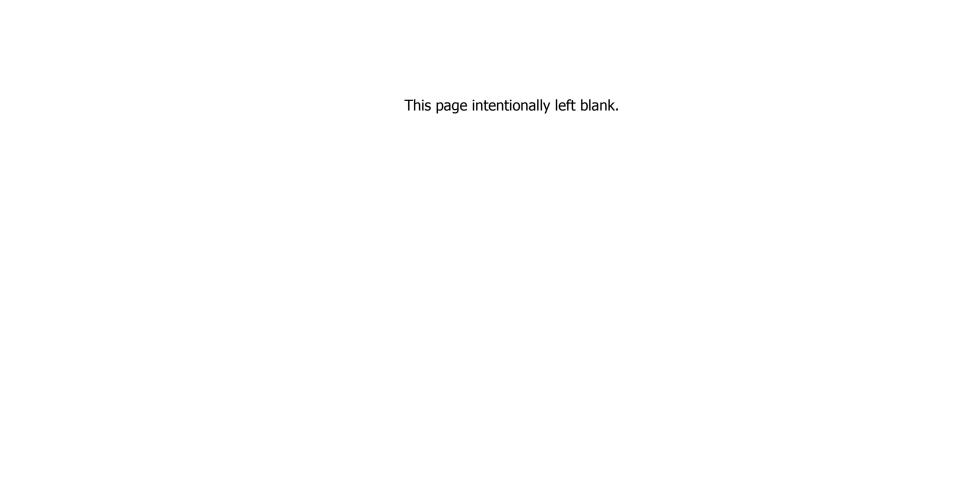
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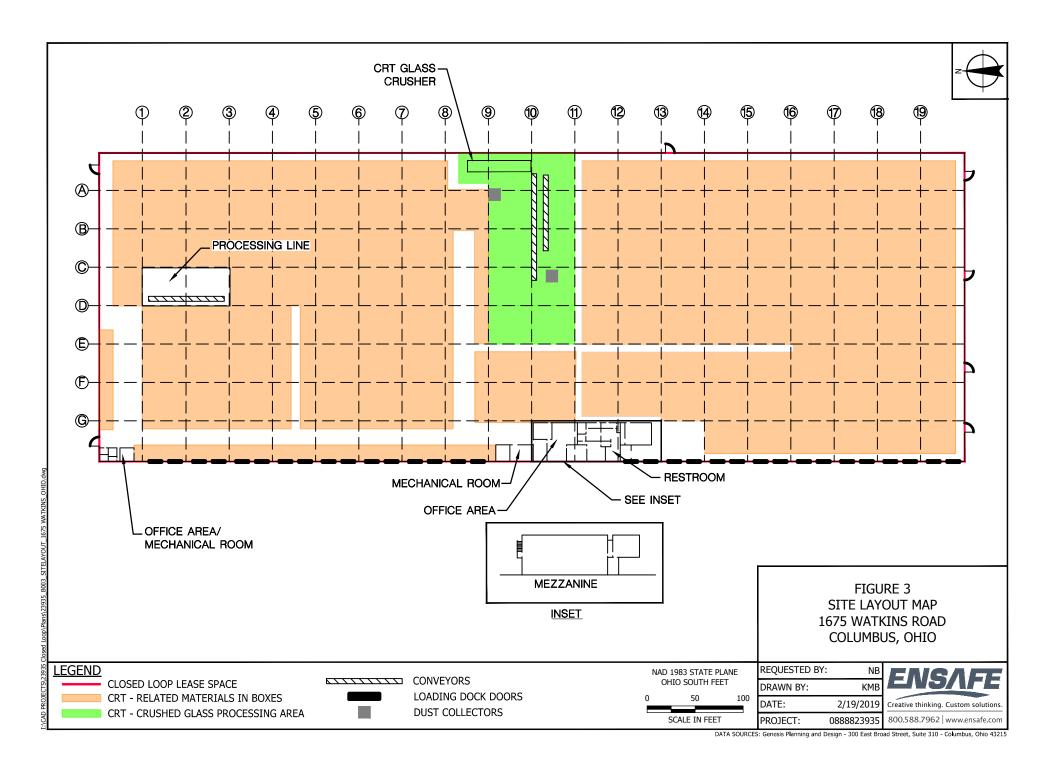
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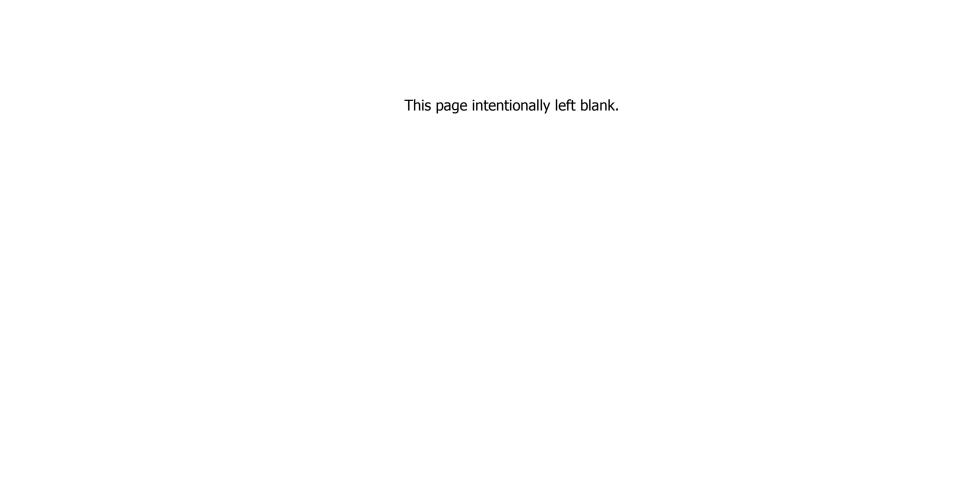
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 2/19/2019

 PROJECT:
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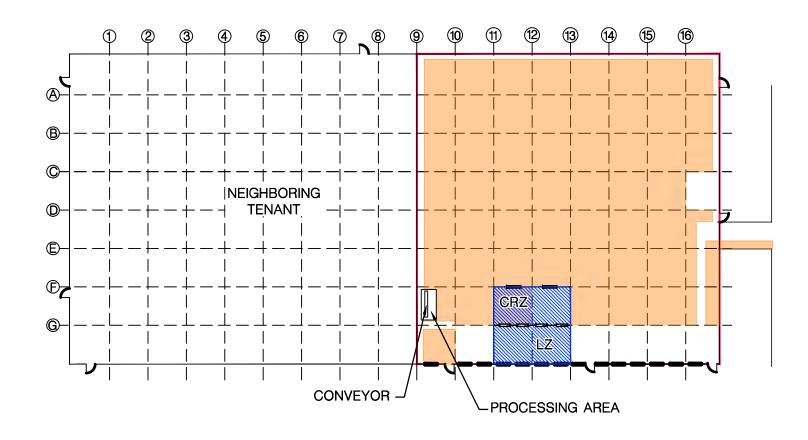


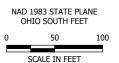












LOADING ZONE

LEGEND CLOSED LOOP LEASE SPACE CRT - RELATED MATERIALS IN BOXES LOADING DOCK DOORS CRZ LZ CONTAMINATION REDUCTION ZONE

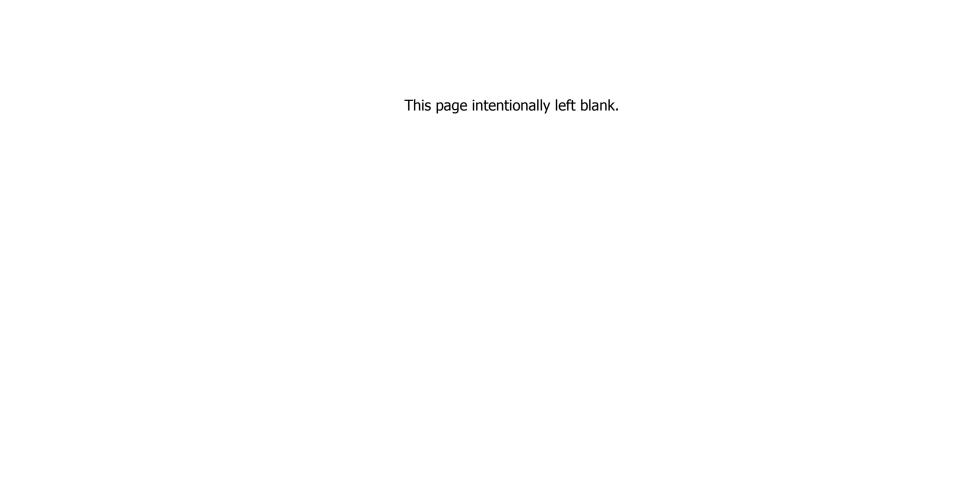
DOOR FOR TWO MOTORS WITH CLEAR PVC STRIP CURTAINS CRZ FITTED WITH NEGATIVE AIR MACHINES INTERIOR OF CRZ AND LZ TO BE FINISHED WITH PLYWOOD ON BOTTOM 4 FEET

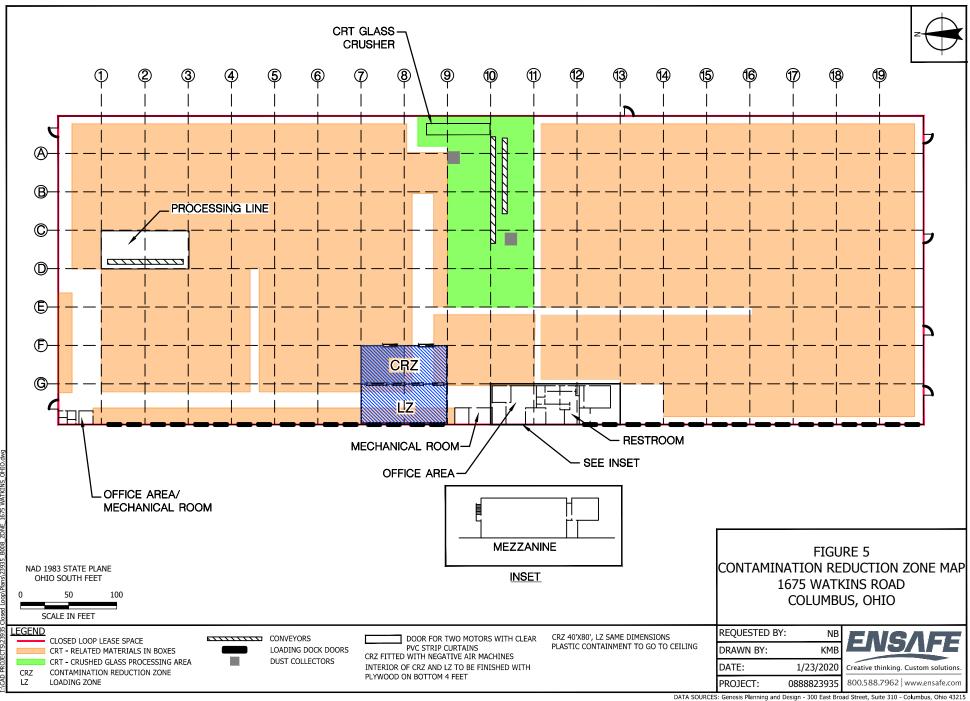
CRZ 40'X80', LZ SAME DIMENSIONS PLASTIC CONTAINMENT TO GO TO CEILING REQUESTED BY: DRAWN BY: KMB DATE: 1/23/2020 PROJECT: 0888823935

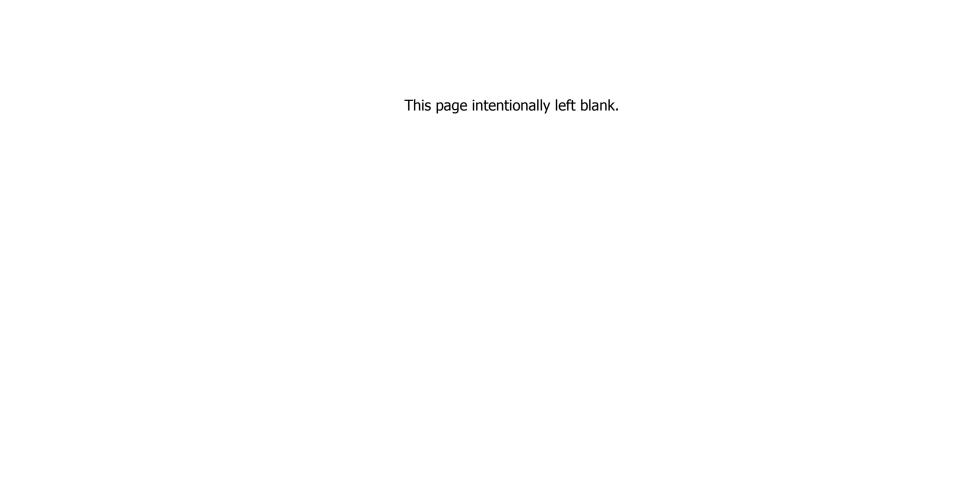


FIGURE 4 CONTAMINATION REDUCTION ZONE MAP

> 1655 WATKINS ROAD COLUMBUS, OHIO







Appendix A Engineering Evaluation/Cost Analysis

ENGINEERING EVALUATION/COST ANALYSIS

CLOSED LOOP REFINING & RECOVERY 1655 AND 1675 WATKINS ROAD COLUMBUS, OHIO 43207

EPA ID No. OHR000167718

EnSafe Project Number: 0888823935/007

Prepared for:

Garrison Southfield Park LLC 1290 Avenue of the Americas Suite 914 New York, New York 10104

April 2020

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ATTACHMENTS

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Cost Estimate Backup Attachment C

EXECUTIVE SUMMARY

This document presents the Engineering Evaluation/Cost Analysis (EE/CA) for a Non-Time-Critical Removal Action (NTCRA) for the Closed Loop Refining & Recovery (Closed Loop) facility (referred to herein as the "subject property" or the "Closed Loop facility") in Columbus, Ohio. Closed Loop accepted electronic waste (e-waste) at the subject property from 2012 through early 2016, when it ceased operations and abandoned the subject property. Closed Loop's principal operations involved the receipt, storage, and disassembling of cathode ray tubes (CRTs), projection televisions, and other electronic waste (collectively referred to as "CRT-related materials"). Located at the subject property are containerized CRT-related materials (including processed CRT-glass), CRT demanufacturing areas, and residual lead dust contamination. The CRT-related materials and associated lead dust at the subject property present a human health hazard for lead exposure.

The purpose of this document is to present and evaluate the removal action alternatives to reduce lead exposure hazards at the subject property that will meet the remedial action objective of implementing "measures that will minimize contact with materials containing lead which presents an exposure hazard to construction workers, personnel, and visitors under current and future land use scenarios." The selected removal action based on this EE/CA will be a final action.

This EE/CA is being completed as part of a NTCRA as required by Title 40 Code of Federal Regulations Section 300.415(b)(4)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan. Submittal of this document fulfills the requirements for NTCRAs defined by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and the Superfund Amendments and Reauthorization Act of 1986. This EE/CA follows the United States Environmental Protection Agency Office of Solid Waste and Emergency Response *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* PB93-963402 (1993).

To reduce the lead exposure hazard, the following three alternatives were identified and evaluated for potential implementation at the Closed Loop facility:

- Alternative 1 no action
- Alternative 2 CRT-related materials removal
- Alternative 3 CRT-related materials removal and warehouse decontamination

Through a comparative analysis of the alternatives, Alternative 3 is the recommended removal action alternative for the Closed Loop facility. Alternative 3 provides the most protection to human health

and the environment, fully meets the remedial action objective, and is the most permanent solution in the long-term. Alternative 3 reduces the toxicity, mobility, and volume of lead containing materials, which is not achieved under Alternatives 1 or 2. Alternative 3 is also the most implementable alternative since it is anticipated to be the most acceptable alternative to regulators and the community. The estimated cost of Alternative 3 is significantly higher than Alternatives 1 and 2, but its overall value is significantly higher since Alternative 3 provides the most protection and is a permanent solution since lead-containing materials, including lead-containing dust, will be physically removed from the subject property.



1.0 INTRODUCTION

The purpose of this Engineering Evaluation/Cost Analysis (EE/CA) is to present and evaluate removal action alternatives as part of a Non-Time-Critical Removal Action (NTCRA) at the Closed Loop Refining & Recovery (Closed Loop) facility (referred to herein as the "subject property" or the "Closed Loop facility") in Columbus, Ohio. Closed Loop accepted electronic waste (e-waste) at the subject property from 2012 through early 2016, when it ceased operations and abandoned the subject property. Closed Loop's principal operations involved the receipt, storage, and disassembling of cathode ray tubes (CRTs), projection televisions, and other electronic waste (collectively referred to as "CRT-related materials"). Located at the subject property are containerized CRT-related materials (including processed CRT-glass), CRT demanufacturing areas, and residual lead dust contamination that will be addressed as part of this NTCRA. Removal of lead-containing materials is necessary to reduce potential exposure hazards to construction workers, personnel, and visitors under current and future land use scenarios.

1.1 General Description

This EE/CA provides the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) documentation to support a removal action at the Closed Loop facility. The purpose of the EE/CA is to present the property owner's (Garrison Southfield Park LLC [Garrison Southfield]) intent to reduce the exposure hazard to human health and environment from lead-containing materials (e.g., CRT-related materials and lead dust), and identify and evaluate removal alternatives to reduce this hazard for current and future uses of the subject property.

Submittal of this document fulfills the requirements for NTCRAs defined by CERCLA, the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This EE/CA follows the United States Environmental Protection Agency (U.S. EPA) Office of Solid Waste and Emergency Response (OSWER) *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* PB93-963402 (1993).

The benefits of using the NTCRA process include promptly addressing health threats and accelerating sites more quickly through the CERCLA response process. The goals of an EE/CA are to identify the objectives of the removal action and to analyze effectiveness, implementability, and cost of various alternatives that may satisfy these objectives. An EE/CA documents the removal action alternatives and the evaluation and recommendation process.



An EE/CA serves an analogous function to, but is more streamlined than, the remedial investigation/feasibility study conducted for remedial actions. The results of an EE/CA and the selected removal alternative will be subsequently summarized in an Action Memorandum (AM) following at least a 30-day public comment period.

1.2 Regulatory Framework

This EE/CA is issued by Garrison Southfield under Section 104 of CERCLA and SARA. Section 104 allows an authorized agency to remove the risk of hazardous substances, pollutants, or contaminants at any time, or to take other response measures consistent with the NCP as deemed necessary to protect public health or welfare and the environment. Garrison Southfield is acting as the lead authority in the implementation of this NTCRA. The Ohio Environmental Protection Agency (Ohio EPA) has the lead role in regulatory oversight for this lead hazard abatement.

The NCP, Title 40 Code of Federal Regulations (CFR) Part 300, provides regulations for implementing CERCLA and SARA, and regulations specific to removal actions. The NCP defines a removal action as:

...cleanup or removal of released hazardous substances from the environment, such actions as may be necessary to monitor, assess, and evaluate the threat of release of hazardous substances; the disposal of removed material; or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of a release.

This removal action is non-time-critical due to the availability of a 6-month planning period from the time the removal action is determined to be necessary (when comments are resolved) to the time of initiation of the action. Title 40 CFR Section 300.415 requires the lead agency to conduct an EE/CA when an NTCRA is planned for a site.

The removal action alternative to be implemented will be selected after fulfilling all community involvement requirements. A Community Relations Plan is included as Attachment A. Community involvement requirements for NTCRAs include making the EE/CA available for public review and comment for a period of 30 days. An announcement of the 30-day public comment period on the EE/CA is required in a local newspaper. Written responses to significant comments will be summarized in the AM and will be included in the Administrative Record.



2.0 SITE CHARACTERIZATION AND BACKGROUND

This section presents available information on the location; background; description; physical setting; land use; previous investigations; and source, nature, and extent of lead containing material at the Closed Loop facility.

2.1 Site Description and Background

Closed Loop operated a CRT-related material storage facility within warehouses at 1675 and 1655 Watkins Road in Columbus, Franklin County, Ohio, as shown on the U.S. Geological Quadrangle Map (Refer to Figure 1, showing the subject properties and the surrounding areas). The latitude and longitude for 1675 and 1655 Watkins Road property is and 39.898990/-82.950910 and 39.901370/-82.950660 respectively. These structures are commercial warehouses surrounded by commercial and industrial properties; a residential neighborhood is approximately 300 feet west of the warehouses. The 1675 Watkins Road warehouse is an approximately 290,000-square foot structure on a 9.210-acre parcel (Parcel ID: 010-001672-00). The Closed Loop portion of the 1655 Watkins Road warehouse includes approximately 145,000 square feet of the approximately 218,000-square foot structure on 8.28 acres (Parcel ID: 010-010674-00). If this operation had been a legitimate recycling facility, the North American Industry Classification System for Closed Loop would be 42393, which includes recyclable material merchant wholesalers. Figures 2 and 3 show the layout of the two warehouses.

Available information indicates that the two warehouses were constructed on former agricultural land in the late 1970s. City directories indicate that prior occupants of the 1675 Watkins Road warehouse were Applied Distribution (1981), Shoney's Restaurant/Shonac Corporation (1985 to 2002), and Value City Department Stores (2003). City directories indicate that prior occupants of the 1655 Watkins Road warehouse were Lima Terminal Warehouse (1981), Play and Sports Distributors (1985 to 1992), and multiple tenants in 2013 (MS South, Capital Plumbing & Mechanical, and PCG Trading). Closed Loop began operations in the 1675 Watkins Road warehouse in 2012, pursuant to a lease with MS-South LLC, and in the 1655 Watkins Road warehouse in 2014, pursuant to a temporary occupancy agreement with Garrison Southfield. Closed Loop ceased operations and abandoned the subject property in 2016.



Previous reporting by Atwell, LLC (2017), indicates the following general information about Closed Loop's operations:

- E-waste materials received included: CRTs, projection televisions, and other electronic waste for disassembly and recycling of some components
- Closed Loop disassembled televisions and computer monitors (CRT-containing devices) by separating plastics, precious metals, and CRT glass
- Closed Loop then mechanically crushed the CRT glass (funnel and panel) components
- Materials (plastics, metals, crushed glass) were repackaged in open-top cardboard Gaylord containers
- Processed CRT glass was stockpiled onsite

2.2 Previous Investigations and Removal Actions

A detailed description of prior investigations and site activities is presented in the April 2020 Resource Conservation Recovery Act (RCRA) Closure Plan to which this EE/CA is an addendum, and which is incorporated by reference. In general, prior activities have included the following:

- Ohio EPA inspections of the subject property (2015 and 2016) documented the Closed Loop operations described below.
- Closed Loop operated a CRT "breaker" (crusher) that generated a "phosphor cake (D008) from a wash process and baghouse dust (D008) from the air filtration system." Garrison is unaware of any previous wet washing activities. The Ohio EPA noted that both waste streams "will be recycled for their heavy metal content." Ohio EPA also noted that the crusher generates "lead dust/floor sweepings (D008)" that were managed as a hazardous waste for offsite disposal.
- Closed Loop generated glycol (non-hazardous) which was transported offsite for recycling.



 Closed Loop represented that it was operating as a small quantity generator of hazardous waste under "the conditional exclusion for used Cathode Ray Tubes in Ohio Administrative Code 3745-51-38."

During late 2015, AECOM Technical Services, Inc. (AECOM), performed a *Baseline Environmental Conditions and Closure Cost Evaluation* of the subject property to assess potential hazardous materials contained in the subject property. This report is included in the administrative record file and contains analytical results for samples collected from the property, which are incorporated herein by reference. AECOM reported the following analytical results:

- Concentrations of lead in 19 dust samples ranged from 2,200 to 15,000 milligrams per kilogram (mg/kg), exceeding the Ohio Voluntary Action Program (VAP) generic direct-contact residential soil standard (GDCSS) of 400 mg/kg and chromium was reported to exceed the residential GDCSS of 120 mg/kg in two sample
- Barium, cadmium, mercury, and silver were detected in each total sample at concentrations below respective Ohio VAP residential GDCSS
- Concentrations of lead in eight Toxicity Characteristic Leaching Procedure (TCLP) dust samples ranged from 11 to 22 milligrams/liter, exceeding the characteristically hazardous concentration of 5.0 milligrams/liter for lead
- Barium, cadmium, chromium, mercury, and silver were detected in each total sample at concentrations below respective Ohio VAP residential GDCSS and TCLP characteristically hazardous concentrations
- Selenium was detected in one total sample below its respective Ohio VAP GDCSS and was not detected in any TCLP samples
- Arsenic was not reported in any total or TCLP samples
- Indoor air mercury concentrations ranged from less than detection limit to 0.044 milligrams per cubic meter; mercury results were reported to be below the Occupational Safety and Health Administration permissible exposure limit of 0.10 milligrams per cubic meter (NIOSH 2015)



During 2016, Atwell performed site investigation activities that culminated in preparation of their May 4, 2017 report entitled *Evaluation of E-Waste Inventories and Remediation/Closure Options for 1655 and 1675 Watkins Road, Columbus, Ohio.* Atwell's summary indicates the following significant findings:

- The subject property is approximately 90% full of CRT devices, super sacks, and cardboard Gaylord containers (measuring approximately 4-foot square and high) containing crushed CRT glass on wooden pallets. Throughout the majority of the warehouse space, the Gaylord containers are stacked three high. Many Gaylord containers are deteriorated, which Atwell notes "may be a function of Closed Loop's practice to repurpose the same boxes used to transport intact CRTs to the site...". Atwell notes that there are only a few accessible aisles between the stockpiled CRT materials and that many containers are not readily accessible.
- The majority of containers in the 1675 Watkins Road warehouse contain crushed CRT glass; former aisle ways have containers with "whole unprocessed CRT units (televisions, computer monitors, and/or intact CRT tubes)." The 1675 warehouse also includes a demanufacturing line and a glass crushing process area.
- The majority of containers in the 1655 Watkins Road warehouse appear to contain "intact CRT units (televisions and computer monitors)." A "small demanufacturing line where Closed Loop would manually separate the CRT tubes from plastic and metal housings associated with whole televisions and or/computer monitors" is also present in the north portion of this warehouse.
- Atwell's evaluation of containerized materials identified an estimated 10,288,093 pounds of CRT-related materials in the 1655 Watkins Road portion of the subject property:



- Atwell's evaluation of containerized materials identified an estimated 117,899,280 pounds of CRT-related materials in the 1675 Watkins Road portion of the subject property:

 - Recyclable plastic, glass, and steel515,041 pounds
- In total, Atwell estimates there are 128,187,373 pounds (64,093 tons) of CRT-related material at the subject property.

In mid-2019, AKT Peerless Environmental Services (AKT), Environmental Management Specialist, Inc., and NovoTec Recycling LLC conducted a limited removal action at the subject property to identify, decontaminate, transport, process, and recycle approximately 185,975 pounds of projection lens material. The removal action was based on consultation with Ohio EPA, which determined that all disbursements to project contractors for the removal and recycling of this material were necessary costs consistent with the NCP and approved such disbursements from an escrow account controlled by the Ohio Attorney General's Office. The scope, objectives, costs, equipment used, and the nature and extent of contaminants removed or decontaminated are addressed in AKT's January 6, 2020 report entitled "Projection Lens Remediation and Recycling — Summary of Activities," which is available as part of Appendix B to the Closure Plan and is herein incorporated by reference.

There have been no other prior removal actions at the subject property.

2.3 Source, Nature, and Extent of Contamination

The Closed Loop portion of the Watkins Road warehouses includes approximately 435,000 square feet of floor space with a combined estimated 128,187,373 pounds (64,093 tons) of containerized CRT-related materials. The CRT-related materials contain lead. The subject property also includes two demanufacturing lines (one in each warehouse) and a glass crushing machine. Past Closed Loop practices have caused the subject property interiors and contents to become contaminated with lead-containing dust.



2.4 Streamlined Risk Evaluation

A streamlined risk evaluation summarizes the threats at a site by identifying the nature and extent of the contaminant release; the pertinent exposure pathways; and the receptors that may be exposed.

Nature and Extent of Release: As previously indicated, CRT-related materials are stored throughout the subject property and occupy approximately 90% of the floor space. The containers are constructed of cardboard and are deteriorating, becoming unstable, and in some cases collapsing and blocking aisle ways.

In addition to the abundance of CRT-related materials, past Closed Loop operations have resulted in lead-containing dust coating the stored containers of CRT-related materials and warehouse surfaces. This dust has been documented to be characteristically hazardous.

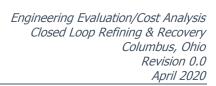
Pertinent Exposure Pathways: Based on current/future land use, the primary exposure pathways to lead-containing dusts are anticipated to be as summarized below:

- Personnel entering the subject property could be exposed to dust if they were to touch dust contaminated surfaces; further, the potential presence of airborne dusts in the subject property are a lead inhalation hazard.
- The volume of material makes it difficult to access interior portions of the warehouse;
 if a release of water were to occur inside of the warehouse, lead-containing materials could be released to the warehouse exterior.
- The condition of the containers makes it likely that containers could collapse in the future.
 If a container collapses against an exterior door, there could be a release of CRT-related materials and lead containing dust to the exterior of the warehouse.

Potential Receptors: Work within the warehouse poses a risk to maintenance workers, personnel, and visitors due to the potential for lead-containing dust exposure and a physical crushing hazard due to collapsing boxes. If CRT-related materials or lead containing dust were released to the warehouse exterior, there are additional hazards for exposure of site visitors, workers, and ecological receptors to storm water and sediment that could become contaminated with lead.



Based on the above information, Garrison Southfield has determined that the removal action recommended in this EE/CA is justified by a number of the factors in Title 40 CFR Section 300.415(b)(2). This conclusion is further supported by Title 40 CFR Section 300.415(e)(8), which states that the treatment and disposal of hazardous substances are appropriate as removal actions where needed to reduce the likelihood of human, animal, or food chain exposure.





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3.0 IDENTIFICATION OF REMOVAL ACTION OBJECTIVES

As discussed in Section 2, lead-containing materials and lead dust in the Closed Loop facility present an exposure hazard. Based on available information, evaluation of the hazard, and current/future use plans for the subject property, appropriate remedial action objectives (RAOs) have been developed for this NTCRA and are presented in this section. In addition, this section discusses the identification of Applicable or Relevant and Appropriate Requirements (ARARs), which are tabulated in Attachment B, and the removal action scope and schedule.

3.1 Statutory Limits on Removal Actions

The NCP (Title 40 CFR Section 300.415) dictates statutory limits of \$2 million and 12 months of U.S. EPA fund-financed removal actions, with statutory exemptions for emergencies and actions consistent with the remedial action to be taken. This removal action will not be U.S. EPA fund-financed; therefore, there is no limit on the cost or duration of the removal action. However, cost-effectiveness is a recommended criterion for the evaluation of removal action alternatives.

3.2 Determination of Removal Scope

3.2.1 Development of Removal Action Objectives

General requirements of the NCP were considered in the development of RAOs. The NCP requires that the selected action be designed in an effort to ensure protection of human health and the environment and is consistent with current and future land use. The RAO for the Closed Loop facility was developed to reduce the lead exposure hazard associated with CRT-related materials and associated dust as described in Section 2. CERCLA EE/CA guidance provides that "alternatives that employ treatment and that yield permanent solutions be fully evaluated...". In this regard, where feasible and cost-effective, CRT-related materials will be recycled in keeping with the CRT conditional exclusion under RCRA and its Ohio state corollaries. Contractor bids, for example, were evaluated based in part on experience in the electronic waste recycling industry. Moreover, it is anticipated that whole CRT units that have not been damaged will be recycled in accordance with the RCRA CRT conditional exclusion and industry best practice. Site conditions, including dust accumulation, and the nature of Closed Loop's processing operations may preclude recycling of other categories of CRT-related materials at the subject property. Based on these considerations, the site-specific proposed RAO for the Closed Loop facility is:

Implement measures that will prevent or minimize contact with CRT-related materials and dust containing lead, which present a lead exposure hazard to construction workers, personnel, and visitors under current and future land use scenarios.



The NCP also requires that the selected action must also attain ARARs. The following section presents a summary of the identified ARARs.

3.2.2 Identification of Applicable or Relevant and Appropriate Requirements

The NCP specifies that response actions taken under CERCLA are to attain ARARs. The party performing the response action has primary responsibility for identifying potential ARARs at a site. The removal action taken at the subject property will, to the extent practicable, comply with ARARs under federal law and the laws of the State of Ohio. Summaries of potential related environmental regulations are tabulated in Attachment B.

ARAR evaluation is a two-step process: (1) determination of applicability, and (2) if not applicable, determination of relevance and appropriateness. Applicable requirements are those requirements specific to the conditions at the Closed Loop facility that satisfy all jurisdiction prerequisites of the law or requirement. Relevant and appropriate requirements are those that do not have jurisdiction authority over the particular circumstances at the Closed Loop facility but are meant to address similar situations and are thus suitable for use at the site. Only requirements that are both relevant and appropriate are considered ARARs. As outlined in Title 40 CFR Section 300.415(j), the lead agency may consider the urgency of the situation and the scope of the removal action to be conducted in determining whether compliance with ARARs is practicable. The final determination of federal ARARs will be made when the AM is issued.

The NCP (Title 40 CFR Section 300.400(g)(2)) specifies the following criteria to be used in the determination of what requirements of environmental laws are relevant and appropriate:

- Purpose of the requirement in relation to the purpose of CERCLA
- Medium or media regulated or affected by the requirement
- Substance(s) regulated by the requirement
- Actions or activities regulated by the requirement
- Variances, waivers, or exemptions of the requirement
- Type of place regulated and the type of place affected by the release or CERCLA action



- Type and size of the facility or structure regulated by the requirement or affected by the release
- Consideration of the use or potential use of affected resources in the requirement

Under CERCLA, only substantive provisions of requirements are considered to be ARARs. Procedural or administrative requirements (e.g., permits) are not considered ARARs. The CERCLA exemption in Section 121(e)(1) (42 USC, Section 9621(e)(1)) states that "No Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely on-site, where such remedial action is selected and carried out in compliance with this section." This exemption applies to all administrative requirements, but substantive requirements of the permits must still be attained.

ARARs are divided into three classifications pursuant to U.S. EPA guidance on the ARAR determination process: chemical-specific, location-specific, and action-specific.

Chemical-specific ARARs are health or risk management-based criteria or methodologies applied to site-specific conditions that result in the establishment of a cleanup level. These requirements generally set protective cleanup concentrations for each of the chemicals of concern in the designated media or set safe concentrations of discharge for remedial activity. Because this action is intended to address lead exposure hazards, chemical-specific ARARs are addressed as part of this EE/CA and are summarized in Attachment B (Table B-1).

Location-specific ARARs restrict remedial activities based on the characteristics of the surrounding environments. Location-specific ARARs may include restrictions on actions within wetlands or floodplains, the protection of known endangered species, or restrictions for protected waterways. Based on a review of Federal, Ohio, and City of Columbus regulations, location-specific ARARs are addressed as part of this EE/CA and are summarized in Attachment B (Table B-2).

Action-specific ARARs are requirements that define acceptable treatment and disposal procedures for CRT-related materials in an effort to ensure the protection of public health and safety. These requirements also define acceptable treatment and disposal procedures. Federal and Ohio action-specific ARARs that may affect the procedural aspects of removal alternatives are summarized in Attachment B (Table B-3).



3.2.3 Removal Action Scope

The scope of the lead abatement activities for the Closed Loop facility will need to address the lead exposure hazard associated with CRT-related materials and other materials under current and future use scenarios. To reduce exposure risks, lead-containing materials should be removed.

Other important considerations in determining the removal action scope include:

- Selection of an efficient and cost-effective removal action approach
- Implementation of safe and proven lead-waste response procedures
- Minimize impacts to surrounding communities (including tenants)

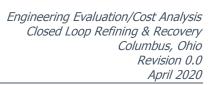
3.3 Determination of Removal Action Schedule

Upon finalization, the EE/CA will be submitted to the Ohio EPA and a notice of its availability for public review will be published in the local newspaper. The EE/CA will then be available for at least a 30-day public comment period. Following the public comment period, responses to significant comments will be prepared and incorporated into the AM.

This removal action is non-time-critical due to the availability of a 6-month planning period. Following the finalization of the AM and setting aside any COVID-19 related schedule delays (as applicable), the total project period is anticipated to span an estimated **1,460** days through completion of the after action reporting. This is an estimated schedule for project completion, should critical milestones not be met, the total project timeframe would be extended. Critical milestone periods related to the removal action schedule are summarized below:

Building 1655

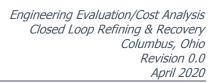
- Decontamination of Warehouses (90 days)......580 to 670 days
- Closure Documentation (60 days following decontamination)......670 to 730 days





Building 1675

| • | Removal of Processed and Non-Processed CRTs (up to 580 days)730 to 1,310 days |
|---|---|
| • | Decontamination of Warehouses (180 days) |
| • | Closure Documentation (60 days following decontamination) |





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4.0 IDENTIFICATION AND ANALYSIS OF REMOVAL ACTION ALTERNATIVES

4.1 Alternatives Description

Three removal action alternatives were identified for evaluation in this EE/CA to reduce the lead exposure hazard for current and future use scenarios at the Closed Loop facility. These alternatives include:

- Alternative 1 no action
- Alternative 2 CRT-related materials removal
- Alternative 3 CRT-related materials removal and decontamination of warehouse

These alternatives were evaluated against meeting the site-specific RAO developed in Section 3 as well as NCP criteria of effectiveness, implementability, and cost. A description of each of these alternatives is provided in the following sections.

4.1.1 Alternative 1 — No Action

The no action alternative consists of no measures being taken to limit or prevent contact with lead containing materials in the Closed Loop facility. No administrative or engineering controls, or actions to reduce the toxicity, mobility or volume of lead-containing materials would occur under this alternative. As required by CERCLA, the no action alternative is included in the analysis of removal action alternatives as a baseline for comparison.

4.1.2 Alternative 2 — Cathode Ray Tube-Related Materials Removal

The CRT-related materials removal alternative would include the physical removal of CRT-related materials from the subject property. Removal activities would include:

- Phase I field removal action activities, with offsite transportation and recycling or disposal of non-processed CRT-related materials at authorized facilities.
- Phase II field removal action activities, with offsite transportation and recycling or disposal of processed CRT-glass at authorized facilities.

The subject property layout and removal area is documented in Figures 4 and 5.



4.1.3 Alternative 3 — Cathode Ray Tube-Related Materials Removal and Warehouse Decontamination

The CRT-related materials removal alternative would include the physical removal of CRT-related materials from the subject property followed by warehouse decontamination. Removal activities would include:

- Phase I field removal action activities, with offsite transportation and recycling or disposal of non-processed CRT-related materials at authorized facilities
- Phase II field removal action activities, with offsite transportation and recycling or disposal of processed CRT-glass at authorized facilities
- Decontamination of the warehouse interiors to remove lead contaminated dust and reduce the potential for impacts to future warehouse users and visitors

The Closure Plan accompanying this EE/CA provides more details on the actions included in Alternative 3 and is incorporated herein by reference. The subject property layout and removal area are documented in Figures 4 and 5.

4.2 Analysis of Removal Action Alternatives

Each of the three removal action alternatives were evaluated using the effectiveness, implementability, and cost criteria set forth in the NCP and the U.S. EPA guidance for conducting EE/CAs. Each evaluation criterion is described in Table 4-1.

| Table 4-1 Evaluation Criteria | | | |
|--|--|--|--|
| Effectiveness | | | |
| Protection of human health and the environment | The assessment describes how the action achieves and maintains protection of human health and the environment and achieves site-specific RAOs both during and after implementation. | | |
| Compliance with ARARs | An alternative is assessed in terms of its compliance with ARARs, or if a waiver is required, how it is justified. | | |
| Short-term effectiveness | An action is assessed in terms of its effectiveness in protecting human health and the environment during the implementation of a remedy before RAOs have been met. The duration of time until the RAOs are met is also factored into this criterion. | | |
| Long-term effectiveness and permanence | An action is assessed in terms of its long-term effectiveness in maintaining protection of human health and the environment after RAOs have been met. The magnitude of residual risk and adequacy and reliability of post-remedial site controls are taken into consideration. | | |



| | Table 4-1 | | | |
|--|---|--|--|--|
| | Evaluation Criteria | | | |
| Reduction of toxicity, mobility or volume | An action is assessed in terms of anticipated performance of the specific remedial technologies it employs. Factors such as the ability of the technology to reduce the principal threats posed by the CRT-related materials, including the extent to which the toxicity, mobility, or volume of the contaminants are reduced, and whether the alternative will satisfy the preference for treatment. | | | |
| Implementability | | | | |
| Technical feasibility | The ability of the technology to implement the remedy is evaluated. | | | |
| Administrative feasibility | The administrative feasibility factor evaluates requirements for permits, zoning variances, and impacts on adjoining properties. | | | |
| Availability of services and materials | The availability of offsite treatment, storage, and disposal capacity, personnel, services, and materials, and other resources necessary to implement the alternative will be evaluated. | | | |
| State and community acceptance | The acceptability of an alternative to the state agency and the community will be evaluated. | | | |
| Cost | | | | |
| Direct capital costs | Includes direct capital costs for construction and packaging of CRT-related materials, transportation and disposal or recycling of CRT-related materials, analytical costs; warehouse decontamination, and contingency allowances. | | | |
| Indirect capital costs | Include engineering and design expenses, legal fees, and permitting expenses | | | |

Notes:

ARAR = Applicable or Relevant and Appropriate Requirements

CRT = Cathode Ray Tube

RAO = Remedial Action Objective

4.2.1 Effectiveness

The effectiveness of an alternative refers to its ability to meet the objective within the scope of the removal action. Specifically, effectiveness is evaluated by the degree to which the alternative achieves the RAO, and the reliability and performance of the alternative over time, including protection of human health and the environment, compliance with ARARs to the extent practical, long-term effectiveness and permanence, and reduction in lead exposure effectiveness.

As described in Section 3, the site-specific RAO is to implement measures that will prevent or minimize exposure to materials that present a lead exposure hazard to construction workers, personnel, and visitors under current and future land use scenarios. Levels of effectiveness were assessed based on the number of effectiveness criteria, summarized in Table 4-1, satisfied by each alternative. Table 4-2 provides the detailed analysis of each alternative by the effectiveness criteria.



| Table 4-2 Detailed Analysis of Alternatives for Effectiveness | | | |
|---|---|---|---|
| Criterion | Alternative 1: No Action | Alternative 2: CRT-Related Materials Removal | Alternative 3: CRT-Related Materials Removal and Warehouse Decontamination |
| Protection of human health and the environment | Does not provide protection of human health and the environment. Does not meet RAO. | Provides protection to human health by limiting access to CRT-related material. However, alternative does not meet RAO for future use and exposure to lead-containing dust. | Provides highest level of protection to human health and the environment by CRT-related material and lead dust removal. Meets RAO. |
| ARAR Compliance | Not compliant with hazardous waste ARARs as Ohio EPA has determined speculative accumulation of hazardous waste. | Not compliant with hazardous waste ARARs. because the dust exceeds the characteristically hazardous concentration of 5.0 milligram/liter for lead and because dust removal is required by hazardous waste closure requirements. | Anticipated to be compliant with ARARs. |
| Short-term effectiveness | Protective of human health and environment during implementation since no action taken. | Worker personnel protection would be addressed during implementation through use of qualified personnel and implementation of lead safety standards and procedures. | Worker personnel protection would be addressed during implementation through use of qualified personnel and implementation of lead safety standards and procedures. |
| Long-term effectiveness and permanence | Does not provide long-term effectiveness and permanence. | Does not provide long-term effectiveness and permanence. | Long-term effectiveness and permanence are provided by CRT-related material and lead dust removal. |
| Reduction of toxicity, mobility or volume | Does not reduce toxicity, mobility, or volume of CRT- related materials or lead dust. | Reduces toxicity, mobility, and volume of CRT-related materials by removal and offsite recycling/disposal. However, does not reduce toxicity, mobility, or volume of lead dust. | Reduces toxicity, mobility, and volume of CRT-related materials and lead dust by removal and offsite recycling/disposal. |

Notes:

ARAR = Applicable or Relevant and Appropriate Requirements

CRT = Cathode Ray Tube

EPA = Environmental Protection Agency RAO = Remedial Action Objective

4.2.2 Implementability

The ease of implementation of a technology refers to the availability of commercial services to support it, the constructability of the technology under specific site conditions, and the acceptability of the technology to all parties involved (e.g., regulators and community). These criteria include technical feasibility, administrative feasibility, and availability of services, support agency acceptance, and community acceptance. Levels of implementability were assessed based on the number of



implementability criteria, summarized in Table 4-1, satisfied by each alternative. Table 4-3 provides the detailed analysis of each alternative by the implementability criteria. Section 5.2 provides additional detail.

| Table 4-3 Detailed Analysis of Alternatives for Implementability | | | |
|--|--|--|--|
| Criterion | Alternative 1: No Action | Alternative 2: CRT-Related Materials Removal | Alternative 3: CRT-Related Materials Removal and Warehouse Decontamination |
| Technical feasibility | Technically implementable | Technically implementable | Technically implementable |
| Administrative feasibility | Administratively implementable | Administratively implementable | Administratively implementable |
| Availability of services and materials | Available services and materials | Available services and materials | Available services and materials |
| State and community acceptance | Not evaluated at this time pending regulator and community review. However, anticipate acceptance is not likely. | Not evaluated at this time pending regulator and community review. However, anticipate acceptance is not likely. | Not evaluated at this time pending regulator and community review. However, anticipate acceptance. |

Note:

CRT = Cathode Ray Tube

4.2.3 Cost

For the detailed cost analysis of alternatives, the expenditures required to complete each alternative were estimated in terms of capital costs based on contractor quotations and estimated volumes of material present. Capital costs include costs to complete removal activities. Indirect costs include engineering expenses. By combining the different costs associated with each alternative, a cost estimate for each alternative can be made for comparison.

The costs estimated for this section are provided to an accuracy of +50% and -30%. The alternative cost estimates are in present day dollars and are based on information from contractors. A summary of the estimated cost for each alternative is provided in Table 4-4 and detailed costing backup for Alternatives 2 and 3 is provided in Attachment C. There are no costs associated with Alternative 1, no action.



| Table 4-4 Summary of Alternative Present Worth Costs | | |
|--|-----------------------|--|
| Alternative | Estimated Cost | |
| Alternative 1 — no action | \$0 | |
| Alternative 2 — Cathode Ray Tube-Related Materials Removal | \$15,057,916 | |
| Alternative 3 — Cathode Ray Tube-Related Materials Removal and Warehouse Decontamination | \$16,674,396 | |

To date, \$406,279 in response costs have been previously incurred to investigate, manage, and prepare for removal of containerized CRT-related materials (including processed CRT-glass), CRT demanufacturing areas, and residual lead dust contamination:

- \$140,327 for Atwell (initial evaluation and planning documents)
- \$123,860 for AKT (initial evaluation and planning documents, including \$36,993 for the projection lens project)
- \$49,020 for Environmental Management Specialists (projection lens project)
- \$34,405 for NovoTec Recycling LLC (projection lens project)
- \$58,667 for EnSafe Inc. (preparation of closure related documents)



5.0 COMPARATIVE ANALYSIS OF ALTERNATIVES

This section provides a comparative evaluation of the removal action alternatives in terms of effectiveness, implementability, and cost.

5.1 Effectiveness

Based on the analysis presented in Section 4, the overall effectiveness of Alternatives 1, 2, and 3 are low, moderate, and high, respectively. Alternative 1 provides no protection to human health and the environment and does not achieve the RAO. Alternative 2 reduces the threat to human health and the environment but does not satisfactorily eliminate that threat nor achieve the RAO, because it would leave lead-contaminated dust in the buildings. Alternative 3 provides protection to human health and the environment and achieves the RAO.

Alternatives 1 and 2 will not comply with ARARs. Alternative 3 is the only permanent and effective solution, and reduces the toxicity, mobility, and volume of CRT-related materials and lead dust which is not achieved under Alternatives 1 or 2. Alternative 3 will achieve a complete facility cleanup.

5.2 Implementability

Based on the analysis presented in Sections 4, 5.2.1, 5.2.2, 5.2.3 and 5.2.4, the three alternatives are implementable from a technical, administrative, and services/materials perspective. Alternative 3, however, is the most implementable alternative because it is anticipated to be the most acceptable alternative by regulators and the community, and because it is the most protective of health, community, and the environment, complies with ARARs, achieves the removal objectives, and avoids the necessity of additional remediation activities to effectuate completion.

5.2.1 Technical Feasibility

Alternative 1 does not require the use of technologies to implement the remedy. Alternatives 2 and 3 may require the use of CRT disassembly and processing technologies that are in common use by U.S. electronic waste recyclers and are therefore considered presumptive remedies. Alternative 3 may require the design and installation of a containment reduction zone, clean loading zone, and temporary onsite wastewater treatment unit, each of which involve relatively straightforward features and applications in use at similar sites with lead dust contamination. The effectiveness of these technologies will be routinely evaluated throughout the duration of the project.

Because Alternative 3 will remove all hazardous substances from the facility and decontaminate it, no remediation action will be necessary for the facility. Accordingly, Alternative 3 will not affect



remediation action, nor will any 5-year reviews under 4 U.S. Code Section 9621(c) be required. Alternative 3 also obviates the need for any operation and maintenance of a remedy.

5.2.2 Administrative Feasibility

As noted above, this removal action will not be U.S. EPA fund-financed; therefore, there are no statutory limits on the cost or duration of the removal action. Alterative 1 will not require coordination with other offices and agencies. Alternative 2 will require an allowance by Ohio EPA to manage, transport, process, and dispose/recycle CRT-containing materials under the RCRA CRT conditional exclusion and Ohio state corollaries, as applicable, as well as adherence to U.S. Department of Transportation, environmental and workplace safety laws, and existing import permits. Alternative 2 also may require allowances under the RCRA CRT conditional exclusion from other states through which CRT-containing materials are transported and in which these materials will be recycled or disposed. Alternative 3 will require the same considerations as Alternative 2, as well as an industrial wastewater discharge permit from the City of Columbus, to the extent that onsite wastewater treatment is otherwise an economically and technically feasible option. None of these administrative obligations are anticipated to render Alternatives 2 or 3 infeasible.

5.2.3 Availability of Services and Materials

Alternative 1 will require no services or materials. Alternatives 2 and 3 will require sufficient capacity at (a) CRT processor(s); (b) lead smelter(s); and (c) landfill(s). Each of these outlets have been evaluated, and no capacity restrictions are anticipated to upset the project schedule. Nor are personnel constraints, transportation expenses, or laboratory testing capacity concerns anticipated to upset the project schedule or to increase costs beyond the present-worth costs estimated in Table 4-4.

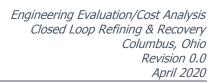
5.2.4 Stakeholder Acceptance

Alternatives 1 and 2 are not likely to be acceptable to Ohio EPA and the community around the facility, because these alternatives would leave hazardous lead substances in the facility. The inability of these alternatives to comply with ARARs, including hazardous waste closure requirements, is anticipated to make these alternatives unacceptable to Ohio EPA. Alternative 3 will remove all hazardous substances, including lead-contaminated dust, and achieve the ARARs. Therefore, Alternative 3 is anticipated to be the only alternative acceptable to Ohio EPA and the community.



5.3 Cost

The present worth costs of each of the alternatives were summarized in Table 4-4. Alternative 3 is the costliest alternative but provides the most protection and is a permanent solution since CRT-related materials and lead dust will be physically removed from the subject property. Alternative 2 is less expensive than Alternative 3 but is not a permanent solution since lead dust would remain at the subject property.





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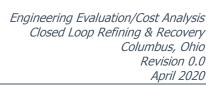
6.0 RECOMMENDED REMOVAL ACTION ALTERNATIVE

This EE/CA was performed in accordance with current U.S. EPA guidance documents for an NTCRA under CERCLA. Three alternatives were analyzed based on evaluation of the effectiveness, implementability, and cost. The effectiveness evaluation included reviewing the protectiveness of human health and the environment, the short- and long-term effectiveness of the alternative, and its ability to meet the RAO and ARARs. Implementability included assessing the technical feasibility, administrative feasibility, availability of services/equipment, and state/community acceptance of the alternative. The evaluation of cost included a review of capital costs, operating costs, and present worth costs.

Alternative 3, CRT-related materials removal and warehouse decontamination is the recommended alternative. The following factors were used for making the recommendation:

- Alternative 3 provides the most protection to human health and the environment.
 Alternative 3 is the only alternative that fully meets the RAO. Only Alternative 3 will meet the
 ARARs and will be a permanent solution. Alternative 3 reduces the toxicity, mobility, and
 volume of CRT-related material and lead dust, which is not achieved under Alternatives 1
 or 2.
- The three alternatives are implementable from a technical, administrative, and services/materials perspective. However, Alternative 3 is the most implementable alternative since it is anticipated to be the most acceptable alternative to regulators and the community.
- The estimated cost of Alternative 3 is significantly higher than Alternative 2, but its overall value is significantly higher since Alternative 3 provides the most protection and is a permanent solution since CRT-related material and lead dust will be physically removed from the subject property. Alternative 2 is less expensive than Alternative 3 but is not a permanent solution since lead dust would remain at the subject property and the potential for further releases is not abated.

Implementation of this remedy will address the potential exposure to CRT-related material and lead dust containing materials at the Closed Loop facility. Removal activities will be performed in accordance with the Closure Plan accompanying this EE/CA and the on-site coordinator will be AKT.





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7.0 REFERENCES

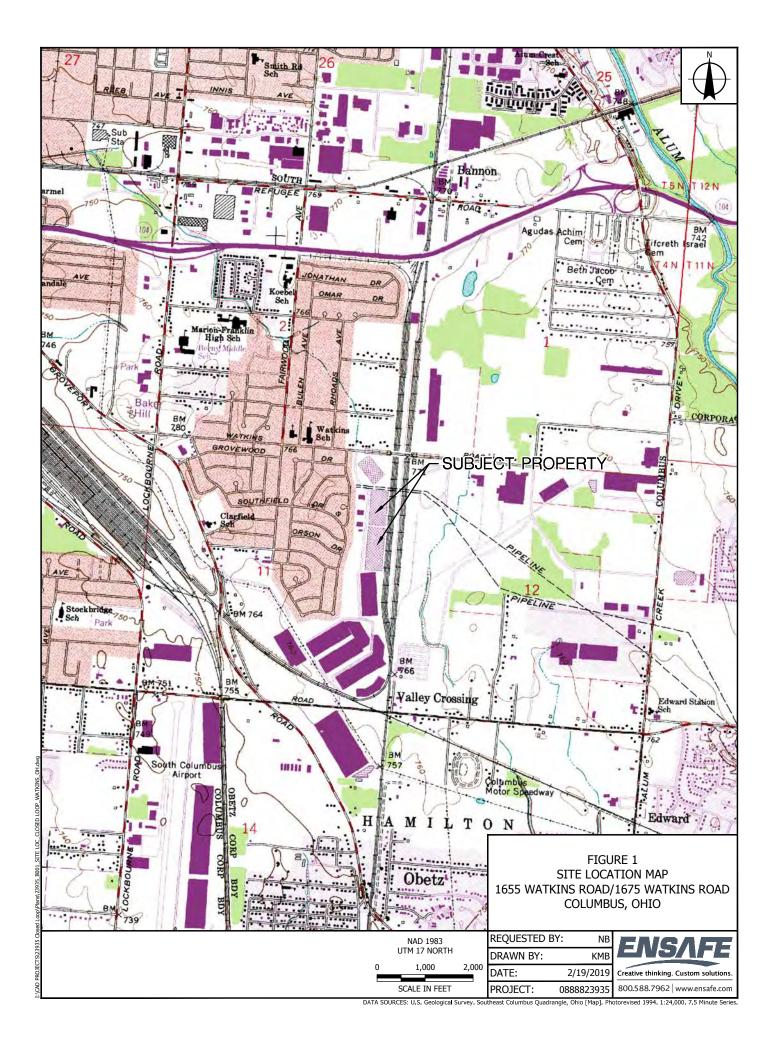
- AECOM. Baseline Environmental Conditions and Closure Cost Evaluation; The Closed Loop Inc. Facility; 1675 and 1655 Watkins Road; Columbus, Ohio. (2015).
- AKT Peerless Environmental Services. *Projection Lens Remediation and Recycling Summary of Activities; Former Closed Loop Facility; 1655-1675 Watkins Road.* (January 6, 2020)
- Atwell, LLC. Evaluation of E-Waste Inventories and Remediation/Closure Options for 1655 and 1675 Watkins Road, Columbus, Ohio. (May 4, 2017).
- Envirofacts. Closed Loop (1675 Watkins Road, Columbus, Ohio) NAICS. Retrieved from: https://iaspub.epa.gov/enviro/fii_query_dtl.disp_program_facility?p_registry_id=110066960 649. (2018).
- Environmental Data Resources Inc. *The EDR City Directory Abstract; 1655 Watkins Road,* 1655 Watkins Road, Columbus, Ohio 43201. Inquiry Number 3795824.6. 440 Wheelers Farm S Road, Milford, Connecticut 06461. (November 25, 2013).
 - The EDR City Directory Abstract; 1675 Watkins Road, 1675 Watkins Road,
 Columbus, Ohio 43201. Inquiry Number 3795851.6. (November 25, 2013).
- Global Realty Services Group. *Phase I Environmental Site Assessment, Property Reference:* 1655 Watkins Road, Columbus, Ohio 43207. (December 9, 2013).
 - Phase I Environmental Site Assessment, Property Reference: 1675 Watkins Road,
 Columbus, Ohio 43207. (December 13, 2013).
- Ohio Environmental Protection Agency. *Closed Loop Refining and Recovery, Inc.; Notice of Violation;* NOV; RCRA C Hazardous Waste; Franklin County; OHR000167718; Closed Loop Glass Solutions, LLC; Notice of Violation; NOV; RCRA C Hazardous Waste; Franklin County; OHR000201145. (2016)
 - Closed Loop Refining and Recovery; Notice of Violation NOV; RCRA C —
 Hazardous Waste; Franklin County; OHR000167718. (2015).



- U.S. EPA. *Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA*. OSWER Directive 9360.0-32, Washington, DC. (1993).
 - Use of Non-time Critical Removal Authority in Superfund Response Actions. (2000).



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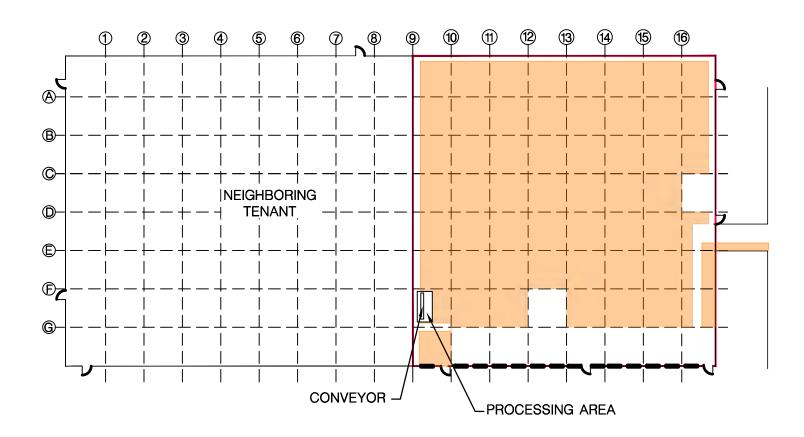


FIGURE 2 SITE LAYOUT MAP 1655 WATKINS ROAD COLUMBUS, OHIO

LEGEND

CLOSED LOOP LEASE SPACE

CRT - RELATED MATERIALS IN BOXES

LOADING DOCK DOORS

NAD 1983 STATE PLANE
OHIO SOUTH FEET

0 50 100

SCALE IN FEET

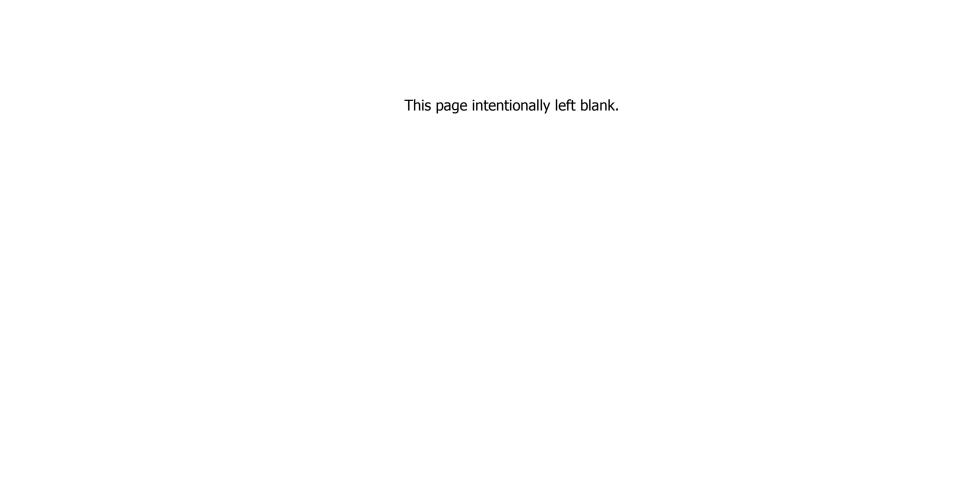
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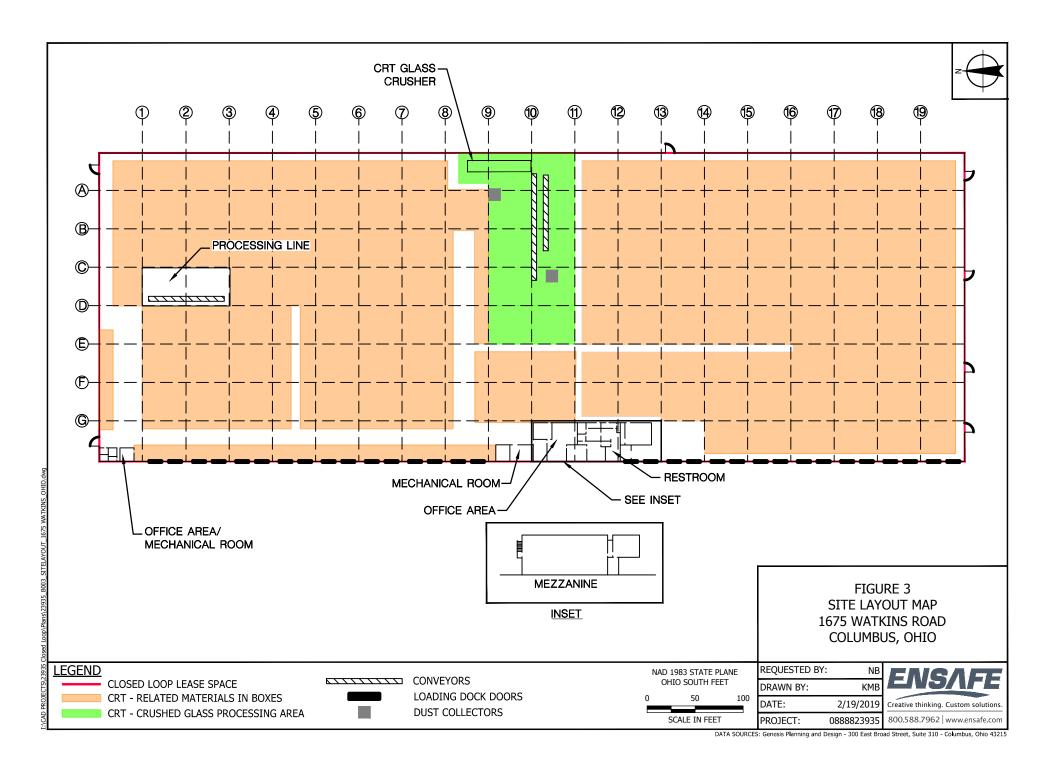
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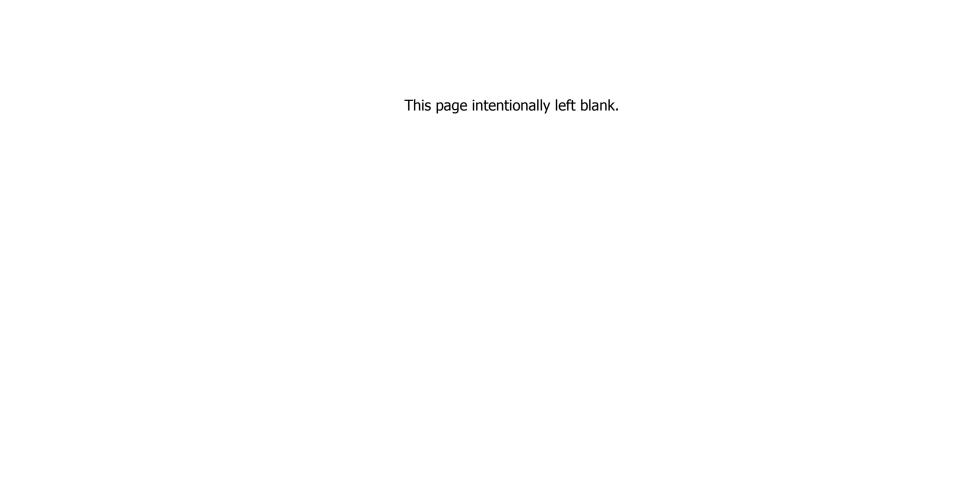
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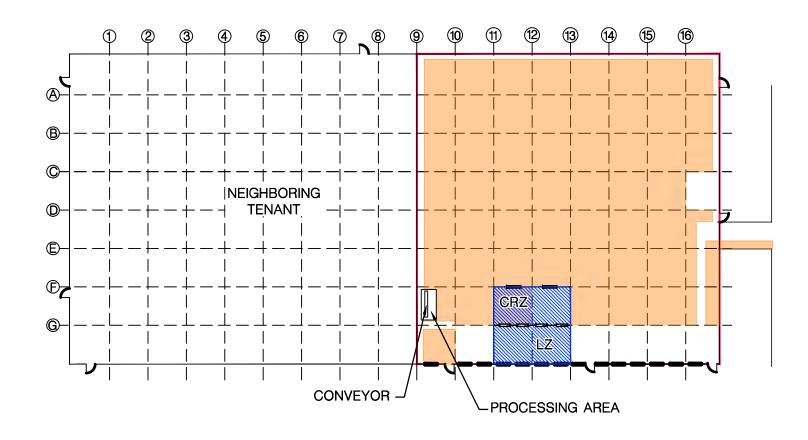


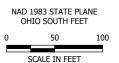












LOADING ZONE

LEGEND CLOSED LOOP LEASE SPACE CRT - RELATED MATERIALS IN BOXES LOADING DOCK DOORS CRZ LZ CONTAMINATION REDUCTION ZONE

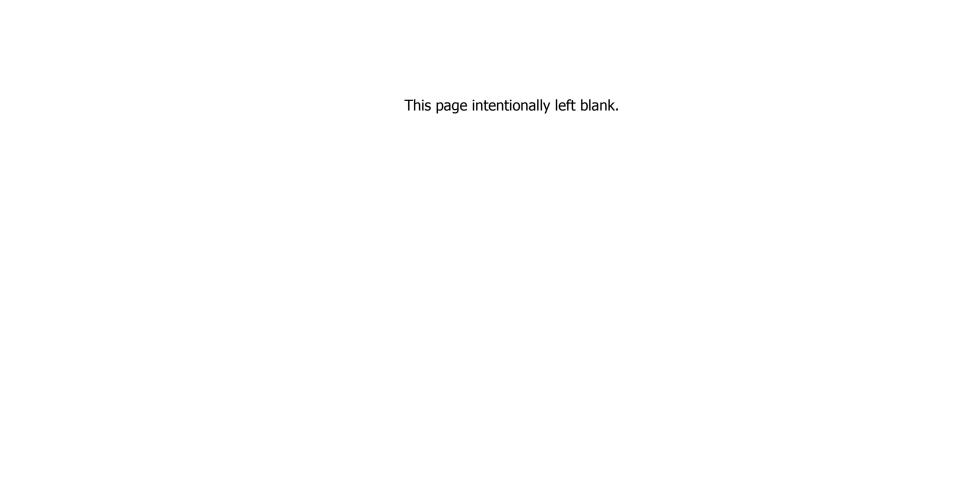
DOOR FOR TWO MOTORS WITH CLEAR PVC STRIP CURTAINS CRZ FITTED WITH NEGATIVE AIR MACHINES INTERIOR OF CRZ AND LZ TO BE FINISHED WITH PLYWOOD ON BOTTOM 4 FEET

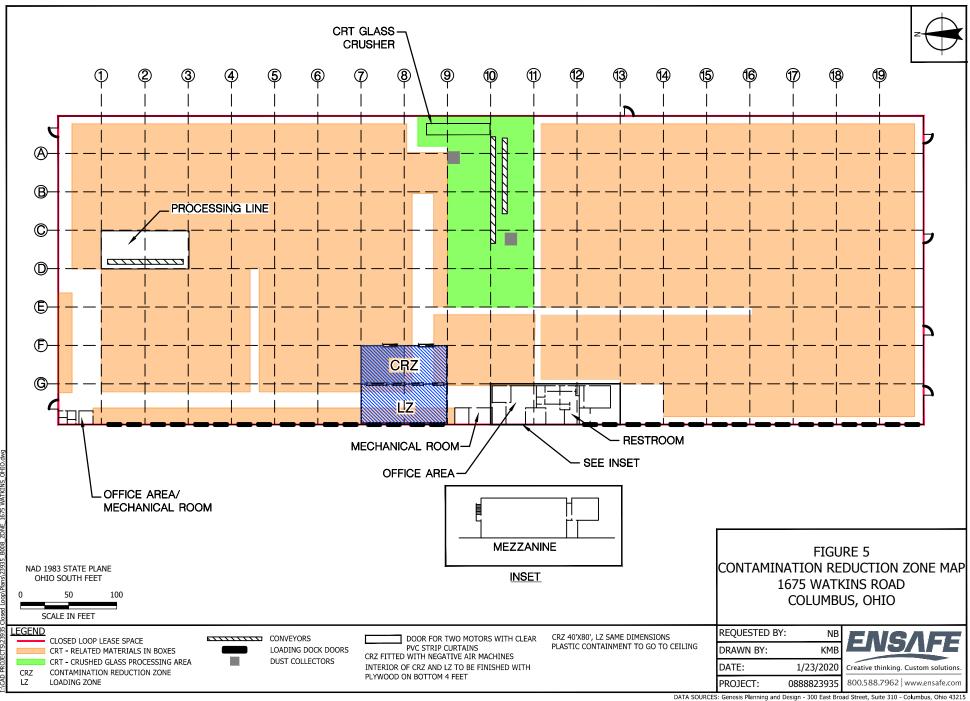
CRZ 40'X80', LZ SAME DIMENSIONS PLASTIC CONTAINMENT TO GO TO CEILING REQUESTED BY: DRAWN BY: KMB DATE: 1/23/2020 PROJECT: 0888823935

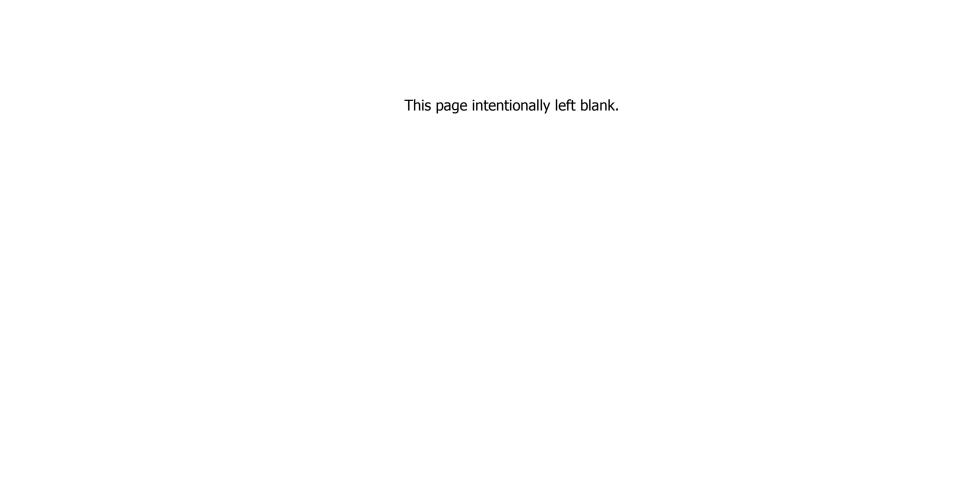


FIGURE 4 CONTAMINATION REDUCTION ZONE MAP

> 1655 WATKINS ROAD COLUMBUS, OHIO







Attachment A Community Relations Plan

COMMUNITY RELATIONS PLAN

CLOSED LOOP REFINING & RECOVERY 1655 AND 1675 WATKINS ROAD COLUMBUS, OHIO 43207

EPA ID No. OHR000167718

EnSafe Project Number: 0888823935/004

Prepared for:

Garrison Southfield Park LLC 1290 Avenue of the Americas Suite 914 New York, New York 10104

April 2020

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1.0 INTRODUCTION

This Community Relations Plan (CRP) for the Closed Loop Refining & Recovery (Closed Loop) facility in Columbus, Ohio (referred to herein as the "subject property" or the "Closed Loop facility") describes a program for establishing community relations during implementation of the Engineering Evaluation/ Cost Analysis (EE/CA). The EE/CA was prepared as a component of the Resource Conservation Recovery Act (RCRA) Closure Plan that describes removal actions for this property, as requested by the Ohio Environmental Protection Agency (Ohio EPA). The subject property is currently owned by Garrison Southfield Park LLC (Garrison Southfield). Closed Loop leased the subject property and accepted electronic waste (e-waste) at the facility from 2012 through early 2016, when they ceased operations and abandoned the subject property. Closed Loop's principal operations involved the receipt, storage, and disassembling of cathode ray tube (CRT) containing materials. The subject property currently maintains containerized CRT-related materials, CRT demanufacturing areas, and residual lead dust contamination.

Garrison Southfield's goal is to maintain community understanding and support, which are vital for implementing successful environmental activities at the Closed Loop facility. Effective communication and timely exchange of information with the community are essential for the environmental activities to be conducted at the Closed Loop facility. It is important that the Columbus community understand the entire cleanup process and have the opportunity to provide comments on certain proposed actions.

The purpose of this CRP is to outline activities and inform the public of planned or ongoing actions throughout the RCRA closure. It also outlines opportunities for the public to offer valuable input during implementation of removal actions.

The primary objectives of this CRP are to:

- Establish channels for the release of information about activities to the community
- Provide a way for the community to interact with Garrison Southfield
- Assist in resolving issues of public interest and concern

The CRP encourages the involvement of Columbus area residents, as well as representatives from state and local agencies who are active in policy and decision-making processes.



This CRP is organized as follows:

- 1.0 Introduction
- 2.0 Closed Loop Facility Background
- 3.0 Environmental Investigation and Remediation Process
- 4.0 Community Background
- 5.0 Community Relations Status and Objectives
- 6.0 Community Relations Activities and Schedule



2.0 CLOSED LOOP FACILITY BACKGROUND

2.1 Description of the Closed Loop Facility

Closed Loop operated a CRT-related material storage facility within warehouses at 1675 and 1655 Watkins Road in Columbus, Franklin County, Ohio, as shown in Figure 1. These structures are commercial warehouses surrounded by commercial and industrial properties; a residential neighborhood is approximately 300 feet west of the warehouses. The 1675 Watkins Road warehouse is an approximately 290,000-square foot warehouse structure on a 9.210-acre parcel (Parcel ID: 010-001672-00). The Closed Loop portion of the 1655 Watkins Road warehouse includes approximately 145,000 square feet of the approximately 218,000-square foot structure on an 8.28-acre parcel (Parcel ID: 010-010674-00). Figures 2 and 3 show the layout of the two warehouses.

During late 2015, AECOM Technical Services, Inc. (AECOM), performed a *Baseline Environmental Conditions and Closure Cost Evaluation* of the subject property to assess potential hazardous materials contained in the Closed Loop facility. AECOM reported the following analytical results:

- Concentrations of lead in 19 dust samples ranged from 2,200 to 15,000 milligrams per kilogram (mg/kg), exceeding the Ohio Voluntary Action Program (VAP) generic direct-contact residential soil standard (GDCSS) of 400 mg/kg and chromium was reported to exceed the residential GDCSS of 120 mg/kg in two sample
- Barium, cadmium, mercury, and silver were detected in each total sample at concentrations below respective Ohio VAP residential GDCSS
- Concentrations of lead in eight Toxicity Characteristic Leaching Procedure (TCLP) dust samples ranged from 11 to 22 milligrams/liter, exceeding the characteristically hazardous concentration of 5.0 milligrams/liter for lead
- Barium, cadmium, chromium, mercury, and silver were reported to be below TCLP characteristically hazardous concentrations
- Selenium was detected in one total dust sample below its respective Ohio VAP GDCSS and was not detected in any TCLP samples
- Arsenic was not reported in any total or TCLP dust samples



Indoor air mercury concentrations ranged from less than detection limit to 0.044 milligrams
per cubic meter; mercury results were reported to be below the Occupational Safety and
Health Administration permissible exposure limit of 0.10 milligrams per cubic meter

During 2016, Atwell, LLC (Atwell) performed site investigation activities that culminated in preparation of their May 4, 2017 report entitled *Evaluation of E-Waste Inventories and Remediation/Closure Options for 1655 and 1675 Watkins Road, Columbus, Ohio*. Atwell's summary indicates the following significant findings:

- The subject property is approximately 90% full of CRT devices, super sacks, and cardboard Gaylord containers (measuring approximately 4-foot square and high) containing crushed CRT glass on wooden pallets. Throughout the majority of the warehouse space, the Gaylord containers are stacked three high. Many Gaylord containers are deteriorated, which Atwell notes "may be a function of Closed Loop's practice to repurpose the same boxes used to transport intact CRTs to the site..." Atwell notes that there are only a few accessible aisles between the stockpiled CRT materials and that many containers are not readily accessible.
- The majority of containers in the 1675 Watkins Road warehouse contain crushed CRT glass; former aisle ways have containers with "whole unprocessed CRT units (televisions, computer monitors, and/or intact CRT tubes)." The 1675 warehouse also includes a demanufacturing line and a glass crushing process area.
- The majority of containers in the 1655 Watkins Road warehouse appear to contain "intact CRT units (televisions and computer monitors)." A "small demanufacturing line where Closed Loop would manually separate the CRT tubes from plastic and metal housings associated with whole televisions and or/computer monitors" is also present in the north portion of this warehouse.
- Atwell's evaluation of containerized materials identified an estimated 10,288,093 pounds of CRT-related materials in the 1655 Watkins Road portion of the subject property:

 - CRT crushed glass 0 pounds



- Atwell's evaluation of containerized materials identified an estimated 117,899,280 pounds of CRT-related materials in the 1675 Watkins Road portion of the subject property:

 - Recyclable plastic, glass, and steel515,041 pounds
- In total, Atwell estimates there are 128,187,373 pounds (64,093 tons) of CRT-related material at the subject property.

In mid-2019, AKT Peerless Environmental Services (AKT), Environmental Management Specialist, Inc., and NovoTec Recycling LLC conducted a limited removal action at the subject property to identify, decontaminate, transport, process, and recycle approximately 185,975 pounds of projection lens material. The removal action was based on consultation with Ohio EPA, which determined that all disbursements to project contractors for the removal and recycling of this material were necessary costs consistent with the National Contingency Plan (NCP) and approved such disbursements from an escrow account controlled by the Ohio Attorney General's Office. The scope, objectives, costs, equipment used, and the nature and extent of contaminants removed or decontaminated are addressed in AKT's January 6, 2020 report entitled *Projection Lens Remediation and Recycling — Summary of Activities*, which is available as part of Appendix B to the Closure Plan and is herein incorporated by reference.

There have been no other prior removal actions at the subject property.

2.2 Regulatory Framework

This CRP is a component of the EE/CA issued under Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act and the Superfund Amendments and Reauthorization Act. Section 104 allows an authorized agency to remove the risk of hazardous substances, pollutants, or contaminants at any time, or to take other response measures consistent with the NCP as deemed necessary to protect public health or welfare and the environment. Garrison Southfield is acting as



the lead authority in the implementation of this non-time-critical removal action. The Ohio EPA has the lead role in regulatory oversight for this lead hazard abatement.

The NCP, Title 40 Code of Federal Regulations (CFR) Part 300, provides regulations for implementing Comprehensive Environmental Response, Compensation, and Liability Act and Superfund Amendments and Reauthorization Act, and regulations specific to removal actions. The NCP defines a removal action as:

...cleanup or removal of released hazardous substances from the environment, such actions as may be necessary to monitor, assess, and evaluate the threat of release of hazardous substances; the disposal of removed material; or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of a release.

This removal action is non-time-critical due to the availability of a 6-month planning period from the time the removal action is determined to be necessary (when Action Memorandum comments are resolved) to the time of initiation of the action. Title 40 CFR Section 300.415 requires the lead agency to conduct an EE/CA when a non-time-critical removal action is planned for a site. Subsection (n) requires that the community be informed of removal actions; this CRP is intended to fulfill the requirements of 40 CFR Section 300.415(n).

2.3 Previous Environmental Documentation

Documents that describe historical investigations completed at the Closed Loop facility are identified below.

- AECOM Technical Services, Inc. *Baseline Environmental Conditions and Closure Cost Evaluation;* The Closed Loop Inc. Facility; 1675 and 1655 Watkins Road; Columbus, Ohio. (2015).
- AKT Peerless Environmental Services. *Projection Lens Remediation and Recycling Summary of Activities; Former Closed Loop Facility; 1655-1675 Watkins Road.* (January 6, 2020)
- Atwell, LLC. Evaluation of E-Waste Inventories and Remediation/Closure Options for 1655 and 1675 Watkins Road, Columbus, Ohio. (May 4, 2017).



Ohio Environmental Protection Agency. *Closed Loop Refining and Recovery, Inc.; Notice of Violation;* NOV; RCRA C — Hazardous Waste; Franklin County; OHR000167718; Closed Loop Glass Solutions, LLC; Notice of Violation; NOV; RCRA C — Hazardous Waste; Franklin County; OHR000201145. (2016)

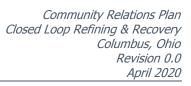
— Closed Loop Refining and Recovery; Notice of Violation — NOV; RCRA C — Hazardous Waste; Franklin County; OHR000167718. (2015).

Once State of Ohio COVID-19 Stay-at-Home orders are lifted, copies of reports related to the subject property will be available in the Information Repository at the following locations:

Columbus Metropolitan Library Marion-Franklin Branch 2740 Lockbourne Road Columbus, Ohio 43207

Ohio Environmental Protection Agency 50 West Town Street, Suite 700 Columbus, Ohio 43215

In the interim, an electronic library has been established at www.ensafe.com/ClosedLoop/Watkins.



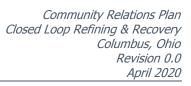




3.0 ENVIRONMENTAL INVESTIGATION AND REMEDIATION PROCESS

CRT-related materials removal will include the physical removal of CRT-related materials from the subject property followed by warehouse decontamination. Removal activities will include:

- Phase I field removal action activities, with offsite transportation and recycling or disposal of non-processed CRT-related materials at authorized facilities.
- Phase II field removal action activities, with offsite transportation and recycling or disposal of non-processed CRT-related materials and processed CRT-glass at authorized facilities.
- Decontamination of the warehouse interiors to remove lead-contaminated dust and reduce the potential for impacts to future warehouse users and visitors.



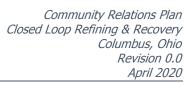




4.0 COMMUNITY BACKGROUND

The Closed Loop facility is in Columbus, Franklin County, Ohio. Columbus is the county seat of, and the largest city within, Franklin County, Ohio, United States. Franklin County encompasses 544 square miles. According to the 2017 census, the estimated population of the county was 1,291,981. Columbus, the state capital, county seat, and largest city in the county has a population of approximately 879,170. The subject property is located within ZIP code 43207, which comprises 23.29 square miles; the 2017 estimated population for ZIP code 43207 is 47,350.

Aerial photographs indicate that the general vicinity of the subject property was utilized for agricultural purposes until at least the 1950s, when areas of residential and commercial development started. By 1959, the Southfield Civic Association (renamed Marion-Franklin Area Civic Association in 1965), was founded to address issues of concern to homeowners.







5.0 COMMUNITY RELATIONS STATUS AND OBJECTIVES

5.1 Community Relations Objectives

The objectives of this CRP are described below.

5.1.1 Objective 1: Citizen Relations

This objective is designed to give residents the opportunity to comment on, and be involved throughout, the decision-making process for planned and ongoing removal actions at the Closed Loop facility. Residents are encouraged to participate in this process because the decisions made will have a long-term effect on their community. Achieving this objective will be accomplished using the following methods.

- Encouraging two-way communication between the community and decision-makers.
- Providing opportunities to receive formal and informal comments from community members on reports and plans and to communicate with individual citizens, area clubs, and groups when needed or requested.
- Placing information, studies, and reports in the Information Repository for public access and use.

5.1.2 Objective 2: Timely Communication

Local residents and facility workers, as well as state and local officials will be informed in a timely manner of major findings, recommendations, project status, and removal activities being conducted at the Closed Loop facility. Information will also be provided on additional actions under consideration and the reasons for those actions. Achieving this objective will be accomplished using the following methods:

- Maintaining a mailing list of local, state, and federal officials, and other interested individuals and groups. Additions to the mailing list will be made by contacting the Garrison Southfield point of contact at 216-274-0112 or nbaker@ensafe.com.
- Making a copy of the closure plan available at www.ensafe.com/ClosedLoop/Watkins
- Providing a copy of the closure plan to the Ohio EPA's Central District Office and to a local public repository where copies of the plan can be made once COVID-19 restrictions are lifted



- Announcing the availability of the closure plan and any public meetings (either in-person or virtual) through advertisements in The Columbus Dispatch newspaper, which is a newspaper of general circulation in the county in which the facility is located
- Providing information about the public comment period to the Ohio EPA's Central District Office
- Circulating fact sheets to the community when further detail is requested
- Reviewing and responding to substantive comments received

5.1.3 Objective 3: Conflict Resolution

Garrison Southfield will focus on and resolve conflicts as they arise by using the following methods:

- Identifying conflict and develop a forum, if needed, for resolution
- Providing a forum, such as a public meeting, for community members to voice questions and concerns directly to decision-makers
- Providing experts to address questions about environmental response actions and alternatives

5.2 Status of Community Relations Activities

A number of community relations activities have been completed and are listed below.

5.2.1 Information Repositories

Once State of Ohio COVID-19 Stay-at-Home orders are lifted, information repositories will be established and located at the addresses below:

Columbus Metropolitan Library Marion-Franklin Branch 2740 Lockbourne Road Columbus, Ohio 43207 Ohio Environmental Protection Agency 50 West Town Street, Suite 700 Columbus, Ohio 43215

Documents related to remedial activities at the Closed Loop facility are available to the public at these repositories and constitute the Administrative Record File for the project. The Administrative Record



File contains technical reports, findings, and other documents and correspondence specific to the subject property.

In the interim, an electronic library has been established at www.ensafe.com/ClosedLoop/Watkins.

5.2.2 Mailing List

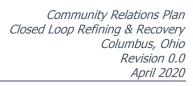
A mailing list of interested parties is maintained by Garrison Southfield as Appendix A. Documents, such as fact sheets providing current information about site activities and meeting announcements, are mailed to everyone on the mailing list. Individuals may be added to the mailing list by contacting the Garrison Southfield point of contact.

5.2.3 Public Notices

Public notices are published in The Columbus Dispatch newspaper to announce public meetings.

5.2.4 Public Meetings

Meetings (either in-person or virtual) will be scheduled if requested by citizens, local officials, or state officials. The location of such meetings will be announced in the public notices published per Section 5.2.3.







6.0 COMMUNITY RELATIONS ACTIVITIES AND SCHEDULE

All communication activities are designed to provide the public with current information and the opportunity for input during each phase of the environmental program and restoration. Community relations activities and their relationship to various stages of the environmental restoration program are described below.

| Table 6-1 Community Relations Activities for Removal Actions | | | | |
|--|---|--|--|--|
| Cleanup Program Stage | Activities Activities | | | |
| | Establish and public notice the availability of the Information Repository and Administrative Record File. Establish mailing list. Designate according to the latitude and leave and leave and leave are leave as a leave and leave are leave as a leave and leave are leave as a leave are leave are leave as a leave are leave as a leave are leave are leave as a leave are l | | | |
| | Designate community relations spokesperson Conduct community interviews | | | |
| | Develop a CRP (this document) | | | |
| Prior to Phase I and II Removal Actions | Public notice the Closure Plan, EE/CA, and supporting documentation. The notice must describe the preferred alternative and the EE/CA results. | | | |
| | Provide for a 30-day comment period. | | | |
| | Prepare written response to significant public comments on Closure Plan and EE/CA. | | | |
| | Establish contact with local officials and community leaders to provide them with information about planned removal actions and to monitor community concerns. | | | |
| | In the event of any significant changes to the RCRA Closure Plan, publish a notice in <i>The Columbus Dispatch</i> newspaper | | | |
| During Phase I and II Removal Actions | Continue to update the community through the Information Repository and through public meetings, if requested | | | |
| | Fact sheets if applicable to provide further detail | | | |
| | In the event of any significant changes to the RCRA Closure Plan, publish a notice in <i>The Columbus Dispatch</i> newspaper | | | |
| During Phase III Building Decontamination | Continue to update the community through the Information Repository and through public meetings if requested | | | |
| | Fact sheets if applicable to provide further detail | | | |
| Upon Completion of Building Decontamination | Update Information Repository, as necessary | | | |

Notes:

CRP = Community Relations Plan

EE/CA = Engineering Evaluation/ Cost Analysis RCRA = Resource Conservation Recovery Act

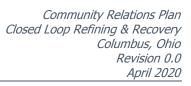


The steps outlined above are designed to achieve effective communication and a timely exchange of information with the public. Garrison Southfield will monitor community responses to environmental activities and update this document as required. If necessary, additional interviews will be conducted with area residents and other affected parties and the results from these interviews will be included in updates to this CRP.



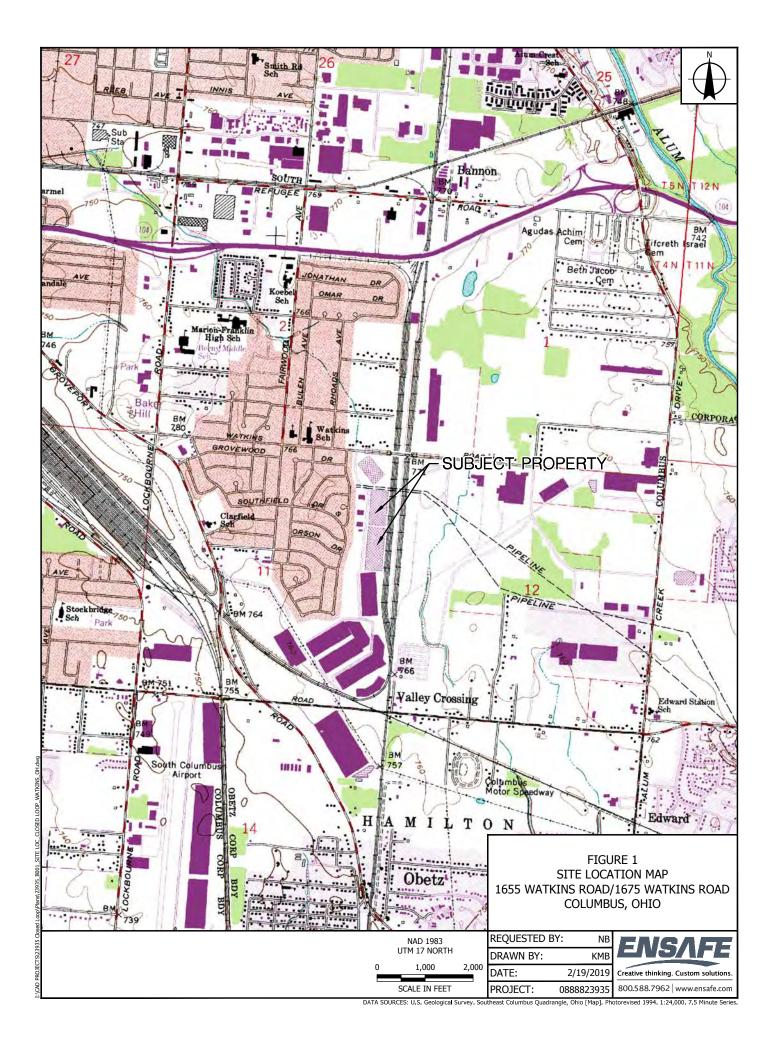
7.0 REFERENCES

- AECOM Technical Services, Inc. *Baseline Environmental Conditions and Closure Cost Evaluation; The Closed Loop Inc. Facility; 1675 and 1655 Watkins Road; Columbus, Ohio.* (2015).
- AKT Peerless Environmental Services. *Projection Lens Remediation and Recycling Summary of Activities; Former Closed Loop Facility; 1655-1675 Watkins Road.* (January 6, 2020)
- Atwell, LLC. Evaluation of E-Waste Inventories and Remediation/Closure Options for 1655 and 1675 Watkins Road, Columbus, Ohio. (May 4, 2017).
- Ohio Environmental Protection Agency. *Closed Loop Refining and Recovery, Inc.; Notice of Violation;* NOV; RCRA C Hazardous Waste; Franklin County; OHR000167718; Closed Loop Glass Solutions, LLC; Notice of Violation; NOV; RCRA C Hazardous Waste; Franklin County; OHR000201145. (2016)
 - Closed Loop Refining and Recovery; Notice of Violation NOV; RCRA C Hazardous Waste; Franklin County; OHR000167718. (2015).
- U.S. Census Bureau. Census Information for ZIP Code 43207. Retrieved from: https://factfinder.census.gov/faces/affhelp/jsf/pages/geography.xhtml?lang=en&code=860 &name=ZCTA5%2043207&src=geoAssist&log=t











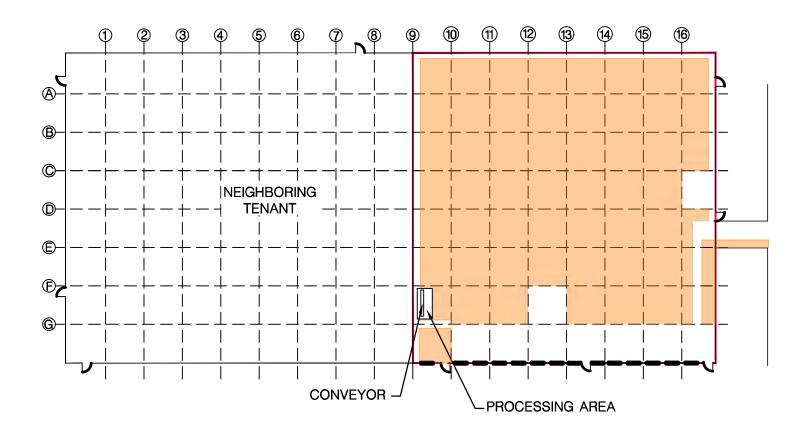


FIGURE 2 SITE LAYOUT MAP 1655 WATKINS ROAD COLUMBUS, OHIO

LEGEND

CLOSED LOOP LEASE SPACE

CRT - RELATED MATERIALS IN BOXES

LOADING DOCK DOORS

NAD 1983 STATE PLANE
OHIO SOUTH FEET

0 50 100

SCALE IN FEET

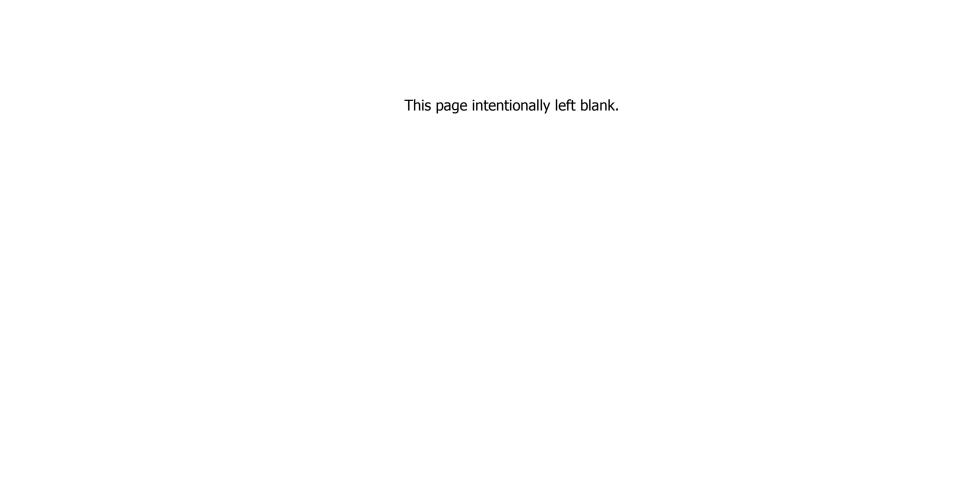
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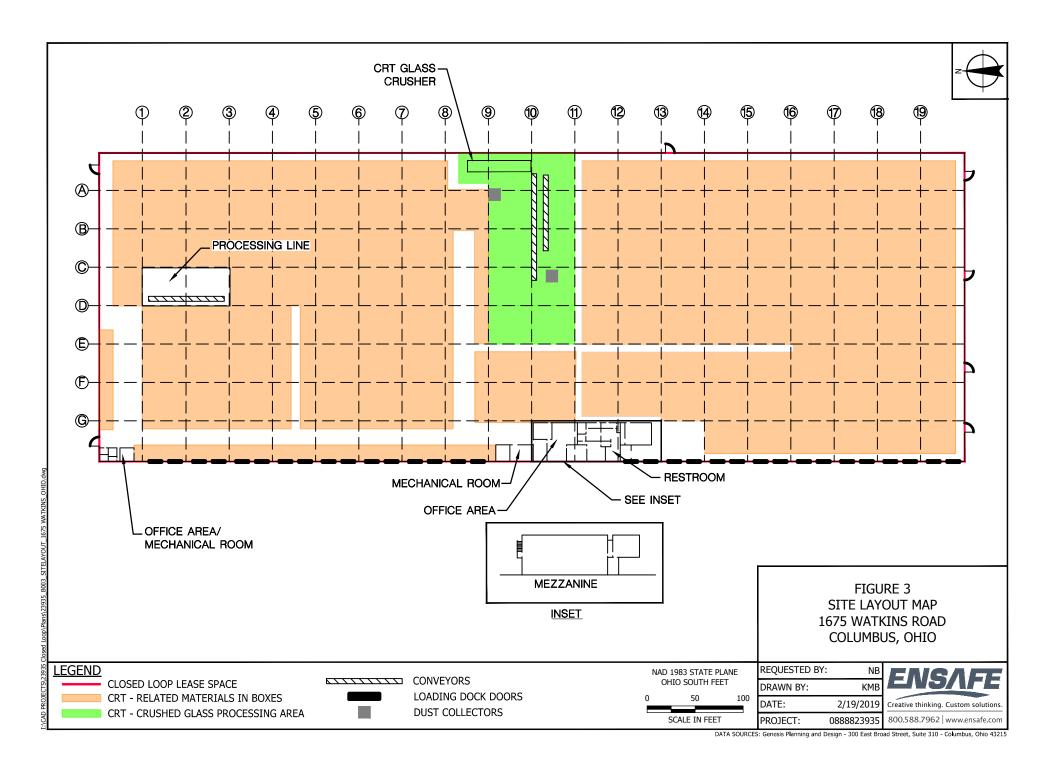
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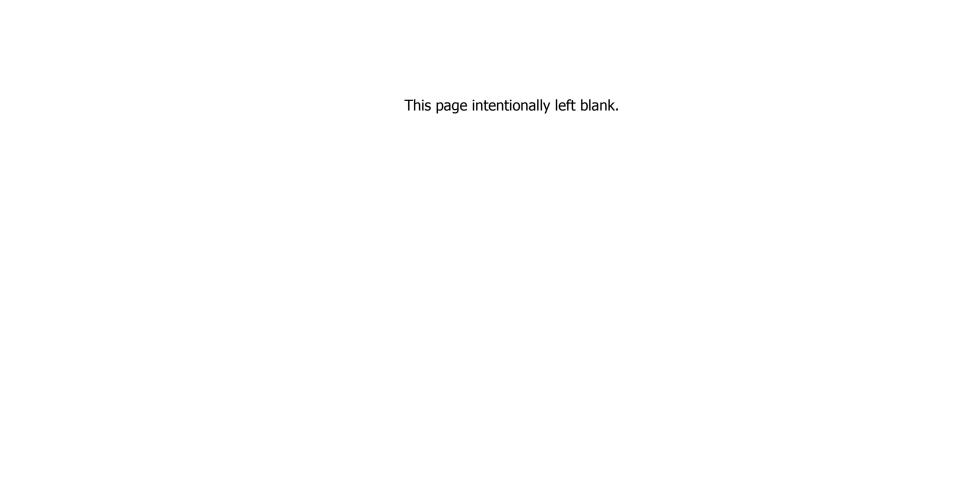
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 2/19/2019

 PROJECT:
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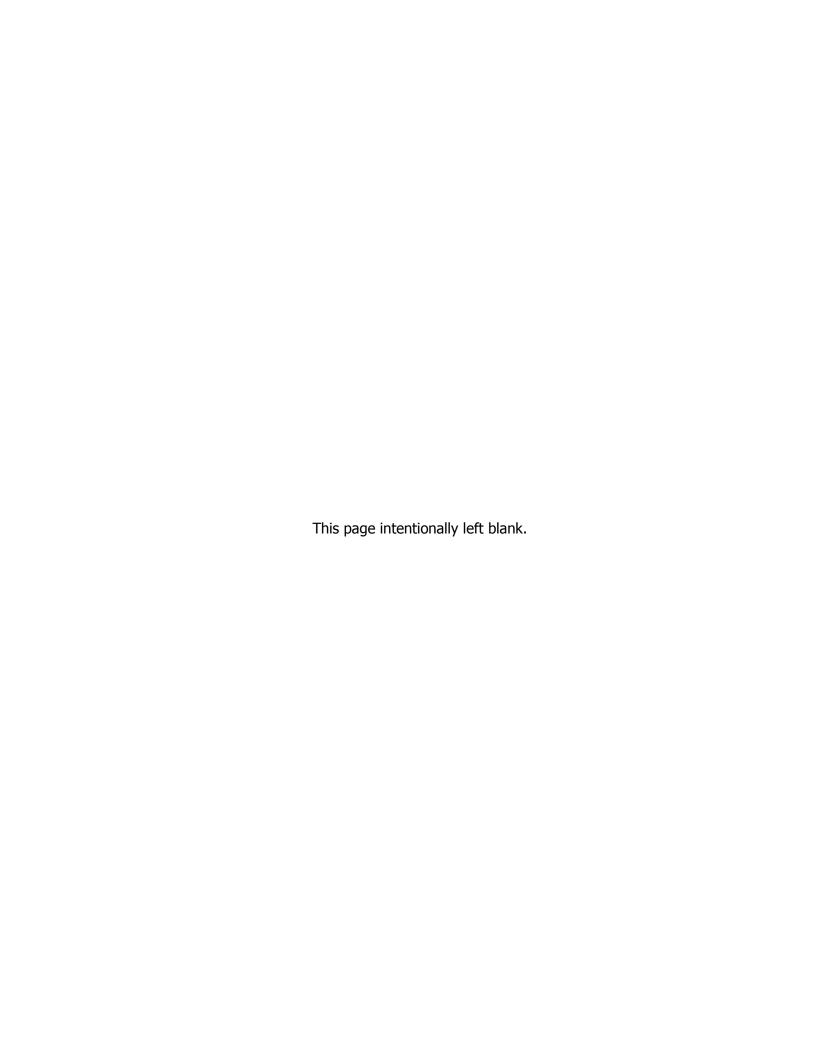








Appendix A
Community Mailing List
(To Be Expanded As Needed)



LOCAL OFFICIALS

Andrew J. Ginther Mayor, City of Columbus City Hall, 2nd Floor 90 West Broad Street Columbus, Ohio 43215 Columbus Division of Fire c/o Prevention Inspector 23 James Kennard 3639 Parsons Avenue Columbus, Ohio 43207

Darrel Koerber, Deputy Director Franklin County Emergency Management & Homeland Security 5300 Strawberry Farms Boulevard Columbus, OH 43230-1049 Far South Columbus Area Commission Neighborhood Liaison Beth Fairman Kinney 280 Reeb Avenue Columbus, Ohio 43207

Marion Franklin Civic Association President Robert Patterson 2664 Diane Place Columbus, Ohio 43207 Alum Crest Acres Civic Association President Eileen Neale 2488 Liston Avenue Columbus, Ohio 43207

Columbus Southside Area Commission Neighborhood Liaison Beth Fairman Kinney 280 Reeb Avenue Columbus, Ohio 43207 Innis Gardens Village Civic Association President Brenda Cummings 1365 Eldoran Drive Columbus, Ohio 43207

STATE OFFICIALS

Melissa Storch Environmental Manager, Division of Environmental Response and Revitalization 50 West Town Street, Suite 700 Columbus, Ohio 43215

Andy Maneff
Environmental Specialist, Division of Environmental Response and Revitalization
50 West Town Street, Suite 700
Columbus, Ohio 43215

Attachment B ARARS

| | Table B-1 Chemical-Specific ARARs | | | | | | |
|---|---|--|--|--|--|--|--|
| Action/Media | Requirement | Prerequisite | Citation(s) | Requirement Met In This Section | | | |
| Permissible Exposure Limit: Employee Exposure to Lead | No employee shall be exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 μ g/m³) averaged over an 8-hour period. When respirators are used to supplement engineering and work practice controls to comply with the PEL, employee exposure may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. | If an employee is potentially exposed to surfaces or ambient conditions within the subject property this is Applicable . | 29 CFR 1910.1025(c)(1-3) (<i>Lead Rule</i>) | Section 3.1 of the Health and Safety Plan (HASP) | | | |
| Medical Surveillance Blood Lead Level Monitoring | Blood lead level shall be maintained below 40 μg/100 g of whole blood | If an employee is potentially exposed to surfaces or ambient conditions within the subject property this is Applicable . | 29 CFR 1910.1025(j)(2) (<i>Lead Rule</i>) | Section 6.2 of the HASP | | | |
| Closure Performance | Decontamination activities (High Pressure Water Spray) will be performed to a "clean debris surface." | For the office area (e.g., walls, and ceilings) where hand wiping with solvent-soaked launderable wipes cleaning is performed, this is Applicable . | OAC 3745-270-45 Treatment standards for hazardous debris. Table 1: Alternative Treatment Standards for Hazardous Debris | Section 11.3.6 of the Closure Plan | | | |
| Closure Performance _ Standard | Decontamination activities (High Pressure Water Spray) will be performed to a "clean debris surface." | For warehouse components (e.g., walls, floors, and structural elements) where high pressure water spray cleaning is performed, this is Applicable. | OAC 3745-270-45 Treatment standards for hazardous debris. Table 1: Alternative Treatment Standards for Hazardous Debris | Section 11.3.3 of the Closure Plan | | | |

Revision No: 0
Revision Date: December 2018

| | Table B- Location-Specifi | | | |
|--|--|---|-----------|------------------------------------|
| Action/Media | Requirement | Prerequisite | Citations | Requirement Met In This Section |
| Discharge of wastewater to local publicly owned treatment works | No person shall discharge, or cause to be discharged, directly or indirectly any discharge containing toxic or poisonous substances in sufficient quantities to constitute a hazard to human beings or animals, or to create any hazard in the receiving waters and/or any discharge of hazardous wastes as defined by RCRA, to a sanitary sewer, combined sewer or at a designated trucked waste disposal site. | If wastewater generated during CRT-related material removal or during building decontamination is discharged to the City of Columbus sewer system this is Applicable . | | Section 9.2 of the Closure Plan |

Table B-3 Action-Specific ARARs Action/Media Requirement Prerequisite Citation(s) Requirement Met In This Section If wastewater generated during Prohibited discharges to CRT-related material removal or OAC 3745-3-04(A,C) (Prohibited No industrial user shall discharge any pollutant in violation of applicable pretreatment standards. Section 9.2 of the Closure Plan publicly owned during building decontamination is Discharges) treatment works discharged to the City of Columbus sewer system this is Applicable. No person shall cause or permit any fugitive dust source to be operated; or any materials to be If fugitive dusts emissions (non-Emissions restrictions for handled, transported, or stored; or a building or its appurtenances or a road to be used, constructed, OAC 3745-17-08(B) (Restriction of stack) are uncontrolled, this is Section 9.1 of the Closure Plan altered, repaired, or demolished without taking or installing reasonably available control measures to fugitive dusts Applicable. Emission of Fugitive Dust) prevent fugitive dust from becoming airborne. The part of the facility where a demolition or renovation operation will occur shall be thoroughly OAC 3745-20-02 (Standard for If demolition of building materials inspected by a certified asbestos hazard evaluation specialist, in accordance with Ohio Administrative Demolition and Renovation, Facility will occur, this is Applicable. Code (OAC) 3745-22-02(C) prior to the commencement of the demolition or renovation for the Inspection, and Determination of presence of asbestos, including category I and category II nonfriable asbestos-containing material. Applicability) Notice of intention to demolish or renovate shall be provided on a form and in manner prescribed by f asbestos containing materials are OAC 3745-20-03 (Standard for the director at least 10 working days before the beginning of any demolition operation, asbestos identified in site building materials Notification Prior to Demolition or stripping or removal work, or any other activity including salvage activities and preparations that break that will be demolished this is Prior to conducting demolition, building materials Renovation) Standards for asbestos up, dislodge or similarly disturb asbestos material. Applicable. will be evaluated. No demoliton or building waste handling All regulated asbestos-containing material shall be removed from a facility being demolished or f asbestos containing materials are renovation is anticipated. OAC 3745-20-04 (Demolition and renovated before any activity begins that would break up, dislodge, or similarly disturb the materials or identified in site building materials Renovation Procedures for Asbestos preclude access to the materials for subsequent removal in accordance with the procedures of OAC that will be demolished this is Emission Control 3745-20-04. Applicable. f asbestos containing materials are All asbestos-containing waste material shall be deposited as soon as is practical by the waste generator identified in site building materials OAC 3745-20-05 (Standard for at an approved waste disposal site. that will be demolished this is Asbestos Waste Handling) Applicable. OAC 3745-51-06 (A)(3)(b) Scrap metal is excluded from solid waste and hazardous waste regulations when recycling is used as If scrap metal is recycled as part of Scrap metal recycling (Requirements for Recyclable Section 11.2 of the Closure Plan final disposal. final disposition this is Applicable. Materials) Used, broken cathode ray tubes (CRTs) are not wastes if the CRTs are stored in a building with a roof floor, and walls or placed in a container (i.e., a package or a vehicle) that is constructed, filled, and closed to minimize releases to the environment of CRT glass (including fine solid materials). Each container in which the used, broken CRT is contained shall be labeled or marked clearly with one of the OAC 3745-51-39(A)(1-4) (Conditional following phrases: "Used cathode ray tubes- contain leaded glass" or "Leaded glass from televisions or If used or broken CRTs are Exclusion for Used, Broken CRTs and Recycling CRTs computers." The container also shall be labeled "Do not mix with other glass materials." The used, Sections 7.2.3 and 7.2.4 of the Closure Plan Processed CRT Glass Undergoing recycled this is Applicable. broken CRTs shall be transported in an appropriate container that is properly labeled. Glass from used Recycling) CRTs that is destined for recycling at a CRT glass manufacturer or a lead smelter after processing is not a waste unless such glass is "accumulated speculatively" as defined in OAC 3745-51-01(C)(8). Glass from used CRTs that is used in a manner constituting disposal shall comply with OAC 3745-266-20 to 3745-266-23 instead of this rule OAC 3745-51-39(A)(5) (Conditional Exporters of used, broken CRTs shall notify U.S. Environmental Protection Agency (EPA) of an intended If used CRTs will be exported for Exclusion for Used, Broken CRTs and export before the CRTs are scheduled to leave the United States, and shall comply with the notification Processed CRT Glass Undergoing recycling this is Applicable. requirements in 40 CFR §261.39(a)(5)(i) to (a)(5)(xi). Recycling) Sections 7.2.4 and 7.2.5 of the Closure Plan. Processed CRT glass may be shipped to to Used, intact cathode ray tubes (CRTs) exported for recycling are not wastes if such CRTs meet the DAC 3745-51-40 (Conditional Exclusion Exporting used CRTs for If used CRTs will be exported for Canada and Korea per approved permits for notice and consent conditions of 40 CFR §261.39(a)(5), and if such CRTs are not "accumulated for Used, Intact CRTs Exported for Recycling recycling this is Applicable. recyclying. Export for recycling will comply with speculatively" as defined in OAC 3745-51-01(C)(8). Recycling) these rules. OAC 3745-51-41 (Notification and Any person wanting to export used, intact cathode ray tubes (CRTs) to a foreign country shall comply If used CRTs will be exported for Recordkeeping for Used, Intact CRTs with 40 CFR §261.41. recycling this is Applicable. Exported for Reuse)

| | Table B-3 Action-Specific ARARs | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| Action/Media | Requirement | Prerequisite | Citation(s) | Requirement Met In This Section | | | | |
| Characterization of solid waste | A person who generates a solid waste, as defined in OAC 3745-51-02, must determine if that waste is a hazardous waste using the following method: a) first determine if the waste is excluded from regulation under OAC 3745-51-04; b) determine if the waste is listed as a hazardous waste under OAC 3745-51-30 to 3745-51-35; c) determine if the waste is identified under OAC 3745-51-20 to 3745-51-24 by either (1) testing in accordance with methods in 40 CFR §261 or (2) applying knowledge of the hazard characteristic of the waste in light of the materials or processes used. | If solid waste is to be discarded offsite this is Applicable . | OAC 3745-52-11(A-C) (<i>Hazardous</i> <i>Waste Determination</i>) | Sections 11.0 and 13.0 of the Closure Plan | | | | |
| | If the solid waste is determined to be hazardous, refer to OAC 3745-51, 3745-54 to 3745-57, 3745-65 to 3745-69, 3745-205, 3745-256, 3745-266, 3745-270, and 3745-273 for possible exclusions or restrictions pertaining to management of the specific waste. | If solid waste is determined to be hazardous waste this is Applicable. | OAC 3745-52-11(D) (<i>Hazardous Waste Determination</i>) | Section 11.0 of the Closure Plan | | | | |
| Disposal of solid waste | Establishes allowable methods of solid waste disposal; sanitary landfill incineration, composting. Prohibits management of solid wastes by open burning and open dumping. | If solid waste is disposed offsite this is Applicable . | OAC 3745-27-05 (<i>Hazardous Waste</i> <i>Determination</i>) | Section 7.2.5 of the Closure Plan | | | | |
| Contents of Closure Plan | The closure plan shall identify steps necessary to perform partial or final closure of the facility at any point during the active life of the facility in accordance with OAC 3745-66-11. | If a closure plan is created this is Applicable | OAC 3745-66-12 (<i>Closure plan and</i> amendment of closure plan) | Closure Plan complies with this requirement | | | | |
| Decontamination of equipment | During the partial and final closure periods, all contaminated equipment, structures, and soil must be properly disposed of, or decontaminated, unless otherwise specified in rule 3745-66-97, 3745-67-28, 3745-67-80, or 3745-68-10 of the Administrative Code. | If equipment is decontaminated this is Applicable | OAC 3745-66-14 (<i>Disposal or decontamination of equipment, structures and soils</i>) | Section 11.0 of the Closure Plan and Sections 10.1 and 10.3 of the HASP | | | | |
| Hazardous waste generator ID | A generator must not store, treat, dispose, or transport hazardous wastes without a generator number | If hazardous waste is generated this is Applicable . | OAC 3745-52-12 (<i>Generator</i> <i>Identification Number</i>) | Existing Closed-Loop generator identification number will be used. | | | | |
| Onsite transportation of hazardous waste | The manifesting requirements of OAC 3745-52-20 to 3745-52-57 and OAC 3745-52-32(B) do not apply to the transport of hazardous wastes on a public or private right-of-way within or along the border of contiguous property under the control of the same person, even if such contiguous property is divided by a public or private right-of-way. | If transporting hazardous waste between contiguous property, this is Applicable . | OAC 3745-52-20(F) (<i>General</i> Requirements) | This rule will apply when moving hazardous waste onsite between the two properties | | | | |
| | A generator who transports, or offers for transport a hazardous waste for offsite treatment, storage, or disposal must prepare a manifest ("OMB" control number 2050-0039) on U.S. EPA form 8700-22, and if necessary, U.S. EPA form 8700-22A (the continuation sheet), according to the instructions included in the appendix to OAC 3745-52. The generator must designate one facility which is permitted to handle the waste described on the manifest. | If initiating shipment of hazardous waste offsite this is Applicable . | OAC 3745-52-20 (Manifest - General Requirements) | | | | | |
| | The manifest shall consist of at least the number of copies which will provide the generator, each transporter, and the owner or operator of the designated facility with one copy each for their records and another copy to be returned to the generator. | If initiating shipment of hazardous waste offsite this is Applicable . | OAC 3745-52-22 (<i>Manifest - Number of</i> <i>Copies</i>) | | | | | |
| Offsite transportation of hazardous waste | The generator shall sign the manifest certification by hand, obtain the handwritten signature of the initial transporter and date of acceptance on the manifest, and retain one copy, in accordance with OAC 3745-52-40(A). The generator shall give the transporter the remaining copies of the manifest. | If initiating shipment of hazardous waste offsite this is Applicable . | OAC 3745-52-23 (Use of the Manifest) | Hazardous waste management will comply with these rules. | | | | |
| | A generator who initiates a shipment of hazardous waste must certify to one of the waste minimization statements in item 15 of the uniform hazardous waste manifest. | If initiating shipment of hazardous waste offsite this is Applicable . | OAC 3745-52-27 (Waste Minimization Certification) | | | | | |
| | Before transporting hazardous wastes or offering hazardous wastes for transportation off-site, the generator shall package the waste in accordance with the applicable U.S. Department of Transportation (DOT) regulations on packaging, under 49 CFR §173, 49 CFR §178, and 49 CFR §179. | If initiating shipment of hazardous waste offsite this is Applicable . | OAC 3745-52-30 (<i>Packaging</i>) | | | | | |
| | Before transporting hazardous wastes or offering hazardous wastes for transportation off-site, the generator shall label each package of hazardous waste in accordance with the applicable U.S. DOT regulations on hazardous materials under 49 CFR §172. | If initiating shipment of hazardous waste offsite this is Applicable . | OAC 3745-52-31 (<i>Labeling</i>) | | | | | |

Revision No: 0 Revision Date: December 2018

Table B-3 Action-Specific ARARs Action/Media Requirement Prerequisite Citation(s) Requirement Met In This Section Before transporting hazardous wastes or offering hazardous wastes for transportation off-site, the generator must mark each package of hazardous wastes in accordance with the applicable U.S. DOT regulations on hazardous materials under 49 CFR §172. A generator must also mark each container of If initiating shipment of hazardous 119 gallons or less used in such transportation with the following words and information displayed in OAC 3745-52-32 (Marking) accordance with the requirements of 49 CFR 172.304: "Hazardous waste — Federal law prohibits waste offsite this is Applicable. Offsite transportation of Hazardous waste management will comply with improper disposal. If found, contact the nearest police or public safety authority, or the U.S. hazardous waste (cont'd) these rules. Environmental Protection Agency. Closed Loop 1675 Watkins Road, Columbus, Ohio; OHR000167718; Manifest Document Number Before transporting hazardous wastes or offering hazardous wastes for transportation off-site, a If initiating shipment of hazardous generator must placard or offer the initial transporter the appropriate placards according to U.S. DOT OAC 3745-52-33 (Placarding) waste offsite this is Applicable. regulations for hazardous materials under 49 CFR §172 Subpart F. A (large quantity) generator who generates greater than 1,000 kilograms of hazardous waste (1 quart If a generator generates greater of acutely hazardous waste) in a calendar month may, for 90 days or less accumulate or conduct OAC 3745-52-34(A)(1)(a), (A)(2), than 1,000 kilograms of hazardous (A)(3) (Accumulation Time of treatment of hazardous waste that is generated on-site without an Ohio hazardous waste permit. waste in a calendar month this is provided that the generator complies with the remaining requirements of OAC 3745-52-34(A, B), as Hazardous Waste) Applicable. applicable. A generator may accumulate as much as 55 gallons of hazardous waste (1 guart of acutely hazardous waste) in containers at or near any point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste provided the generator complies Temporary storage of newly generated hazardous with OAC 3745-66-71, 3745-66-72, and 3745-66-73(A) and marks the containers either with the words If a generator operates a satellite waste will comply with these rules. It should be Temporary storage of OAC 3745-52-34(C) (Accumulation 'Hazardous Waste" or with other words that identify the contents of the containers. accumulation area this is noted that existing materials in the warehouses hazardous waste onsite Time of Hazardous Waste) A generator who accumulates hazardous waste in excess of 55 gallons at or near any point of have conditional exclusion for used Cathode Ray Applicable. Tubes per OAC 3745 51 38. generation shall, with respect to that amount of excess waste, within 3 days move the waste to a hazardous waste storage area and mark the container holding the excess accumulation of hazardous waste with the date the excess amount began accumulating. A (small quantity) generator who generates greater than 100 kilograms but less than 1,000 kilograms If a generator generates greater of hazardous waste in a calendar month may, for 180 days or less, accumulate or conduct treatment of than 100 kilograms but less than OAC 3745-52-34(D) (Accumulation hazardous waste that is generated on-site without an Ohio hazardous waste permit, provided that the 1,000 kilograms of hazardous Time of Hazardous Waste) quantity of waste accumulated on-site never exceeds 6,000 kilograms; and the generator complies with waste in a calendar month this is the remaining requirements of OAC 3745-52-34(D, E, and F). Applicable. A small-quantity generator must keep the following records for a period of 3 years: a copy of each Hazardous waste records will be maintained in Hazardous waste manifest: a copy of each land-disposal restriction notification; a copy of any exception reports; and If initiating shipment of hazardous accordance with this rule. Copies of these OAC 3745-52-40 (Recordkeeping) records of any test results, waste analyses, or other waste determinations. A large quantity generator waste offsite this is Applicable. ecords will be included in the Project Completion recordkeeping must retain the same records and also retain copies of training records and biennial reports. Report. A generator who ships any hazardous waste off-site shall prepare and submit to Ohio EPA the If a generator is a large quantity If hazardous wastes are removed in an odd-Hazardous waste "Hazardous Waste Biennial Report" by March first of each even numbered year. The generator shall generator of hazardous waste in OAC 3745-52-41 (Biennial Reportnumbered year, a Hazardous Waste Biennial biennial report prepare the "Hazardous Waste Biennial Report" using Ohio EPA forms EPA 9027, EPA 9028, and EPA any odd-numbered calendar year Generator Standards) Report will be prepared and submitted in 9029 provided by the director upon the request of the generator. month this is Applicable. accordance with this rule.

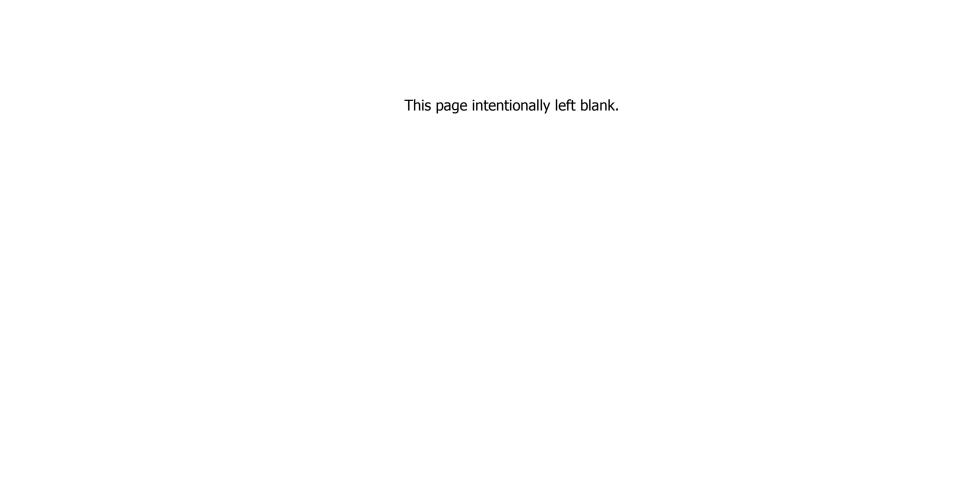
Table B-3 Action-Specific ARARs Action/Media Requirement Prerequisite Citation(s) Requirement Met In This Section A large quantity generator of hazardous waste in a calendar month who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within 35 If initiating shipment of hazardous days after the date the waste was accepted by the initial transporter, must contact the transporter waste offsite as a large quantity DAC 3745-52-42(A) (Exception Report and/or the owner or operator of the designated facility to determine the status of the hazardous waste generator of hazardous waste this An exception report must be submitted to Ohio EPA if a copy of the manifest with the handwritten is Applicable. signature of the owner or operator of the designated facility is not received within 45 days after the Hazardous waste date the waste was accepted by the initial transporter. If an exception report is necessary, it will be developed in accordance with these rules. exception reporting A small quantity generator of hazardous waste in a calendar month who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within 60 If initiating shipment of hazardous days after the date the waste was accepted by the initial transporter must submit to Ohio EPA a legible waste offsite as a small quantity OAC 3745-52-42(B) (Exception Report copy of the manifest, with some indication that the generator has not received confirmation of delivery. generator of hazardous waste this [Comment: The submittal to Ohio EPA need only be a legible handwritten or typed note on the is Applicable. manifest itself, or on an attached sheet of paper, stating that the return copy was not received.] Must obtain a detailed chemical and physical analysis of a representative sample of the wastes. At a If hazardous waste treatment, Characterization of 3745-65-13(A) (General Waste minimum, the analysis must contain all the information which must be known to treat, store, or dispose Section 2.1 of the Sampling and Analysis Plan storage, or disposal is occurring hazardous waste Analysis) of the waste in accordance with OAC 3745-65 to 3745-69, 3745-256, and 3745-270. this is Applicable. Facility personnel shall successfully complete a program of classroom instruction or on-the-job training that ensures facility personnel are able to respond effectively to emergencies by familiarizing facility personnel with emergency procedures, emergency equipment, and emergency systems, including, where applicable: procedures for using, inspecting, repairing, and replacing facility emergency and Field personnel will comply with training monitoring equipment; communications or alarm systems; response to fires or explosions; and requirements in accordance with this rule before Hazardous waste If hazardous waste treatment. the start of closure activities. Training records shutdown of operations. personnel training storage, or disposal is occurring 3745-65-16 (Personnel Training) Facility personnel shall successfully complete the training program within 6 months after assignment to will be maintained in accordance with this rule requirements this is Applicable. the facility, or to a new position at a facility, whichever is later and shall take part in an annual review and copies will be maintinained by contractors of the initial training during each period from January 1 to December 31 and within 15 months after performing removal actions. the previous review. Training records that document that the training or job experience has been given to, and completed by, facility personnel shall be kept for at least 3 years from the date the employee last worked at the facility. All facilities shall be equipped with an internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel; a device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of Waste accumulation areas will contain If hazardous waste treatment, summoning emergency assistance from local police departments, fire departments, or local or Ohio storage, or disposal is occurring 3745-65-32 (Required Equipment) appropriate emergency response equipment. Fire EPA emergency response teams; portable fire extinguishers, fire control equipment, spill control this is Applicable. Extinguisher (ABC Multi-Purpose Dry Chemical) and Spill Kit (containing absorbent pads, granular equipment, and decontamination equipment; and water at adequate volume and pressure to supply clay absorbent pellets, booms, gloves, googles, water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems. boot covers, disposal bags, and caution tapes) Hazardous waste facility will be available in the waste accumulation areas All facility communications or alarm systems, fire protection equipment, spill control equipment, and required equipment If hazardous waste treatment, The specific location of waste accumulation areas decontamination equipment, where required, shall be tested and maintained as necessary to assure 3745-65-33 (Testing and Maintenance storage, or disposal is occurring will be determined based on the quantity of proper operation of the equipment in time of emergency. The owner or operator shall record the of Equipment) this is Applicable. wastes in each building and the sequence of inspections in a log or summary. work. Site Maps will be updated to include the waste accumulation areas prior to closure Whenever hazardous waste is being handled, all personnel involved in the operation shall have If hazardous waste treatment, activites and if areas are moved. 3745-65-34 (Access to immediate access to an internal alarm or emergency communication device, either directly or through storage, or disposal is occurring visual or voice contact with another employee, unless such a device is not required under OAC 3745-Communications or Alarm System) this is Applicable. Maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill If hazardous waste treatment. Hazardous waste facility Waste accumulation areas will comply with this control equipment, and decontamination equipment to any area of facility operation in an emergency. storage, or disposal is occurring 3745-65-35 (Required Aisle Space) aisle space requirement. unless aisle space is not needed for any of the above-mentioned purposes. this is Applicable.

| | Table B-3 Action-Specific ARARs | | | | | | |
|--|--|---|--|--|--|--|--|
| Action/Media | Requirement | Prerequisite | Citation(s) | Requirement Met In This Section | | | |
| Hazardous waste facility arrangements with local authorities | The owner or operator shall attempt to make arrangements to familiarize police, fire departments, and local emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to roads inside the facility, and possible evacuation routes; arrangements with local emergency response teams, emergency response contractors, and equipment suppliers; and arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases of hazardous waste or hazardous waste constituents at the facility. | If hazardous waste treatment, storage, or disposal is occurring this is Applicable . | 3745-65-37 (Arrangements with local authorities) | Arrangements will be made with local authorities prior to the start of closure activities. | | | |
| Hazardous waste contingency plan | The contingency plan shall: - describe the actions facility personnel shall take to respond to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility. - describe arrangements with local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services, pursuant to OAC 3745-65-37. - list names, home addresses, and home or cellular telephone numbers of all persons qualified to act as emergency coordinator. - include an up to date list of all emergency equipment at the facility, where this equipment is required. - include an evacuation plan for facility personnel | If hazardous waste treatment, storage, or disposal is occurring this is Applicable . | 3745-65-52 (Content of Contingency Plan) | A hazardous waste contingency plan will be developed prior to the start of closure activities. | | | |
| | A copy of the updated contingency plan shall be maintained at the facility and submitted to all local police departments, fire departments, hospitals, and local emergency response teams described in the contingency plan pursuant to OAC 3745-65-52(C). | If hazardous waste treatment, storage, or disposal is occurring this is Applicable . | 3745-65-53 (<i>Copies of Contingency</i> <i>Plan</i>) | | | | |
| | The contingency plan must be reviewed, and immediately amended, if necessary, whenever applicable rules are revised; the contingency plan fails in an emergency; the facility changes - in its design, construction, operation, maintenance, or other circumstances - in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency; the list of emergency coordinators changes; or the list of emergency equipment changes. | If hazardous waste treatment, storage, or disposal is occurring this is Applicable . | 3745-65-54 (<i>Amendment of</i> Contingency Plan) | | | | |
| Hazardous waste facility emergency coordinator | At all times, there shall be at least one employee either on the facility premises or on call with the responsibility for assuming coordination of all internal emergency response measures. This emergency coordinator shall be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person shall have the authority to commit the resources needed to implement the provisions of the contingency plan. | If hazardous waste treatment, storage, or disposal is occurring this is Applicable . | 3745-65-55 (Emergency Coordinator) | | | | |
| Hazardous waste facility emergency procedures | Whenever there is an emergency situation consisting of imminent or actual harm or hazard to human health or the environment, the emergency coordinator (or designee) shall immediately activate internal facility alarms or communication systems, where applicable, to notify all facility personnel and notify the Ohio EPA "Emergency Response Unit" at 800-282-9378, and appropriate local authorities with designated response roles. The emergency coordinator shall also immediately identify the nature extent of any released materials; assess potential hazards to human health or the environment; notify appropriate authorities if assessment indicates that evacuation of local areas may be advisable; take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread; provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility; and note in the operating record the time, date, and details of any incident that requires the contingency plan to be implemented. | If hazardous waste treatment, storage, or disposal is occurring this is Applicable . | 3745-65-56 (Emergency Procedures) | A designated emergency coordinator will be identified prior to closure activities and he/she (or designee) will adhere to these rules. | | | |

| | Table B-3 Action-Specific ARARs | | | | | | |
|---|--|---|--|---|--|--|--|
| Action/Media | Requirement | Prerequisite | Citation(s) | Requirement Met In This Section | | | |
| Closure of hazardous waste container storage area | The owner or operator must close the facility in a manner that: (a) minimizes the need for further maintenance; and (b) controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and (c) complies with the closure requirements of OAC 3745-66-10 to 3745-66-21, including, but not limited to, the requirements of OAC 3745-66-97, 3745-67-28, 3745-67-80, 3745-68-10, 3745-68-51, 3745-68-81, 3745-69-04, and 3745-256-102. | If hazardous waste is stored in a container storage area this is Applicable. | OAC 3745-66-11 (<i>Closure Performance Standards</i>) | Section 11.3 of the Closure Plan describes procedures for clean closure of the site building, including any less-than-90-day hazardous waste storage areas. | | | |
| | If a container holding hazardous waste is not in good condition, or if it begins to leak, the hazardous waste must be transferred from this container to a container that is in good condition. | | OAC 3745-66-71 (<i>Condition of</i> <i>Containers</i>) | | | | |
| | Must use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired. | | OAC 3745-66-72 (Compatibility of Waste with Container) | | | | |
| Condition and management of hazardous waste containers | Containers holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste. Containers holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak. | If hazard waste is stored in containers this is Applicable . | OAC 3745-66-73 (Management of Containers) | Hazardous waste materials will be managed in accordance with these rules. | | | |
| | At least once during each period from Sunday to Saturday, the owner or operator shall inspect areas where containers are stored. The owner or operator shall look for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors. The owner or operator shall record inspections in an inspection log or summary. | | OAC 3745-66-74 (<i>Inspections -</i> Containers) | | | | |
| | Incompatible materials shall not be placed in the same container, and hazardous waste shall not be placed in an unwashed container that previously held an incompatible waste. A storage container holding a hazardous waste that is incompatible with any other materials stored nearby shall be separated from the other materials or protected from the other materials by means of a dike, berm, wall, or other device. | | OAC 3745-66-77 (Special Requirements for Incompatible Wastes - Containers) | | | | |
| | The generator must determine each EPA Hazardous Waste Number (waste code) applicable to the waste in order to determine the applicable treatment standards under OAC 3745-270-40 to 3745-270-49. This determination may be made concurrently with the hazardous waste determination required in OAC 3745-52-11. | If hazardous waste treatment is occurring this is Applicable . | OAC 3745-270-09(A) (Special Rules Regarding Wastes that Exhibit a Characteristic) | | | | |
| Management of hazardous waste | If the waste displays a hazardous characteristic (and is not D001 non-wastewater treated by CMBST, RORGS, or POLYM in the OAC 3745-270-42 table), the generator shall determine "underlying hazardous constituents" (as defined in OAC 3745-270-02) in the characteristic waste. | If waste displays hazardous characteristic this is Applicable . | OAC 3745-270-09(A) (<i>Special Rules</i> <i>Regarding Wastes that Exhibit a</i> <i>Characteristic</i>) | Hazardous waste materials will be identified and managed in accordance with these rules. | | | |
| | The generator must determine if the waste has to be treated before it can be land disposed. This is done by determining if the hazardous waste meets the treatment standards in OAC 3745-270-40, 3745-270-45, or 3745-270-49. This determination can be made concurrently with the hazardous waste determination required in OAC 3745-52-11 in each two ways: testing the waste or using knowledge of the waste. | If hazardous waste is being land disposed this is Applicable . | OAC 3745-270-07(A) (Testing, Tracking, and Recordkeeping Requirements for Generators, Treaters, and Disposal Facilities) | | | | |
| Waste specific prohibitions | The wastes specified in OAC 3745-51 as EPA hazardous waste numbers D004 to D011 that are newly identified (i.e. wastes or debris identified as hazardous by the toxic characteristic leaching procedure) are prohibited from land disposal unless the wastes meet the applicable treatment standards specified in OAC 3745-270-40 to 3745-270-49. | If characteristically hazardous metallic wastes are encountered this is Applicable . | OAC 3745-270-34(A, E) (<i>Waste</i> Specific Prohibitions- Toxicity Characteristic Metal Wastes) | Hazardous waste materials will be disposed in accordance with these rules. | | | |

Revision No: 0 Revision Date: December 2018

| | Table B-3 Action-Specific ARARs | | | | | | |
|---------------------------------------|---|---|--|--|--|--|--|
| Action/Media | Requirement | Citation(s) | Requirement Met In This Section | | | | |
| Land disposal of hazardous wastes | Prohibited waste identified in the table "Treatment Standards for Hazardous Wastes" may be land disposed only if it meet the requirements found in the table. If the waste does not meet treatment standards, or if the generator chooses not to make the determination of whether the generator's waste shall be treated, with the initial shipment of waste to each treatment or storage facility, the generator shall send a one-time written notice to each treatment or storage facility receiving the waste, and place a copy in the generator's files. | land disposed this is Applicable. | OAC 3745-270-40(A) (<i>Applicability-</i> <i>Treatment Standards</i>) | | | | |
| | All "underlying hazardous constituents" (as defined in OAC 3745-270-02) shall meet universal treatment standards in the table in OAC 3745-270-48 prior to "land disposal" (as defined in OAC 3745-270-02). | If characteristic hazardous waste is going to be land disposed this is Applicable . | OAC 3745-270-40(E) (Applicability- Treatment Standards) | Hazardous waste materials will be disposed in | | | |
| Land disposal of hazardous debris | Hazardous debris must be treated prior to land disposal unless Ohio EPA determines under OAC 3745-51-03(FO(2) that the debris is no longer contaminated with hazardous waste or the debris is treated to the waste-specific treatment standard provided in OAC 3745-270-40 to 3745-270-49 for the waste contaminating the debris. | debris is no longer contaminated with hazardous waste or the debris is treated to eatment standard provided in OAC 3745-270-49 for the waste this is Applicable . OAC 3745-270-45(A) (<i>Treatment Standard provided in OAC 3745-270-49</i> for the waste of the waste of the debris is the provided in OAC 3745-270-45(A) (<i>Treatment Standards for Hazardous Debris</i>) | | accordance with these rules. | | | |
| Land disposal of hazardous wastes | The table in this rule identifies the hazardous constituents, along with the non-wastewater and wastewater treatment standard levels, that are used to regulate most prohibited hazardous wastes with numerical limits. For determining compliance with treatment standards for "underlying hazardous constituents" as defined in OAC 3745-270-02, these treatment standards may not be exceeded. Compliance with these treatment standards is measured by an analysis of grab samples, unless otherwise noted in the table in this rule. | If hazardous waste is going to be land disposed this is Applicable . | 3745-270-48 (<i>Universal Treatment</i> Standards) | | | | |
| Transportation of hazardous materials | Transportation of a hazardous material in commerce is subject to and must comply with all applicable provisions of the federal hazardous materials transportation law (49 U.S.C. 5101 et seq.) and hazardous materials regulations 49 CFR 171-180 related to marking, labeling, placarding, packaging, emergency response, etc. | If transporting hazardous material this is Applicable . | 49 CFR 171.1(c) (<i>Transportation Functions</i>) | Hazardous waste materials will be transported in accordance with 49 CFR 171-180. | | | |



Attachment C
Cost Estimate Backup

1655/1675 WATKINS ROAD — FUTURE COST BREAKDOWN 1655 Watkins Road

| Project | Contractor | | Estimated Weights and Costs | | | Estimate |
|---|-----------------------------|--------------------------------------|---|-----------|-----------|---|
| Contamination Reduction Zone Construction and Maintenance | HEPA Environmental Services | | | | \$49,600 | |
| | | Material | Weight (Pounds) | Unit Cost | Cost | |
| | | Whole Units | 3,416,229 | \$0.22 | \$751,570 | |
| | | Unprocessed CRT | 6,576,765 | \$0.14 | \$920,747 | |
| E-Waste Removal, Recycling, and Disposal | NovoTec Recycling | Projection Lamps and TVs | 73,334 | \$0.185 | \$13,567 | ¢1 699 250 |
| | | Mixed Funnel/Panel Glass in Gaylords | 0 | \$0.1025 | \$0 | \$1,688,250 |
| | | Steel with Glass | 1,944 | \$0.05 | \$97 | |
| | | Plastic | 19,440 | \$0.05 | \$972 | |
| | | Panel with Metal | 14,406 | \$0.09 | \$1,297 | |
| Lead Abatement: Decontamination | | Decontamination | | \$55 | 3,380 | \$590,280 |
| | | Onsite Waste Water Trea | Onsite Waste Water Treatment and Disposal | | 5,900 | \$J90,200 |
| Wall Construction | HEPA Environmental Services | | | | | \$6,800 |
| Project Management | AKT Peerless | | | | | \$324,724 (including \$30,000 for closure report) |
| TOTAL | | | | | | \$2,659,654.00 |

1675 Watkins Road

| Project | Contractor | | Estimated Weights a | ınd Costs | | Estimate |
|---|--------------------------------|--------------------------------------|---|-----------|--------------|---|
| Contamination Reduction Zone Construction and Maintenance | HEPA Environmental Services | <u> </u> | | | \$49,600 | |
| | | Material | Weight (pounds) | Unit Cost | Cost | |
| | | Whole Units | 1,469,879 | \$0.22 | \$323,373 | |
| | | Unprocessed CRT | 2,163,603 | \$0.14 | \$302,904 | |
| E-Waste Removal, Recycling, and Disposal | NovoTec Recycling | Projection Lamps and TVs | 0 | \$0.185 | \$0 | ф12 210 402 |
| | | Mixed Funnel/Panel Glass in Gaylords | 113,750,757 | \$0.1025 | \$11,659,453 | \$12,318,493 |
| | | Steel with Glass | 324,648 | \$0.05 | \$16,232 | |
| | | Plastic | 15,120 | \$0.05 | \$756 | |
| | | Panel with Metal | 175,273 | \$0.09 | \$15,775 | |
| Land Abatament, Decemberainstics | LIEDA En diren mental Comisses | | | \$874,700 | | ¢020,200 |
| Lead Abatement: Decontamination | HEPA Environmental Services | Onsite Waste Water Trea | e Waste Water Treatment and Disposal \$45,500 | | 5,500 | \$920,200 |
| Wall Construction | N/A | | | | | N/A |
| Project Management | AKT Peerless | | | | | \$726,449 (including \$45,000 closure report) |
| TOTAL | | | | | | \$14,014,742.00 |



Revised Proposal for Removal and Disposition of Material from 1655 and 1675 Watkins Road Warehouse

Submitted by: Novotec Recycling LLC

Date: April 13, 2020

Novotec Recycling (hereinafter referred to as Novotec) is pleased to submit the revised proposal outlined below at the request of King & Spalding LLP, as counsel for Garrison Southfield Park LLC (hereinafter referred to as Garrison). This proposal is to provide management, transportation and labor for the removal and proper disposal and/or recycling of the Subject Material, as defined below, from the Subject Property, as defined below. The above-mentioned removal and proper disposal and/or recycling of Subject Material shall be referred to hereinafter as the "Project." This proposal supersedes the original Novotec proposal dated August 23, 2016.

Subject Property: The Subject Property includes the approximately 290,444 square feet of warehouse space in the building located at 1675 Watkins Road, Columbus, Ohio 43207 (hereinafter referred to as 1675) and approximately 115,000 square feet of the warehouse space in the building located at 1655 Watkins Road, Columbus, Ohio 43207 (hereinafter referred to as 1655). The Subject Property also includes the space located in the connecting structure between 1675 and 1655.

Subject Material: The material to be removed from the Subject Property includes whole cathode ray tube (CRT) units, CRT-containing display devices (televisions, computer monitors and terminal displays), partial or broken CRT display devices, CRTs that have been removed from whole CRT display devices, broken or partial CRTs that have been removed from whole CRT display devices, boxes of glass that has been removed from CRTs, steel banding from CRTs, plastic housings that have been removed from whole CRT display devices, flat panel displays (flat panel televisions and computer monitors), whole and partial projector TV sets, projector TV lamps, whole and broken pallets, and miscellaneous equipment (including, but not limited to, conveyors, tables, portable light fixtures, balers, screeners, dumpers, trash containers). An estimate of the breakdown of the Subject Material is attached to this proposal as **Attachment A**.

Approved Service Provider (ASP): An Approved Service Provider is a legal entity doing business as a company that provides disposal and/or recycling services for the proper, legal and final disposition of the Subject Material such that Garrison is relieved of all liability for such material and has no further financial or legal obligation regarding such material. ASPs might include entities such as downstream processors, smelters, or landfills. Novotec has relationships with a variety of possible ASPs for this Project. Each ASP has different processes and services that will dispose of and/or recycle the Subject Material, and each ASP has different price structures and costs. Novotec will provide Garrison with pricing and details on the options for using the different ASPs, and Garrison shall choose which ASP they wish to utilize, as appropriate, and based on consultation with Novotec.



Once approved, Novotec will set up logistics and will work to maximize the number of loads per day sent to each ASP with the goal of clearing the Subject Property as quickly as possible, while maintaining compliance with the Project terms and conditions and in keeping with any funding constraints.

Novotec's Obligations

Novotec's obligations under this proposal shall include the following:

- 1) Novotec will provide all labor and equipment required to safely move the Subject Material within the warehouse and stage such material for processing and/or shipping. This may require that some boxes or pallets currently in the warehouse be repackaged if the existing box or pallet falls apart during the staging process. The parties are aware that much of this material has been sitting in the warehouse for several years and that many of the boxes and pallets are not in good condition. Novotec will provide the shrink wrap, pallets and gaylords, if required, to stage the loads properly for shipping.
- Novotec will provide all labor and equipment required to process and/or load the Subject Material into the appropriate shipping containers for transportation to its designated ASP in accordance with all federal, state and local regulations.
- 3) Novotec will arrange, manage and pay for all transportation services required to transport the Subject Material from the Subject Property to its designated ASP. Novotec will provide all legal documentation and keep records of all shipments as may be required by any applicable laws, rules or regulations or industry certifications.
- 4) Novotec will arrange, manage and pay for all disposal and/or recycling services as may be provided by each ASP. Novotec will provide Garrison with records of all invoices and payments made to any ASP.
- 5) Novotec will provide Garrison with invoices for the removal of all material on a monthly basis. Novotec will provide all invoices in a timely manner such that Garrison has ample time to make arrangements with the State of Ohio to pay such invoices from an escrow account to be managed by the State of Ohio. Details of payment terms will be worked out prior to commencement of the Project.
- 6) Due to the current condition of the material, it is understood by both parties that there may be some unforeseen expenses. For example, if some of the boxes collapse and it is required that a skid loader be brought in to clean up the glass, then the cost of the skid loader would be in addition to the costs outlined above and on the attached pricing sheet. Novotec will seek advanced approval from Garrison before incurring any such unforeseen expenses such that Garrison has ample time to make arrangements with the State of Ohio to approve payment of such expenses from the escrow account to be managed by the State of Ohio.
- 7) This proposal does not contemplate final site decontamination by Novotec after all of the material has been removed.



8) Novotec will coordinate with AKT Peerless and its representatives in an effort to ensure that all work being performed onsite by Novotec and its employees is in conformance with the Health and Safety Plan (HASP) for the management of the Project as well as in conformance with the U.S. Environmental Protection Agency National Contingency Plan at 40 C.F.R. Part 300.

Garrison's Obligations

Garrison's obligations under this proposal shall include the following:

- Garrison will provide access to the building, the front dock area and parking area such that Novotec can meet all of its obligations outlined above without any unreasonable interference or undue delay.
- Garrison will provide Novotec with a copy of the HASP and will pursue commercially reasonable efforts to ensure that AKT Peerless coordinates with Novotec for its implementation.
- 3) Garrison shall keep and maintain in working order the lights in the warehouse, dock doors or any other equipment necessary for Novotec to fulfill its obligations. Novotec does not anticipate requiring any additional heavy equipment or equipment that would use large power requirements.
- 4) Garrison will pursue commercially reasonable efforts to make arrangements with the State of Ohio to pay all invoices within the terms provided for such payment. In certain cases, ASPs may require Novotec to make payment in advance of the material arriving at their facility. In such cases, Garrison agrees to work with Novotec to provide such financial assurances as Novotec may require in order to facilitate Novotec's advanced payments to the various ASPs. It is anticipated that this financial assurance will be satisfied by the existence of sufficient funds in the escrow account to be managed by the State of Ohio for the Project. Details of payment terms will be worked out prior to commencement of the Project.
- Garrison will keep and maintain the fire suppression system in working order.
- 6) Garrison will keep and maintain the men's and women's restrooms in working order.
- 7) Garrison will provide access to an area suitable to for use as a breakroom.

Strategy

After additional discussions with counsel for Garrison and AKT Peerless, Novotec is proposing the following strategy and schedule:

The Project will be broken into two phases. Phase 1 will focus on removing all of the material in 1655 and may involve removing certain material in 1675. Phase 2 will remove and dispose of all material in 1675, which primarily includes Mixed Funnel/Panel Glass. Details for each Phase are below.



Phase 1 (1655) – (12 to 24 weeks) - In Phase 1, Novotec will remove all of the Whole Units, Unprocessed CRT, Projector Lamps and TV, Steel with Glass, Plastic, and Panel with Metal identified in Attachment A as well as any miscellaneous materials and equipment from 1655 such that the 1655 is completely empty of all Subject Material and equipment and is ready for any additional contractors to perform the final dust removal and cleaning. In addition to onsite processing, Novotec anticipates shipping some of the Phase 1 material directly to the Novotec Groves Road facility for processing and final disposition. Novotec will coordinate if necessary with any and all governmental entities that have authority over the clean-up of the site or the transport of materials from the site to provide any and all documentation required in order for the material being removed to be considered conditionally exempt from being designated as waste or hazardous waste under CFR Title 40 Subchapter I regarding Solid Wastes and Ohio state corollaries.

Garrison has the option to elect to have all Whole Units, Unprocessed CRT, Projector Lamps and TV, Steel with Glass, Plastic, and Panel with Metal removed from 1675 as part of Phase 1. If Garrison elects to proceed with this option, then Novotec will remove such material as part of Phase 1, if Novotec, in its sole discretion, has the available labor and capacity to do at the time Garrison elects the option.

Phase 2 (1675)— (timing to be determined) — In Phase 2, Novotec will remove all of the Mixed Funnel/Panel Glass as well as any other remaining material or equipment such that 1675 is completely empty of all Subject Material and equipment and is ready for any additional contractors to perform the final dust removal and cleaning. Novotec will identify and work with Garrison to approve as many ASPs as possible for this material. Novotec will continually manage the contracts with each ASP to maximize the number of loads per day that each ASP can take, while maintaining compliance with the Project terms and conditions and in keeping with any funding constraints.

For each Phase there are 3 anticipated Stages. The three stages are summarized as follows:

- 1) Site Preparation Performed by Others
- 2) Removal and Disposal of CRT Materials (Novotec)
- 3) Final Clean-up and Decontamination Performed by Others

Stage 1 -Site Preparation – Site Preparation activities shall include the construction and maintenance of a contamination reduction zone and the disposal of a variety of waste streams generated throughout the Project, including household debris and general trash, used HEPA-filters, dust from decontamination activities, waste packaging, and assorted metallic debris that cannot be recycled. These Site Preparation activities will generally not be a part of the scope of work to be performed by Novotec. Nothing set forth herein, however, shall relieve Novotec of its general duty to maintain a safe workplace for its personnel and its obligations to comply with the HASP.

Stage 2 – Removal and Disposal of CRT material – Novotec proposes to provide all of the services required for Stage 2. These services will include the following:

1. Novotec would provide personnel to prepare gaylords and other containers for transportation to Novotec's facility, or other approved disposal and/or recycling facility. This task includes maintaining a



dust-free environment during removal activities as specified in the draft Closure Plan and associated documents.

- 2. Novotec would be responsible for the transportation of all materials including, but not limited to, Whole Units, Unprocessed CRT, Projector Lamps and TV, Steel with Glass, Plastic, Panel with Metal, any miscellaneous materials and equipment, and Mixed Funnel/Panel Glass from the site.
- Novotec would be responsible for any health and safety planning and protection monitoring of its
 employees (site-specific HASP/JHA for activities not included in the existing HASP, insurance certificate,
 employee training certificates and medical clearances, permits, all personal protective equipment (PPE)
 and related materials for employees, etc.).
- 4. Novotec will provide for the disposal of all PPE utilized by Novotec employees.
- Novotec will generate documentation evidencing the volume (by weight) of material processed by Novotec onsite. Novotec will also generate documentation evidencing the volume (by weight) of material shipped from the site.
- 6. Novotec's proposal includes an option for the recycling rather than full disposal of a portion of the CRT glass and CRT tubes. The pricing for these options is in the pricing table below.
- It is anticipated that Stage 1 of this Project would begin in February of 2020. It is understood that Garrison will need the Ohio EPA's approval of the final Closure Plan as a condition precedent for Project initiation.

Stage 3 – Final Clean-up and Decontamination – Final Clean-up and Decontamination shall include lead dust abatement of the facility once all materials are removed from the site. These Final Clean-up and Decontamination activities will generally not be a part of the scope of work to be performed by Novotec. Nothing set forth herein, however, shall relieve Novotec of its general duty to maintain a safe workplace for its personnel and its obligations to comply with the HASP.

Pricing – The Pricing for each different material is shown on **Attachment A**. The pricing for the Mixed Funnel/Panel Glass in Gaylords is based upon using our currently identified Lowest Cost ASP. The costs shown for Whole Units and Unprocessed CRT are based upon Novotec processing the material in accordance with federal and state law and industry best practice. All pricing includes all costs associated with the management of the material to final disposition as outlined above under Novotec's obligations.

If this proposal is acceptable then please have the appropriate person sign and date the signature block below and return to Tom Bolon at tbolon@novotecrecycling.com.

Novotec appreciates the opportunity to submit this proposal and looks forward to working with Garrison on this Project.



Regards.

Thomas M. Bolon Jr. CEO



3960 Groves Road, Columbus, Ohio 43232 (614) 236-2222 tbolon@novotecrecycling.com





Garrison Southfield Park LLC accepts this proposal and agrees to move forward in good faith to negotiate, draft and execute a formal agreement based upon the above terms and conditions.

Signature,

Title: (EO

Date: 4-13-20

Print Name: Tom 13clo

Attachment A

| | | See Notes Be | low regarding Weigh | nts and Pricing | | |
|--------------------------------------|------------|--------------|---------------------|-----------------|----------------|----------------|
| Material | | | Price / # | | | |
| | 1655 | 1675 | | 1655 | 1675 | |
| Whole Units | 3,416,229 | 1,469,879 | (\$0.22) | (\$751,570) | (\$323,373) | (\$1,074,944 |
| Unprocessed CRT | 6,576,765 | 2,163,603 | (\$0.14) | (\$920,747) | (\$302,904) | (\$1,223,652 |
| Projector Lamps and TV | 73,334 | | (\$0.185) | (\$13,567) | \$0 | (\$13,567) |
| Mixed Funnel/Panel Glass in Gaylords | | 113,750,757 | (\$0.1025) | \$0 | (\$11,659,453) | (\$11,659,453) |
| Steel with glass | 1,944 | 324,648 | (\$0.05) | (\$97) | (\$16,232) | (\$16,330 |
| Plastic | 19,440 | 15,120 | (\$0.05) | (\$972) | (\$756) | (\$1,728) |
| Panel with metal | 14,406 | 175,273 | (\$0.09) | (\$1,297) | (\$15,775) | (\$17,071) |
| | 10,102,118 | 117,899,280 | | (\$1,688,250) | (\$12,318,493) | (\$14,006,743) |
| Totals | | 128,001,398 | (\$0.109) | | | (\$14,006,743) |
| | | | Average Cost per LB | | | |

- Notes: 1. Weights are estimates based a field inspection and evaluation conducted by Atwell, LLC, as revised by AKT Peerless. Actual project invoicing will be based on total received weight.
 - 2. Pricing is a unit pricing per pound of loaded material.
 - 3. The cost for managing Unprocessed CRT is based on landfill disposal. Recycling is not an economically viable option given current site conditions and the manner in which this stream was originally processed. The costs for managing this waste stream is \$0.015 per pound higher than at 2200 Fairwood Ave. due to increased labor costs associated with more deteriorated site and material conditions.
 - 4. The total estimated volume of e-waste at the Facility is 187,975 lbs less than the total estimated volume in Novotec's original estimate in keeping with the fact that approximately 185,975 lbs of projection lenses were removed from the Facility for recycling as part of the projection lens project.
 - 5. The Mixed Funnel/Panel Glass in Gaylords and the total estimated volume of e-waste at the Facility include the approximately 21,250 lbs of Mixed Funnel/Panel Glass that Novotec removed from the Facility as part of a pilot project in the Summer of 2019 to assess whether this stream could be recycled as opposed to landfilled. This weight remains within these estimates, because Novotec has not yet issued the invoices for processing.
 - 6. The current market rate to process Whole Units increased from \$0.16 per pound in 2016 to \$0.18 per pound. The additional \$0.04 increase from the original estimate accounts for higher transportation costs; higher labor costs; additional in-warehouse activities associated with deteriorating site conditions; and additional labor associated with HASP compliance that were not accounted for in Novotec's original estimate.
 - 7. The projected costs for managing the Mixed Funnel/Panel Glass stream likewise increased from \$0.09 per pound in 2016 to \$0.1025 per pound to account for higher transportation costs; higher labor costs; additional in-warehouse activities associated with deteriorating site conditions; and additional labor associated with HASP compliance that were not accounted for in the original estimate.
 - 8. The commodities markets for steel and plastic have declined since 2016, thus why the projected costs to manage Steel with Glass increased from \$0.00 per pound to \$0.05 per pound and why the projected costs to manage Plastic increased from a \$0.10 per pound gain to a \$0.05 per pound loss. The deteriorating condition of these commodities also contributed to these increases.



5130 Tallmadge Road. Rootstown, OH 44272 Phone / Fax 330.818.0188 Toll Free 866.366.1896 www.hepa1.net

PROPOSAL# AK 001 Rev #3

Jerry Kaminski, P.G. AKT Peerless Environmental 30675 Solon Road, Suite 101, Solon, OH 44139 M (440) 251-5377

February 7, 2020

RE: Closed loop clean up and closure 1655 Watkins.

kaminskij@aktpeerless.com

All material is guaranteed to be as specified. All work to be completed in a workman like manner according to standard practices. Any alterations or deviations from the specified work involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado, and other necessary insurance. Our workers are fully covered by Workers Compensation Insurance. Invoices are monthly based on percent complete Payment terms are net 30 days.

SPECIFICATIONS AND DESCRIPTION

HEPA Environmental Services, Inc. is pleased to present the following proposal to:

Base Bid:

- 1. Provide a submittal package to the owner's rep to include documentation of lead training, medical clearances, fit tests, HASP, and company insurance.
- Construct a CRZ and CLZ zone equipped with hepa filtration to achieve an air change every 10 minutes.
- Decontaminate the heaters, walls, and floor of the warehouse using power washers to perform an initial wash (using a non haz biodegradable detergent) and three rinses.
- 4. Decontaminate the ceiling of the warehouse using power washers to perform an initial wash (using a non haz biodegradable detergent).
- 5. Fill 1,000 linear feet of cracks larger than 1/8 inch with a crack filler.
- 6. Construct a stud wall 14 ft by 25 ft 16" on center using 2 by 6's for studs.
- 7. Perform plumbing connection for restroom.
- 8. Provide a final submittals report to owner's rep at the completion of the project.
- Sample, analyze, profile, transport and dispose of solid waste generated from decon procedures at an EPA approved facility.

Cost of Services.....\$609,780.00

Unit costs:

\$4.20 per foot of crack sealing after the first 1,000 linear feet.

\$144.00 per case of 24 prefilters for AFD's

\$140.00 per hepa filter for AFD's

\$2,200.00 per trip (every two weeks) to maintain the CRZ & CLZ

Project to be invoiced monthly based on percent complete net 30 days.



5130 Tallmadge Road. Rootstown, OH 44272 Phone / Fax 330.818.0188 Toll Free 866.366.1896 www.hepa1.net

PROPOSAL# AK 001 Rev #2

| Jerry Kaminski, P.G. | February 7, 2020 |
|-------------------------------------|--------------------------------------|
| AKT Peerless Environmental | |
| 30675 Solon Road, Suite 101, Solon, | RE: Closed loop clean up and closure |
| OH 44139 | 1655 Watkins. |
| M (440) 251-5377 | |
| kaminskij@aktpeerless.com | |

Disposal:

Option 1: Onsite treatment:

- 1. Determine the feasibility of onsite treatment through testing.
- Store waste water onsite and submit a PTI to Ohio EPA to apply for a permit from the City of Columbus to discharge to the sanitary.
- Treat and discharge the wastewater to the city sanitary.

Cost of Services (based on a quantity of 33,000 gallons).......\$36,900.00

Optional performance bond 1.7% of total cost for the project.

Owner to supply:

Power, water, and heat above freezing for the duration of clean up activities.

Add alternate: If client elects to change the ceiling and structural decon method to hepa vac ceiling and hand wipe structural then add \$23,200.00 to the base bid. If after a 40 by 40 foot section is complete and the desired level of cleanliness is not achieved then decon procedure reverts to power washing ceiling and structural.

Pricing does not include payment of prevailing wages.

| Estimated schedule: | 2 weeks to set up the CLZ & CRZ 10 weeks for decontamination | | | | |
|-----------------------------|---|--|--|--|--|
| | | | | | |
| | and conditions are satisfactory and are hereby accepted, proval please sign, retain a copy for your records and retu | You are authorized to do the work as specified. Payment will be urn original to us. | | | |
| Rick Kuhlman, Presider | nt | 2-7-20 | | | |
| HEPA Environmental Services | nc. Representative | Date | | | |
| Representative of Customer | | Date | | | |



5130 Tallmadge Road. Rootstown, OH 44272 Phone / Fax 330.818.0188 Toll Free 866.366.1896 www.hepa1.net

PROPOSAL# AK 002 Rev #2

Jerry Kaminski, P.G. **AKT Peerless Environmental** 30675 Solon Road, Suite 101, Solon, OH 44139

February 7, 2020

RE: Closed loop clean up and closure

1675 Watkins.

M (440) 251-5377 kaminskij@aktpeerless.com

All material is guaranteed to be as specified. All work to be completed in a workman like manner according to standard practices. Any alterations or deviations from the specified work involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tomado, and other necessary insurance. Our workers are fully covered by Workers Compensation Insurance. Invoices are monthly based on percent complete Payment terms are net 30 days.

SPECIFICATIONS AND DESCRIPTION

HEPA Environmental Services, Inc. is pleased to present the following proposal to:

Base Bid:

- Provide a submittal package to the owner's rep to include documentation of lead training, medical clearances, fit tests, HASP, and company insurance.
- 2. Construct a CRZ and CLZ zone equipped with hepa filtration to achieve an air change every 10 minutes.
- Decontaminate the air handler, heaters, walls, and floor of the warehouse using power washers to perform an initial wash (using a non haz biodegradable detergent) and three rinses.
- 4. Decontaminate the ceiling of the warehouse using power washers to perform an initial wash (using a non haz biodegradable detergent).
- 5. Demolish office finishes such as: carpet, ceiling tile, grid, drywall, ducts, and hvac.
- Demolish and dispose of 500 linear feet by 27 feet drywall wall and studs.
- 7. Fill 2,000 linear feet of cracks larger than 1/8 inch with a crack filler.
- 8. Construct a stud wall 14 ft by 25 ft 16" on center using 2 by 6's for studs.
- 9. Provide a final submittals report to owner's rep at the completion of the project.
- 10. Sample, analyze, profile, transport and dispose of solid waste generated from decon procedures at an EPA approved facility.

Cost of Services..... .\$924,300.00

Unit costs:

\$4.20 per foot of crack sealing after the first 2,000 linear feet.

\$144.00 per case of 24 prefilters for AFD's

\$140.00 per hepa filter for AFD's

\$2,200.00 per trip (every two weeks) to maintain the CRZ & CLZ

Project to be invoiced monthly based on percent complete net 30 days.



5130 Tallmadge Road. Rootstown, OH 44272 Phone / Fax 330.818.0188 Toll Free 866.366.1896 www.hepa1.net

PROPOSAL# AK 002 Rev #2

| Jerry Kaminski, P.G. | February 7, 2020 |
|--|--------------------------------------|
| AKT Peerless Environmental 30675 Solon Road, Suite 101, Solon, | RE: Closed loop clean up and closure |
| OH 44139 | 1675 Watkins. |
| M (440) 251-5377 | |
| kaminskij@aktpeerless.com | |

Disposal:

Option 1: Onsite treatment:

- 1. Determine the feasibility of onsite treatment through testing.
- 2. Store waste water onsite and submit a PTI to Ohio EPA to apply for a permit from the City of Columbus to discharge to the sanitary.
- 3. Treat and discharge the wastewater to the city sanitary.

Cost of Services (based on a quantity of 67,000 gallons)......\$45,500.00

Optional performance bond 1.7% of total cost for the project.

Owner to supply:

Power, water, and heat above freezing for the duration of clean up activities.

Add alternate: If client elects to change the ceiling and structural decon method to hepa vac ceiling and hand wipe structural then add \$46,400.00 to the base bid. If after a 40 by 40 foot section is complete and the desired level of cleanliness is not achieved then decon procedure reverts to power washing ceiling and structural.

Pricing does not include payment of prevailing wages.

| Estimated schedule. | 2 weeks to set up the CLZ & CRZ | | | | |
|-----------------------------|---|---|--|--|--|
| | 17 weeks for decontamina | tion | | | |
| | and conditions are satisfactory and are hereby accepted. Ye proval please sign, retain a copy for your records and return | ou are authorized to do the work as specified. Payment will be n original to us. | | | |
| Rick Kuhlman, Presider | nt | 2-7-20 | | | |
| HEPA Environmental Services | Inc. Representative | Date | | | |
| Representative of Customer | | Date | | | |
| | | | | | |





February 25, 2020

Garrison Southfield Park LLC c/o Mr. Karl Heisler King & Spalding LLP 353 N Clark Street, 12th Floor Chicago, IL 60654

Subject: Oversight Services in the Removal, Disposal & Remediation of E-Waste

Former Closed Loop, Inc.

1655 Watkins Road Columbus, Ohio

Proposal No. PO-25680

AKT Peerless Project No. 137530

Mr. Heisler:

AKT Peerless Environmental, LLC (AKR Peerless) is pleased to present King & Spalding LLP (Client), on behalf of Garrison Southfield Park, LLC., this proposal to conduct oversight services in the removal, disposal and remediation of the Former Closed Loop facility referenced above. It is AKT's understanding that the Client wishes to move forward in the removal, disposal and remediation of the Former Closed Loop tenant space located at 1655 Watkins Road, Columbus, Ohio for purpose of repurposing the warehousing space.

If you have any questions or need additional information, please contact me at 440-251-5377.

Sincerely,

AKT Peerless

Jaroslaw Kaminski Senior Project Manager

Enclosure



PROPOSAL FOR CONSULTING SERVICES RELATED TO THE REMOVAL, DISPOSAL & REMEDIATION OF E-WASTE AT THE FORMER CLOSED LOOP, INC. FACILITY

SUBJECT PROPERTY

Former Closed Loop, Inc. Facility 1655 Watkins Road, Columbus, Ohio

PREPARED FOR Garrison Southfield Park LLC

c/o Mr. Karl Heisler King & Spalding LLP

353 N Clark Street, 12th Floor

Chicago, IL 60654

PROPOSAL # PO-25680

PROJECT # 1375302

DATE February 25, 2020



PROPOSAL FOR CONSULTING SERVICES RELATED TO THE REMOVAL, DISPOSAL & REMEDIATION OF E-WASTE AT THE FORMER CLOSED LOOP, INC. FACILITY

1655 Watkins Road, Columbus, Ohio AKT Peerless Proposal No. PO-25680 AKT Peerless Project No. 13753o2

INTRODUCTION

This scope of work and cost estimate has been prepared in response to a request from King & Spalding LLP, counsel to Garrison Southfield Park, LLC., 353 N Clark Street, 12th Floor Chicago, IL 60654 (hereafter referred to as "Client"). AKT Peerless Environmental, LLC (hereafter referred to as "AKT Peerless") has prepared this scope of work and cost estimate to perform a series of consulting tasks related to the removal of accumulated e-waste, transportation to a e-waste recycling facility(ies), the remediation of the building's interior, and subsequent regulatory closure associated with the former Closed Loop, Inc. operations located at 1655 Watkins Road, Columbus, Ohio (Subject site).

Based on our understanding of the environmental and regulatory challenges associated with the site, including the issuance of a Notice of Violation (NOV) to Closed Loop Refining and Recovery, Inc. on April 11, 2016and potential nearby sensitive receptors to current site conditions, AKT Peerless recommends the following Scope of Services.

PROPOSED SCOPE OF WORK

Based on our understanding of the environmental and regulatory challenges associated with the site, AKT Peerless proposes to act as the Client and property owner's advocate throughout the process described in this proposal. In order to ensure the most efficient approach and regulatory compliance in the removal of the accumulated e-waste as well as subsequent remediation of the referenced space, Atwell proposes to complete the following tasks.

- **Task 1 Project Planning and Coordination:** AKT Peerless will prepare a project plan for the oversight of the work activities to be conducted for the project site. The project plan will include the necessary (and regulatory required) work plans, health & safety plans, material loading plans, environmental monitoring plans, sampling plans, and quality assurance plans to implement the logistics, removal of e-wastes from the referenced space, oversight, assessment, and remediation compliance.
- **Task 2 Project Administration and Advisory Services:** AKT Peerless will provide project administration advisory services on behalf of the Client to assist with the loading, transportation, removal of the e-waste, and space remediation. This task will include contractor removal/remediation administration phase services, and close-out phase services.
- **Task 3 Project Oversight of E-Waste Removal:** Based upon the approved project plan, AKT Peerless will work closely with the Client's selected contractor(s) to monitor and document environmental conditions (i.e., internal and external) during waste loading/removal activities and space remediation.
- **Task 4 Project Oversight of RCRA Closure and Space Remediation:** Following the removal of the abandoned e-waste from the referenced space, Atwell will conduct oversight services in the remediation of residual lead-contaminated dust within the referenced space, and provide the



necessary environmental consulting, closure sampling, and reporting activities to achieve a RCRA compliant closure.

PROPOSED FEES

AKT Peerless will provide oversight services described in this proposal on a Time & Material (T&M) basis. Sub-consultant charges, fees, commissions, materials, supplies, and out of town travel expenses will be billed at cost plus 15%. Any project related work that is conducted in hazardous working conditions utilizing the need for Tyvek suits and respirators will have an additional surcharge of 15% added to the hourly rates. A Budgetary T&M Estimate for each Task is presented below.

| AKT Peerless labor and services | \$8,000 |
|--|-----------|
| Task 2 – Project Administration and Advisory Services | |
| AKT Peerless labor and services | \$15,000 |
| Task 3 - Project Oversight of E-Waste Removal | |
| AKT Peerless labor and services | \$139,224 |
| AKT Peerless travel costs and per diem | \$27,000 |
| Task 4 - Project Oversight of RCRA Closure and Space Remediation | |
| RCRA Closure – AKT Peerless labor and services | \$90,000 |
| Remediation Monitoring – AKT Peerless labor and Services | \$21,000 |
| AKT Peerless travel costs and per diem | \$8,500 |
| Task 98 - Project Reimbursables | \$16,000 |

Budgetary T&M Estimated Project Cost

Note: AKT Peerless fees associated with site monitoring, administration, and advisory services during the removal of e-waste and the space remediation activities are based on Contractor anticipated schedules and task durations. E-waste removal is estimated on 24 weeks and remediation of the space is estimated on 12 weeks.

\$324,724

PROJECT UNDERSTANDING

It is our understanding that the Client will grant or obtain permission for AKT Peerless to conduct the work described in this proposal. AKT Peerless will utilize a Site-Specific Health and Safety Plan and follow appropriate health and safety requirements during all on-site work.

If the Client chooses to alter the proposed scope of work, the Client shall so advise AKT Peerless, and AKT Peerless shall propose alterations to the Scope of Work and related fees. The Client will authorize AKT Peerless in writing to conduct more or less work than defined in this proposal. AKT Peerless is acting in the role of Client consultant/advisor for this project and will execute all work in good faith in accordance with industry standard practice and procedures.

This proposal is valid for a period of sixty (60) days. AKT Peerless will complete the scope of work described herein in accordance with AKT Peerless Professional Services Agreement as agreed per K&S's Retention Agreement dated January 27, 2020. To accept this proposal, please return a signed and dated copy of the agreement to AKT Peerless, email or facsimile accepted.



We are excited about the opportunity to work with you on this project. If you have any questions or comments, or if we can be of further assistance during your review process, please contact us at (440) 251-5377.

| Sincerely, | | |
|---------------------------------|------|---|
| AKT Peerless Environmental, LLC | | |
| Jaroslaw Kaminski | | |
| Sr. Project Manager | | |
| Authorized By: | | |
| Signed | Date | - |
| Typed/Printed | | |





February 25, 2020

Garrison Southfield Park LLC c/o Mr. Karl Heisler King & Spalding LLP 353 N Clark Street, 12th Floor Chicago, IL 60654

Subject: Oversight Services in the Removal, Disposal & Remediation of E-Waste

Former Closed Loop, Inc.

1675 Watkins Road Columbus, Ohio

Proposal No. PO-25680

AKT Peerless Project No. 13753O2

Mr. Heisler:

AKT Peerless Environmental, LLC (AKR Peerless) is pleased to present King & Spalding LLP (Client), on behalf of Garrison Southfield Park, LLC., this proposal to conduct oversight services in the removal, disposal and remediation of the Former Closed Loop facility referenced above. It is AKT's understanding that the Client wishes to move forward in the removal, disposal and remediation of the Former Closed Loop tenant space located at 1675 Watkins Road, Columbus, Ohio for purpose of repurposing the warehousing space.

If you have any questions or need additional information, please contact me at 440-251-5377.

Sincerely,

AKT Peerless

Jaroslaw Kaminski Senior Project Manager

Enclosure



PROPOSAL FOR CONSULTING SERVICES RELATED TO THE REMOVAL, DISPOSAL & REMEDIATION OF E-WASTE AT THE FORMER CLOSED LOOP, INC. FACILITY

SUBJECT PROPERTY

Former Closed Loop, Inc. Facility 1675 Watkins Road, Columbus, Ohio

PREPARED FOR Garrison Southfield Park LLC

c/o Mr. Karl Heisler King & Spalding LLP

353 N Clark Street, 12th Floor

Chicago, IL 60654

PROPOSAL # PO-25680

PROJECT # 1375302

DATE February 25, 2020



PROPOSAL FOR CONSULTING SERVICES RELATED TO THE REMOVAL, DISPOSAL & REMEDIATION OF E-WASTE AT THE FORMER CLOSED LOOP, INC. FACILITY

1675 Watkins Road, Columbus, Ohio AKT Peerless Proposal No. PO-25680 AKT Peerless Project No. 13753o2

INTRODUCTION

This scope of work and cost estimate has been prepared in response to a request from King & Spalding LLP, counsel to Garrison Southfield Park, LLC., 353 N Clark Street, 12th Floor Chicago, IL 60654 (hereafter referred to as "Client"). AKT Peerless Environmental, LLC (hereafter referred to as "AKT Peerless") has prepared this scope of work and cost estimate to perform a series of consulting tasks related to the removal of accumulated e-waste, transportation to a e-waste recycling facility(ies), the remediation of the building's interior, and subsequent regulatory closure associated with the former Closed Loop, Inc. operations located at 1675 Watkins Road, Columbus, Ohio (Subject site).

Based on our understanding of the environmental and regulatory challenges associated with the site, including the issuance of a Notice of Violation (NOV) to Closed Loop Refining and Recovery, Inc. on April 11, 2016 and potential nearby sensitive receptors to current site conditions, AKT Peerless recommends the following Scope of Services.

PROPOSED SCOPE OF WORK

Based on our understanding of the environmental and regulatory challenges associated with the site, AKT Peerless proposes to act as the Client and property owner's advocate throughout the process described in this proposal. In order to ensure the most efficient approach and regulatory compliance in the removal of the accumulated e-waste as well as subsequent remediation of the referenced space, AKT Peerless proposes to complete the following tasks.

- **Task 1 Project Planning and Coordination:** AKT Peerless will prepare a project plan for the oversight of the work activities to be conducted for the project site. The project plan will include the necessary (and regulatory required) work plans, health & safety plans, material loading plans, environmental monitoring plans, sampling plans, and quality assurance plans to implement the logistics, removal of e-wastes from the referenced space, oversight, assessment, and remediation compliance.
- **Task 2 Project Administration and Advisory Services:** AKT Peerless will provide project administration advisory services on behalf of the Client to assist with the loading, transportation, removal of the e-waste, and space remediation. This task will include contractor removal/remediation administration phase services, and close-out phase services.
- **Task 3 Project Oversight of E-Waste Removal:** Based upon the approved project plan, AKT Peerless will work closely with the Client's selected contractor(s) to monitor and document environmental conditions (i.e., internal and external) during waste loading/removal activities and space remediation.
- **Task 4** Project Oversight of RCRA Closure and Space Remediation: Following the removal of the abandoned e-waste from the referenced space, AKT Peerless will conduct oversight services in



the remediation of residual lead-contaminated dust within the referenced space, and provide the necessary environmental consulting, closure sampling, and reporting activities to achieve a RCRA compliant closure.

PROPOSED FEES

AKT Peerless will provide oversight services described in this proposal on a Time & Material (T&M) basis. Sub-consultant charges, fees, commissions, materials, supplies, and out of town travel expenses will be billed at cost plus 15%. Any project related work that is conducted in hazardous working conditions utilizing the need for Tyvek suits and respirators will have an additional surcharge of 15% added to the hourly rates. A Budgetary T&M Estimate for each Task is presented below.

Task 1 - Project Planning and Coordination

| Budgetary T&M Estimated Project Cost | \$726,449 |
|--|-----------|
| Task 98 - Project Reimbursables | \$29,000 |
| AKT Peerless travel costs and per diem | \$15,600 |
| Remediation Monitoring – AKT Peerless labor and Services | \$56,000 |
| RCRA Closure – AKT Peerless labor and services | \$190,000 |
| Task 4 - Project Oversight of RCRA Closure and Space Remediation | |
| AKT Peerless travel costs and per diem | \$63,000 |
| AKT Peerless labor and services | \$304,849 |
| Task 3 - Project Oversight of E-Waste Removal | |
| AKT Peerless labor and services | \$43,000 |
| Task 2 – Project Administration and Advisory Services | |
| AKT Peerless labor and services | \$25,000 |
| Tubic 2 110,0001 idinimily disa coordination | |

Note: AKT Peerless fees associated with site monitoring, administration, and advisory services during the removal of e-waste and the space remediation activities are based on Contractor anticipated schedules and task durations. E-waste removal is estimated on 52 weeks and remediation of the space is estimated on 19 weeks.

PROJECT UNDERSTANDING

It is our understanding that the Client will grant or obtain permission for AKT Peerless to conduct the work described in this proposal. AKT Peerless will utilize a Site-Specific Health and Safety Plan and follow appropriate health and safety requirements during all on-site work.

If the Client chooses to alter the proposed scope of work, the Client shall so advise AKT Peerless, and AKT Peerless shall propose alterations to the Scope of Work and related fees. The Client will authorize AKT Peerless in writing to conduct more or less work than defined in this proposal. AKT Peerless is acting in the role of Client consultant/advisor for this project and will execute all work in good faith in accordance with industry standard practice and procedures.

This proposal is valid for a period of sixty (60) days. AKT Peerless will complete the scope of work described herein in accordance with AKT Peerless Professional Services Agreement as agreed per K&S's Retention Agreement dated January 27, 2020. To accept this proposal, please return a signed and dated copy of the agreement to AKT Peerless, email or facsimile accepted.



We are excited about the opportunity to work with you on this project. If you have any questions or comments, or if we can be of further assistance during your review process, please contact us at (440) 251-5377.

| Sincerely, | |
|---------------------------------|------|
| AKT Peerless Environmental, LLC | |
| Jahren | |
| Jaroslaw Kaminski | |
| Sr. Project Manager | |
| | |
| Authorized By: | |
| | |
| | |
| Signed | Date |
| | |
| | |
| Typed/Drinted | |

Appendix B
Prior Environmental Reports

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RCRAInfo Facility Information

CLOSED LOOP REFINING & RECOVERY INC Handler ID: OHR000167718

1675 WATKINS RD COLUMBUS, OH 43207

County Name: FRANKLIN

Latitude: 39.9045 Longitude: -82.95048

Hazardous Waste Generator: Small

Quantity Generator

Owner Name: CLOSED LOOP REFINING AND RECOVERY



1 of 2 11/5/2018, 11:57 AM No BIENNIAL REPORT data is available for the facility listed above.

LIST OF FACILITY CONTACTS

| NAME | STREET | CITY | STATE | ZIP CODE | PHONE | TYPE OF CONTACT |
|-----------------|---------------------|----------|-------|-------------|--------------|-----------------|
| ROBERT CRUZ | 1675 WATKINS RD | COLUMBUS | ОН | 43207 | 614-295-8165 | Public |
| ERIC HOWELL | 1675 WATKINS RD | COLUMBUS | ОН | 43207 | 614-295-8165 | Permit |
| ROBERT CRUZ | 1675 WATKINS RD | COLUMBUS | ОН | 43207 | 614-295-8165 | Permit |
| DAVID CAUCHI | 128 N NEVADA WAY | GILBERT | AZ | 85233 | 602-502-1154 | Permit |

HANDLER / FACILITY CLASSIFICATION

Unspecified Universe for the facility listed above.

HANDLER TYPE
Small Quantity Generator

No PROCESS INFORMATION is available for the facility listed above.

LIST OF NAICS CODES AND DESCRIPTIONS

| NAICS CODE | NAICS DESCRIPTION |
|------------|--|
| 42393 | RECYCLABLE MATERIAL MERCHANT WHOLESALERS |

LIST OF WASTE CODES AND DESCRIPTIONS

| WASTE CODE | WASTE DESCRIPTION |
|------------|-------------------|
| D008 | LEAD |

Go To Top Of The Page

Total Number of Facilities Retrieved: 1

2 of 2



John R. Kasich, Governor Mary Taylor, Lt. Governor Scott J. Nally, Director

October 17, 2013

FILE COPY

Re: Closed Loop Recycling
Notice of Violation
NOV
OHR000167 718
RCRA C – Hazardous Waste
Franklin County

Mr. Eric Howell Closed Loop Recycling 1675 Watkins Road Columbus, OH 43207

Dear Mr. Howell:

Thank you for accompanying me during Ohio EPA's September 30, 2013, complaint investigation of Closed Loop Recycling's facility in Columbus, Ohio. We inspected Closed Loop to determine its compliance with Ohio's hazardous waste laws as found in Chapter 3734 of the Ohio Revised Code (ORC) and Chapter 3745 of the Ohio Administrative Code (OAC). The complaint noted mismanagement of CRTs and concerns over toxic phosphors being exposed to the environment. This letter will explain the violations we found and what you need to do to correct the violations.

We found the following violations of Ohio's hazardous waste laws. In order to correct these violations you must do the following and send me the required information within 14 days of your receipt of this letter.

1. Hazardous Waste Treatment, Storage, and Disposal [ORC 3734.02 (E) & (F)]

No person shall store, treat, or dispose of hazardous waste except at a permitted hazardous waste treatment, storage, or disposal facility (TSD).

At the time of the inspection Closed Loop was storing approximately 300 pallets of broken CRTs outside in cardboard gaylords (See pics 1-3). The containers had deteriorated to the point that they could no longer hold the CRTs, and CRT glass and parts were strewn throughout the storage area. In addition, the facility was storing approximately 450 pallets of televisions outside; due to storage conditions, some of these CRTs had broken as well.

Under OAC 3745-51-39(A)(1), the conditional exclusion for cathode ray tubes allows for used, broken cathode ray tubes to not be considered wastes if they are stored in a building with a roof, floor, and walls or placed in a container that is constructed to minimize releases to the environment of CRT glass.

Mr. Eric Howell Closed Loop Recycling Page -2-

In addition, OAC 3745-51-39 (A)(2) states that each container containing CRTs must be labeled or clearly marked as "used cathode ray tube containing leaded glass" or "leaded glass from televisions or computers" and each container must be labled with "do not mix with other glass materials."

During the inspection the gaylords being stored outside and the gaylords inside storing the processed television were not properly labeled.

Closed Loop violated the condition of the exclusion for CRTs thus creating an illegal storage and disposal facility. Closed Loop must immediately clean up all broken CRTs and submit documentation to Ohio EPA verifying cleanup of all contamination.

Comments

- As part of the conditional exclusion for used Cathode Ray Tubes the processor must be able to demonstrate that the CRTs have a feasible means of being recycled, please provide Ohio EPA with your intended recycling outlets for both your glass and phosphor filter cake and bag house dust.
- 2. Additionally the exclusion for CRTs requires that the facility not speculatively accumulate CRTs or processed CRT glass. To meet this part of the exclusion Closed Loop must recycle 75% of the CRTs that are onsite January 1 during the following calendar year. If Closed Loop does not feel it can meet this requirement it may request a variance under OAC 3745-50-24(A). I have attached several fact sheets covering the required documentation for this process, if you have any questions please do not hesitate to call.
- Please be aware that because Closed Loop Recycling has violated ORC 3734.02
 (E) & (F) Closed Loop has been referred to Ohio EPA's Division of Materials and Waste Management's enforcement coordinator for enforcement consideration.

Closed Loop Recycling needs to immediately take the necessary measures to return to compliance with Ohio's environmental laws. Within 14 days of receipt of this letter, Closed Loop is requested to provide documentation to this office including the steps taken to abate the violations cited above. Documentation of steps taken to return to compliance includes written correspondence, updated policies, and photographs, as appropriate, and may be submitted via the postal service or electronically to peter.maneff@epa.ohio.gov.

Please be advised that violations cited above will continue until the violations have been properly abated. Failure to comply with Chapter 3734. of the Ohio Revised Code and rules promulgated thereunder may result in a civil penalty of up to \$10,000 per day for each violation. It is imperative that you return to compliance. If circumstances delay the abatement of violations, Closed Loop is requested to submit written correspondence of the steps that will be taken by date certain to attain compliance.

Mr. Eric Howell Closed Loop Recycling Page -3-

You can find Ohio's hazardous waste rules and other information on the division's web page at: http://www.epa.ohio.gov/dmwm/.

Enclosed please find copies of the checklist completed. Should you have any further questions, please feel free to contact me at (614) 728-3884.

Sincerely,

Peter Maneff

Environmental Specialist

Division of Materials and Waste Management

Central District Office

PM/ct ClosedLoopNOV1.22013

NOTICE:

Ohio EPA's failure to list specific deficiencies or violations in this letter does not relieve your company from having to comply with applicable regulations.

| Send to Central Office | Ohio Environmental Protection Agency RCRA SUBTITLE C SITE IDENTIFICATION/VERIFICATION FORM | | | | | | For Ohio EPA use only | | |
|--|--|---------------------------------------|---|--|--|------------------------|-------------------------------------|---|-----------|
| Completed verification forms | s required to be subn | nitted to CO | should be | e e-ma | iled to | RCRAIn | foData@ep | a.state.oh.us | 5. |
| Site EPA ID No. Site Name | EPA ID Number: OHR 000 167 718 Name: Closed Loop Recycling | | | | Į v | Website: (Optional) | | | |
| Site Location Information | Street Address: 1675 Watkins Rd. | | | | | | | | |
| | City, Town, or Village: Columbus State: OH | | | | | | | | |
| and the same of the | County Name: Fra | | *************************************** | | | | e: 43207 | ************** | |
| Site Land Type (check only one) NAICS code(s) www.census.gov/cpcd/ww | Private | County | District | Fede | eral li | ndian | Municipa | al State | Other |
| w/naics.html | | | 11-1 | | | | | | |
| Facility Representative | First Name: Eric | - W10072 530 | 1777 | MI: | | Last | Name: Hov | vell | Terrer. |
| Additional names can be | Title: Operations | Manager | | VACCOST | 730.6137 | | | | |
| Additional names can be recorded in number 12 | Phone Number: 61 | 14-295-816 | 5 | | P | hone N | lumber Exte | ension: | |
| 1000,000 myramber 12 | E-Mail Address: | | | | | | | | |
| Only provide address | Fax Number: | | | | F | ax Nun | nber Extens | ion: | |
| information if it is different than the site address | Street or P.O. Box: | | | | | | | | |
| man the alte address | City, Town or Villa | City, Town or Village: | | | | | | | |
| | State: | | | | ip Code | | 13370000003330 | .5.000000000000000000000000000000000000 | (6503577) |
| Legal Owner And Operator of the Site. List Additional Owners and/or Operators in the Comment Section or on | (n | | | Date Bed mm/dd/ ederal | | | pal State | Other | |
| another copy of this form | | City, Town or Village: Owner Phone #: | | | | | | | |
| page | State: | • | ********** | | ountry: | | | | |
| | Name of Site's Op Closed Loop Rec Operator Privat Type: Street or P.O. Box | ycling e Coun | | (r | ate Be | came C | perator 05/01/2012 an Municip | | Other |
| | City, Town or Villa | ge: Phoeni | x | Op | erator f | hone : | #: 602-538- | 3634 | 777755776 |
| | State: AZ | | | Co | untryU | SA. | Zip | Code: 8504 | 3 |
| VIOLATIONS CITED? | ☑ Yes ☐ No | | | | | | | | |
| TYPE OF HANDLER - MAR | THE RESIDENCE OF THE PARTY OF T | RIATE | | | | | | | |
| ☐ Not a HW Generator ☐ | UNKNOWN: La | | | Large Quantity Generator (LQG) | | | | | |
| | | | | ⊠S: | Small Quantity Generator (SQG) | | | | |
| | (generates from one-time event and | a short- not from o | term or n-going | □ C | Conditionally Exempt Small Quantity Generator U.S. Importer of Hazardous Waste | | | | |
| | processes). Check the box for the applicable generator status and provide a comment. | | | ☐Mixed Waste (Hazardous and Radioactive) Generator | | | | | |

| TYPE OF REGI | II ATED W | ASTE ACT | TIVITY MARK "Y" | IN ALL OF THE ADD | PROPRIATE BOXES) |
|---|------------------------------|--|--|---|---|
| ☐ Hazardous W | Vaste Tran | sporter | HALL FINISHER V | | and/or Industrial Furnace |
| Hazardous W | | | v | | antity On-Site Burner Exemption |
| [Large (1.27) (1.77) [1.77] | | | | | Melting, Refining Furnace Exemption |
| Recycler of F | | | ardoud fracto | | Injection Control Facility |
| 72-Hour Rec | | ardous Waste from Off-site | | | |
| | 10.01 | | | | alded Waste Holli Oli Site |
| UNIVERSAL WA | ASTE ACT | IVITIES (II | NDICATE TYPES | OF UNIVERSAL WAS | STE MANAGED |
| (CHECK ALL BO | | | | | O'L WATCHED |
| Small Quanti | | acility for Universal Waste | | | |
| Large Quanti | Parish the Charles | | | Dooia.io | iomity for otherous veasie |
| (accumulates | | | al Waste | | |
| believe and the last times had at an electric first times in | and the second second second | and the state of t | ADDI V EOD THE | TYPES OF HIMINED | SAL WASTE THE FACILITY MANAGES |
| Batteries | NEO DEL | OW INAI | AFFLE FOR THE | TIPES OF UNIVER | SAL WASTE THE PACILITY MANAGES |
| Pesticides | | | | | |
| ☐ Mercury cont | aining equ | ipment | | | |
| Lamps | an in ig oqu | pinoni | | | |
| | VITIES (IN | DICATE T | YPE(S) OF ACTIV | (ITY(S) | |
| Used Oil Ger | | CO-C-T HOTHER | ter en | | |
| Used Oil Trai | | | | | |
| Used Oil Trai | nsfer Facili | ty | | | |
| Used Oil Prod | cessor | • | | | |
| ☐ Used Oil Re- | refiner | | | | |
| ☐ Off-Specifical | tion Used | Oil Burner | | | |
| | | | s shipment of Off- | | |
| | | | | meets the specificati | |
| Eligible Academi pursuant to OAC rule | es 3745-52-2 | with Labor 00 through 3 | atories: Facility has 745-52-216. Check the | previously notified that the box(es) below to indicate | ey are opting into managing laboratory hazardous waste the laboratory type. |
| College or Ur | niversity | | | | |
| | | s owned by | or has a formal w | ritten affiliation agree | ement with a college or university |
| ☐ Non-profit Ins | stitute that | is owned b | y or has a formal v | vritten affiliation agre | ement with a college or university |
| Waste Codes for | Federally | Regulated | Hazardous Wastes | Please list the codes for | the federally requiated hazardous waste handled at the |
| site. List them in the | order they a | re presented | in the regulations (e.g. | , D001, D003, F007, U112 | 2) Use an additional page or list them in the comments if |
| indicate the date of t | te most rece | nt source rec | the same as listed in t | ne most recent RCRAInfo | source record, you do not need to list them. Instead just |
| morotte are date or a | re most roce | in acuite ieu | Old, | | |
| COMMENTS: US | SE THIS A | REA TO E | ESCRIBE WHETH | HER THE INSPECTIO | ON WAS ANNOUNCED, WHETHER THE |
| WASTE IS STOR | RED IN TA | NKS OR | CONTAINERS, ET | C. | |
| Announced | ☐ Yes | □ No | | Representatives: | Brent Benham |
| Tanks | Yes | □ No | | 002 00 02 00 000 | |
| Containers | ☐ Yes | □ No | | | |
| | | | | | Date of Inspection/Time |
| | | Name of Inspe | | (mm/dd/yyyy) (hh:mm) | |
| Peter Maneff | | | Melissa Store | h | 09/30/2013 |
| | | | | | 10/10/2013 |
| Land of the land | | | | | |
| Comments: | vent out | 4.5 | THE LOT WAS ALCOHOLD | | |
| | | | | on and was not a go | enerator at the time of the inspection. |
| Facility request | ed to rem | ain notifie | d as a SQG. | | |
| | | | | | |

PROCESS DESCRIPTION SECTION

Give a general process description (include all processes done at the facility)

Closed Loop Recycling, 1675 Watkins Rd. Columbus 43207, is a glass recycling facility that accepts Cathode Ray Tubes (CRT, TV glass) which contain lead. This facility is a storage and breaking plant for Closed Loop Glass Solutions' actual furnace/processing facility located at 1635 Watkins Rd. The storage facility is currently bringing in approximately 8 truckloads a week of CRTs to hold as feed stock for the furnace. Closed Loop Recycling is in the process of constructing a breaker for the CRTs which will allow them to consolidate and store more feed stock onsite. They anticipate being able to process/break 10-11 truckloads a week for continued storage. As part of this breaking process they anticipate generating a phosphor cake from a wash process and baghouse dust from the air filtration system. Both of these waste streams will be reclaim and recycled for their heavy metal content.

As part of the conditional exclusion for CRTs the facility may not speculatively accumulate CRTs the following is a current inventory (as of 9/27/2013)

| | Intact | | | | | |
|------------------|-------------|------------|--------------------|-------------|--|--|
| | Televisions | CRTs Lbs | Forecast Remaining | CRTS Lbs | | |
| | 9/27/13 | 9/27/13 | 2013 | 12/31/13 | | |
| Lbs at 1/1/13 | 1,429,512 | 9,969,083 | | 9,969,083 | | |
| Received in 2013 | 2,350,400 | 19,641,951 | 5,928,000 | 25,569,951 | | |
| Production 2013 | (3,595,303) | + | (7,800,000) | (7,800,000) | | |
| Lbs in Inventory | 184,609 | 29,611,034 | (1,872,000) | 27,739,034 | | |

WASTE ACTIVITIES SUMMARY SECTION

For each of the processes listed above that generate a waste give the following information: (1) name of process generating waste, (2) name or description of waste generated, (3) EPA waste codes, (4) quantity generated per month, (5) type of accumulation container used, (6) waste accumulation location in facility, (7) type of on-site treatment (if used), (8) name of off-site management facility (9) type of activity occurring at off-site management facility and (10) P2 activities

No hazardous waste is generated at this site at this time.

Potential wastes once the breaker is running may include a phosphor filter cake and baghouse dust.

CONDITIONAL EXCLUSIONS FOR USED CATHODE RAY TUBES

NOTE: This inspection checklist applies to CRT collectors and processors of used intact and used broken cathode ray tubes (CRTs) that are destined for recycling. It does not apply to companies who generate and store CRTs. Used, intact "CRTs" as defined in rule 3745-50-10 of the Administrative Code (and below) are not wastes within the United States unless they are disposed, or unless they are speculatively "accumulated speculatively" as defined in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code by CRT collectors or glass processors.

| | | AS RECEIVING BROKEN USED CRTS AND PROCESSED CRT GLASS | UND | ERG | OING | RE | CYCL | ING |
|----|--|---|-----|-----|------|----|------|-------------|
| 1 | Prior | rior to processing,. | | | | | | |
| | a. | Are used broken CRTs stored properly by: [3745-51-39(A)(1)] as follows: (A used, broken CRT means glass removed from its housing or casing whose vacuum has been released). Both intact and broken CRT's are being stored outside the facility and have spilled on the ground. | | | No | = | N/A | |
| | | i. Stored in a building with a roof, floor and walls? Or | Yes | | No | M | N/A | |
| | | Placed in a container such as a package or a vehicle constructed, filled, and closed to minimize releases to the environment of CRT glass? | Yes | | No | × | N/A | |
| | b. | Is each container containing CRTs labeled or marked clearly with one of the following phrases "Used cathode ray tube(s) – containing leaded glass" or "Leaded glass from televisions or computers" and is each container also labeled "Do not mix with other glass materials"? [3745-51-39(A)(2)] | | | No | | N/A | |
| | C. | Are CRTs transported in a container: [3745-51-39(A)(3)] | Yes | M | No | | N/A | |
| | | Constructed, filled, and closed to minimize releases to the environment of CRT glass? And | Yes | | No | | N/A | |
| | | ii. Labeled or marked clearly with one of the following phrases "Used cathode ray tube(s) – containing leaded glass" or "Leaded glass from televisions or computers" and is each container also labeled "Do not mix with other glass materials"? | Yes | | No | | N/A | |
| | d. | If CRTs are accumulated speculatively or used in a manner constituting land disposal, does the owner or operator (o/o) of the recycling facility comply with the applicable requirements in 3745-266-20 to 3745-266-23? [3745-51-39(A)(4)] | Yes | | No | | N/A | |
| | e. | If the facility is an exporter of CRTs, does the o/o notify U.S. EPA of an intended exports before the CRTs are scheduled to leave the United States, based on the requirements in 40 CFR 261.39(a)(5)(i) to (a)(5)(ix)? [3745-51-39(A)(5)] | | | No | | N/A | |
| 2. | Are used, broken CRTs undergoing "CRT processing": | | | | No | | N/A | |
| | a. | Storage [3745-51-39(B)(1)] The processor is speculatively accumulating the CRTs undergoing processing or have been processed if either of the following questions is answered "No". If the processor is speculatively accumulating CRTs or processed CRT glass that is a hazardous waste they are storing a hazardous waste in violation of ORC § | Yes | | No | | N/A | |
| | | 3734.02(E) and (F). Can the processor demonstrate that the CRTs have a feasible means of being recycled; and Ohio EPA has requested a recycler | Yes | | No | | N/A | × |
| | | list. | Yes | | No | | N/A | \boxtimes |
| | | During the calendar year, commencing January first, is the amount of material that is recycled, or transferred to a different site for | | | | | | |

[OHR000167718]

| | | recycling, equals at least seventy-five per cent by weight or volume of the amount of that material accumulated at the beginning of the calendar year. Received Inventory report for 1/1/13 (9.969 million lbs) Processing | | | | | | | |
|-------------|------------------------------|---|--|--------------------|---------------|-----------------|--------|--------------|-------|
| | b. | | | | | | | | |
| | | L | Based on all activities specified in 3745-50-10(A)(25)(b) and (c) and the activities are performed in a building with a roof, floor, and walls? [3745-51-39(B)(2)] | Yes | × | No | | N/A | |
| | | ile | With no activities that use temperatures high enough to volatilize lead from CRTs? [3745-51-39(B)(2)] | Yes | | No | | N/A | |
| or fu | E: CR rther br itors." | T proce eaking | ssing activities defined in 3745-50-10(A)(25)(b) and (c) include "in or separating broken CRTs" and "sorting or otherwise managing | ntentio glass r | nally emov | break ved fr | cing (| ntact CRT | CRTs |
| 3. | man | ass from used, broken CRTs destined for recycling at a CRT glass ufacturer or a lead smelter after processing accumulated speculatively? 5-51-39(C)] | | | | No | × | N/A | |
| 4. | | ss from used CRTs is used in a manner constituting disposal, does the omply with 3745-266-20 to 3745-266-23? [3745-5139(D)] | | | | No | | N/A | × |
| EXP | ORTS | OF USE | ED, INTACT CRTs | | | | | | |
| NOT CFR | E: Use 261.39 | d, intad (a)(5) a | ct CRTs exported for recycling are not wastes if they meet the not and if they are not accumulated speculatively. [3745-51-40] | ice and | d con | sent (| cono | litions | of 40 |
| NOT 5 be | E: Viol | ations i he fede | regarding exporting used, intact CETs foreign destinations should ral counterpart provisions are not delegable to states. | be ret | erred | to U | S. E | PA R | egion |

DEFINITIONS:

"CRT" or "cathode ray tube" means a vacuum tube, composed primarily of glass, which is the visual or video display component of an electronic device. A used, intact CRT means a CRT whose vacuum has not been released. A used, broken CRT means glass removed from its housing or casing whose vacuum has been released. Used CRTs are "spent materials" as defined in rule 3745-51-01 of the Administrative Code.

"CRT collector" means a person who receives used, intact CRTs for recycling, repair, resale, or donation

"CRT processing" means conducting all of the following activities:

(a) Receiving broken or intact CRTs; and

(b) Intentionally breaking intact CRTs or further breaking or separating broken CRTs; and

(c) Sorting or otherwise managing glass removed from CRT monitors.

A material is "accumulated speculatively" if it is accumulated before being recycled. A material is not accumulated speculatively if the person accumulating the material can show that the material is potentially recyclable and has a feasible means of being recycled; and that during the calendar year, commencing January first, the amount of material that is recycled, or transferred to a different site for recycling, equals at least seventy-five per cent by weight or volume of the amount of that material accumulated at the beginning of the calendar year. In calculating the percentage of turnover, the seventy-five per cent requirement is to be applied to materials of the same type (e.g., slags from a single smelting process) that is recycled in the same way (i.e., from which the same material is recovered or that is used in the same way). Materials accumulated in units that would be exempt from regulation under paragraph (C) of rule 3745-51-04 of the Administrative Code shall not be included in the calculation. (Materials that are already defined as "wastes" also shall not be included in making the calculation.) Materials are no longer in this category once they are removed from accumulation for recycling.



Pic 1. Closed Loop Recycling, 9/30/2013. CRTs storage.

Pic 2. Closed Loop Recycling, 9/30/2013. CRTs storage.



Pic 3. Closed Loop Recycling, 9/30/2013. CRTs storage.

Pic 4. Closed Loop Recycling, 10/10/2013. Storm drain within CRT's storage area now covered with silt screen as a result of our 9/30/2013 Inspection.



Pic. Closed Loop Recycling, 10/10/2013. Storm drain within CRT's storage area now covered with silt screen as a result of our 9/30/2013 inspection.

Pic 6. Closed Loop Recycling, 9/30/2013. CRTs storage.



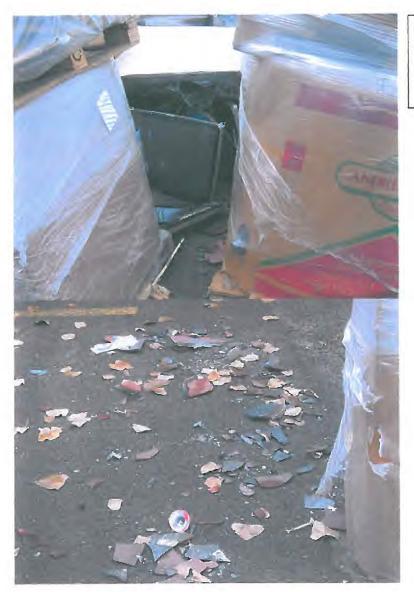
Pic 7. Closed Loop Recycling, 9/30/2013. CRTs storage.

Pic 8. Closed Loop Recycling, 9/30/2013. CRTs storage.



Pic 9. Closed Loop Recycling, 9/30/2013. CRTs storage.

Pic 10. Closed Loop Recycling, 9/30/2013. CRTs storage.



Pic 1.1. Closed Loop Recycling, 9/30/2013. CRTs storage.

Pic 11. Closed Loop Recycling, 9/30/2013. CRTs storage.



Pic 12. Closed Loop Recycling, 9/30/2013. CRTs storage.



Pic 13. Closed Loop Recycling, 9/30/2013. CRTs / television storage.

Pic 14. Closed Loop Recycling, 9/30/2013. CRTs / television storage.



Pic 15. Closed Loop Recycling, 9/30/2013. CRTs / television storage.



Pic 16. Closed Loop Recycling, 9/30/2013. CRTs / television storage.

Pic 17. Closed Loop Recycling, 9/30/2013. CRTs / television.

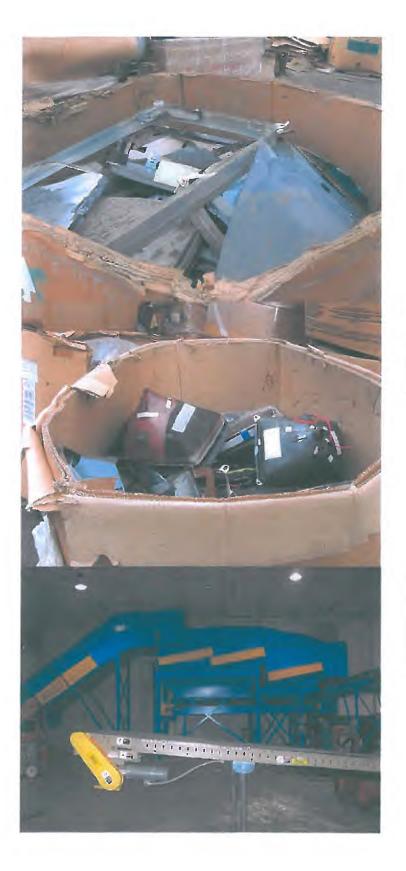


Pic 18. Closed Loop Recycling, 9/30/2013. CRT storage.



Pic 19. Closed Loop Recycling, 9/30/2013. CRT storage.

Pic 20. Closed Loop Recycling, 9/30/2013. CRT storage.



Pic 21. Closed Loop Recycling, 9/30/2013. CRT / television storage.

Pic 22. Closed Loop Recycling, 9/30/2013. CRT / televiosn storage.

Pic 23. Closed Loop Recycling, 9/30/2013. Breaker installation



Pic 24. Closed Loop Recycling, 10/10/2013. CRT storage.

Pic 25. Closed Loop Recycling, 10/10/2013. CRT storage.



Pic 26. Closed Loop Recycling, 10/10/2013. CRT storage.

Pic 27. Closed Loop Recycling, 10/10/2013. CRT storage.

 The assigned staff member will inform the applicant of the Director's final decision.

What type of information should I expect to provide in my application? As mentioned above, there are three circumstances under which a variance can be granted. Different standards and criteria apply to each type of variance and these are given in OAC rule 3745-50-24. Many of the criteria are self explanatory and address issues such as the economic benefit of the recycling, the prevalence of such recycling on an industry-wide basis, the value of the secondary material after it has been reclaimed, a comparison of the secondary material to an analogous raw material, and other relevant factors. However, general facility information and one criterion are common to all three variances; these are further explained below. A variance application should start with an overview of the recycling facility's operations and processes, including how all input materials and process intermediates are handled. Also, of importance is an explanation of the material specifications for the hazardous secondary material(s) to be recycled. That is, what material characteristics must be present and not present in order for a hazardous secondary material to be suitable for recycling. Lastly, list the type and amount of product(s) produced and their uses in commerce.

The criterion common to each type of variance from classification as a waste pertains to how the secondary material will be managed to minimize loss. To demonstrate attainment of this criterion, we expect the variance application to contain detailed information regarding how the secondary material is managed, conveyed and stored. The following information should be provided to demonstrate attainment of this criterion:

- Engineering drawings of the facility and material management units;
- A detailed description of each unit used to manage, store or process the material and how releases and air emissions are controlled from the units during loading, processing or unloading;
- A detailed description of the engineered and procedural safe guards employed to minimize the release of reclaimed material to the environment from each of the material management units or processing units;

- Copies of facility inspection procedures and schedules for each material process or management unit, the employee training program pertaining to the management of the hazardous secondary material, and facility emergency/spill response procedures pertaining to the release of hazardous secondary material from any of the units; and,
- A description of each residual generated from the recycling of the hazardous secondary material. If the residual is commoditylike please explain how the material is managed and stored to prevent release to the environment, and the market uses for the residual. For all other residuals, please describe the management, storage and final disposition of the residual.

What type of conditions is the Variance document likely to contain? If the Director grants the variance, then on the day that the variance document is journalized, the hazardous secondary material will no longer be subject to general regulation under the hazardous waste rules. Instead, the management, handling and processing of the secondary material and process residuals will be regulated by the specific conditions contained in the variance document. Furthermore, the applicant's application will also be incorporated into the variance document. The conditions of the variance can include:

- Material specifications for the recyclable secondary material,
- Routine analysis of incoming hazardous secondary material for suitability;
- Procedures for rejecting unsuitable loads:
- Material storage and conveyance requirements:
- Facility and equipment maintenance and inspection schedules;
- Incorporation of the facility spill response plan and employee training plan;
- Requirements for the handling and disposing of process residuals:
- Requirements to notify and suspend operations if product is not selling:

VARIANCE FROM THE DEFINITION AS A WASTE OAC 3745-50-23

Under specific circumstances, a hazardous waste generator or recycler may request a variance from the definition of a waste for hazardous wastes that are recycled. Such a variance may only be granted by the Director of Ohio EPA. The circumstances are described in OAC 3745-50-23 and include hazardous secondary materials that are:

- accumulated speculatively without sufficient amounts being recycled (as defined in OAC 3745-51-01(C)(8));
- reclaimed and then reused within the original production process in which they were generated; and
- reclaimed but must be reclaimed further before the materials are completely recovered.

Why would I want a Variance from the Definition of Waste?

A major advantage the variance provides is that it recognizes that the recycling of a hazardous secondary material more resembles manufacturing that produces a wanted product than hazardous waste management and treatment. Furthermore, under a variance, the hazardous secondary material would no longer be defined as a waste or a hazardous waste and therefore, would no longer be subject to regulation under the hazardous waste rules. The management and recycling of the hazardous secondary material would be subject to the site-specific conditions given in the variance document. The variance document is negotiated and signed by the director of Ohio EPA and the applicant and is a final action of the Director.

How do I apply for a Variance from the Definition of Waste?

You will need to compile information that demonstrates attainment of the standards and criteria given in OAC rule 3745-50-24 pertaining to the specific variance you are requesting. Once the application is complete, you will need to submit it to the Director of Ohio EPA for consideration. Staff with the Regulatory Services Unit, Division of Hazardous Waste Management are available to answer your questions or meet with you as you develop your application. They can be reached at 614-644-2917.

The overall process can be involved...as it should be...since the hazardous secondary material being recycled would no longer be subject to the hazardous waste regulations. The time frame in which a variance can be granted is impacted by the quality and completeness of the information received from the applicant. This is why we encourage you to seek assistance from the Regulatory Services Unit. In general, the process proceeds as follows:

- The applicant contacts the Regulatory Services Unit to discuss the relevance of a variance to the hazardous waste recycling in question;
- If it is likely that a variance is applicable to the recycling, a DHWM staff member and an Ohio EPA legal representative will be assigned to assist the applicant in developing information that demonstrates attainment of the standards and criteria given for the specific variance being pursuing. This document is referred to as the variance application.
- Once a complete variance application is developed, the applicant will submit the application to the Director, Ohio EPA;
- The Director will transfer the application to the Division of Hazardous Waste Management (DHWM) for evaluation and recommendation;
- If DHWM recommends that the Director consider granting the variance, the assigned staff person will work with a representative of Ohio EPA's Legal Office to develop the variance document;
- The draft variance document will be sent to the applicant for review and comment;
- DHWM will submit the negotiated draft variance document to the Director for his consideration;
- The Director will public notice his intent to either grant or deny the applicant's request for a variance and take public comment for 30 days;
- The Director will consider the public comments received and issue his final decision either granting or denying the variance; and

- Procedures for closing the facility when recycling ceases; and
- Annual reporting requirements.

Are there special procedures I must follow if I submit confidential business information as part of the variance application?

Yes. Since the Director must public notice and take comment on his tentative decision to either grant or deny a variance request, the variance application and the variance document will be available to the public for review. Therefore, any confidential business information submitted in the variance application must be submitted according to Ohio Administrative Code rule 3745-50-30 Trade secrets - requests for confidentiality, in order for Ohio EPA to withhold the information from public review.

Khale/varinacefactsheet.wpd



0HIO E.P.A.

JUN 10 2014

John R. Kasich, Governor Mary Taylor, Lt. Governor Craig W. Butler, Director

INTERED DIRECTOR'S JOURNAL

Certified Mail

June 10, 2014

Closed Loop Refining & Recovery, Inc. 1675 Watkins Road Columbus, Ohio 43207

Re: Closed Loop Refining & Recovery, Inc. Director's Final Findings & Orders

DFF&O

Hazardous Waste Franklin County OHR000167718

Dear Sir or Madam:

Transmitted herewith are Final Findings & Orders of the Director concerning the matter indicated.

Sincerely,

Brian Dearth

Processing and Records Management Unit Division of Materials and Waste Management

Enclosure:

ec:

Pam Allen, DMWM- CO

Melissa Storch, DMWM-CDO

Kelly Jeter, DMWM-CO

Andrea Smoktonowicz, Legal-CO

Isaac Robinson, DMWM-CDO

Peter Maneff DMWM-CDO Bruce McCoy, DMWM-CO

Erin Strouse, PIC

cc: Kelly Smith, DMWM-CO

BEFORE THE

OHIO ENVIRONMENTAL PROTECTION AGENCY

In the matter of:

Closed Loop Refining and Recovery, Inc.

1675 Watkins Road

Columbus, Ohio 43207

Expedited Settlement

Agreement and Director's Order

Respondent

I. JURISDICTION

This Expedited Settlement Agreement and Director's Order (ESA) is issued to Closed Loop Refining and Recovery, Inc. (Respondent) pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency (Ohio EPA) under Ohio Revised Code (ORC) §§ 3734.13 and 3745.01.

II. FINDINGS

- 1. Respondent is a "person" as defined in ORC § 3734.01(G) and Ohio Administrative Code (OAC) rule 3745-50-10(A). Respondent was licensed to conduct business in Ohio on August 13, 2012.
- 2. Respondent is a "CRT (cathode ray tube) collector" and does "CRT processing" as those terms are defined in OAC rule 3745-50-10(A). Respondent processes CRTs by receiving intact and/or broken CRTs, intentionally breaking intact CRTs or further breaking or separating broken CRTs, and sorting or otherwise managing glass removed from CRT monitors at 1675 Watkins Road, Columbus, Franklin County, Ohio (Facility). Generally, CRT glass contains concentrations of lead such that the glass exhibits the toxicity characteristic of a hazardous waste for lead, D008, as described in OAC rule 3745-51-24.
- 3. Respondent has been assigned EPA ID number OHR000167718.
- 4. CRTs managed in accordance with OAC rule 3745-51-39 are conditionally excluded from the hazardous waste requirements, including having to obtain a hazardous waste installation and operation permit. In order to achieve this

Director's Final Findings and Orders Closed Loop Refining and Recovery, Inc. Page 2 of 5

conditional exclusion, CRTs must be stored in a building or placed in a container that is constructed, filled, and closed to minimize releases to the environment and each container must be properly labeled in accordance with OAC rule 3745-51-39(A)(1) and (2).

- 5. On September 30, 2013, Ohio EPA conducted a complaint investigation and compliance evaluation inspection at the Facility. As a result of the investigation and inspection, Ohio EPA determined Respondent had approximately 300 pallets of used, broken CRTs stored outside in four cubic foot cardboard containers. The containers were not properly labeled and many of the containers were not closed and had deteriorated such that the CRTs had been released to the parking lot and the ground. In addition, Respondent had approximately 450 pallets of televisions stored outside, and many of which contained CRTs that were broken and also had been released to the parking lot and the ground.
- 6. Based on the information in Finding No. 5. of this ESA, Respondent failed to meet the conditions for the exclusion from the hazardous waste requirements for CRTs set forth in OAC rule 3745-51-39 and described in Finding No. 4. of this ESA. Therefore, Ohio EPA determined Respondent had, *inter alia*, unlawfully established and operated a hazardous waste facility without a hazardous waste installation and operation permit in violation of ORC § 3734.02(E) and (F) by storing CRTs at the Facility improperly. The CRTs contained lead in quantities such that the CRTs were characteristic hazardous waste (D008) as defined in OAC rule 3745-51-24.
- 7. On October 10, 2013, Ohio EPA conducted a follow-up inspection. During this inspection, Ohio EPA observed that approximately 90 percent of the CRTs that were being stored outside at the time of Ohio EPA's inspection during the September 30, 2013 investigation had been moved inside, but the pallets of televisions, including those with broken CRTs, were still being stored outside.
- 8. By letter dated October 17, 2013, Ohio EPA notified Respondent of the violations set forth in Finding No. 6. of this ESA. In this notice of violation letter, Ohio EPA informed Respondent it must immediately clean up all broken CRTs and submit documentation verifying cleanup of all contamination.
- 9. In correspondence dated November 1, 2013, Ohio EPA received documentation from Respondent addressing the violations referenced in Finding Nos. 5. and 6. of this ESA. This documentation included photographs showing all CRTs, televisions and CRT waste that was observed on the parking lot and on the ground during the inspections had been removed from the outside storage area and was being stored inside a building onsite. Respondent also provided an example of the label that was applied to containers storing used CRTs at the Facility.



Director's Final Findings and Orders Closed Loop Refining and Recovery, Inc. Page 3 of 5

10. In consideration of Respondent's good faith effort to comply in this matter, the benefits of prompt compliance to the public, and other factors as justice may require, and upon consideration of the entire record, this ESA is an appropriate mechanism to resolve the noncompliance detailed in these Findings.

III. ORDER

Within sixty (60) days from the date of the Director's letter inviting Respondent to sign this ESA, Respondent shall pay to the Ohio EPA the amount of \$2,200.00 in settlement of the Ohio EPA's claim for civil penalties, which may be assessed pursuant to Chapter 3734.13 of the Ohio Revised Code. Payment shall be made by tendering an official check made payable to "Treasurer, State of Ohio" for the full amount, and shall be deposited in the hazardous waste cleanup fund established pursuant to ORC § 3734.28. Payment shall be mailed to the following address: Ohio EPA, Office of Fiscal Administration, Department L-2711, Columbus, Ohio 43260-2711, together with a letter identifying Respondent and the location of the noncompliance detailed in the Findings of this ESA.

A photocopy of this check shall be sent to Ohio EPA at the addresses listed below:

Ohio Environmental Protection Agency
Division of Materials and Waste Management
P.O. Box 1049, Columbus, Ohio 43216-1049.
Attn: Supervisor, Processing Records Management Unit

And

Ohio Environmental Protection Agency Central District Office P.O. Box 1049 Columbus, Ohio 43216-1049 Attn: DMWM Manager

IV. TERMINATION

Respondent's obligations under this ESA shall terminate upon both Ohio EPA's entry of this ESA in the Ohio EPA Director's journal and Ohio EPA's receipt of the civil penalty payment required by this ESA.

Director's Final Findings and Orders Closed Loop Refining and Recovery, Inc. Page 4 of 5

V. RESERVATION OF RIGHTS AND WAIVER

Ohio EPA reserves its rights to exercise its lawful authority to require Respondent to perform closure of the area where the CRTs were stored as well as corrective action at the Facility at some time in the future pursuant to ORC Chapter 3734. or any other applicable law. Respondent reserves its rights to raise any administrative, legal or equitable claim or defense with respect to any final action of the Director regarding such closure or corrective action. Ohio EPA and Respondent each reserve all other rights, privileges and causes of action, except as specifically waived herein.

In order to resolve disputed claims, without admission of fact, violation or liability, and in lieu of further enforcement action by Ohio EPA for only the violations specifically cited in this ESA, Respondent consents to the issuance of this ESA and agrees to comply with this ESA. Compliance with this ESA shall be a full accord and satisfaction of Respondent's liability for the violations specifically cited herein.

Respondent hereby waives the right to appeal the issuance, terms and conditions, and service of this ESA and Respondent hereby waives any and all rights Respondent may have to seek administrative or judicial review of this ESA either in law or equity.

Notwithstanding the preceding, Ohio EPA and Respondent agree that if this ESA is appealed by any other party to the Environmental Review Appeals Commission, or any court, Respondent retains the right to intervene and participate in such appeal. In such an event, Respondent shall comply with this ESA notwithstanding such appeal and intervention unless this ESA is stayed, vacated, or modified.

VI. EFFECTIVE DATE

The effective date of this ESA is the date this ESA is entered into the Ohio EPA Director's journal.

VII. SIGNATORY AUTHORITY

Each undersigned representative or party to this ESA certifies that he or she is fully authorized to enter into this ESA and to legally bind such party to this ESA.

IT IS SO ORDERED AND AGREED:

| Onlo Environmental Protection Agency | |
|--------------------------------------|--------------|
| SS | JUN 1 0 2014 |
| Craig W. Butler, Director | Date |



Director's Final Findings and Orders Closed Loop Refining and Recovery, Inc. Page 5 of 5

IT IS SO AGREED:

Closed Loop Refining and Recovery, Inc.

Signature

BREWI BENHAM

Printed or Typed Name

Title

5/13/14 Data

fr



January 30, 2015

Craig W. Butler, Director

Re: Closed Loop Refining and Recovery

Notice of Violation - NOV RCRA C - Hazardous Waste

Franklin County OHR000167718

Mr. Robert Cruz Closed Loop Refining and Recovery 1675 Watkins Rd. Columbus, OH 43207

Dear Mr. Cruz:

Thank you for accompanying me during Ohio EPA's January 16, 2015, inspection of Closed Loop Refining and Recovery's 1675 Watkins Road facility in Columbus, Ohio. We inspected Closed Loop to determine its compliance with Ohio's hazardous waste laws as found in Chapter 3734 of the Ohio Revised Code (ORC) and Chapter 3745 of the Ohio Administrative Code (OAC). This letter will explain the violations we found and what you need to do to correct the violations.

We found the following violations of Ohio's hazardous waste laws. In order to correct these violations you must do the following and send me the required information within 14 days of your receipt of this letter.

1. Preparedness and Prevention [OAC 3745-52-34(D)(5)(b)]

The generator shall post the following information next to the telephone: name and telephone number of the emergency coordinator; location of fire extinguishers and spill control equipment, and; the telephone number of the fire department unless the facility has a direct alarm.

The required emergency information was not posted by any of the telephones at Closed Loop's facility.

Closed Loop shall prepare and post notices by the telephones in the facility. These posting shall include all the information required by this rule. In order to demonstrate compliance with this rule, Closed Loop shall submit a photograph or copy of the posting.

2. General LDR Requirements [OAC 3745-270-07 (A)(2)]

If a generator's waste does not meet the treatment standards, with the initial shipment of waste to each treatment or storage facility, the generator must send a one-time written notice and place a copy in the generator's file. The notice must include all of the required information in OAC 3745-270-07.

At the time of the inspection Closed Loop could not provide a copy of the LDR notification for its D008 floor sweepings. This notification was submitted on January 21, 2015. No further action is necessary at this time.

Comments:

- 1. As part of the conditional exclusion for used Cathode Ray Tubes in OAC Rule 3745-51-38 the processor must be able to demonstrate that the CRTs have a feasible means of being recycled. As in previous discussions with Closed Loop, Ohio EPA has requested your recycling outlets for both your glass and phosphor filter cake and bag house dust. To date Ohio EPA has only received redacted versions of this information. Please provide unredacted versions of all contracts, spec sheets, and bills of lading or manifests for all shipments made in 2015 as they relate to the recycling of CRTs.
- 2. Additionally the exclusion for CRTs requires that the facility not speculatively accumulate CRTs or processed CRT glass. To meet this part of the exclusion Closed Loop must recycle 75% of the CRTs that are onsite January 1 during the following calendar year. At the time of the inspection Closed Loop could not provide any information documenting the final mass balance for 2014/2015. Please provide Ohio EPA the final mass balance for the 2014 calendar year.

You can find Ohio's hazardous waste rules and other information on the division's web page at: http://www.epa.ohio.gov/dmwm/

Enclosed please find copies of the completed checklists. Should you have any further questions, please feel free to contact me at (614) 728-3884.

Sincerely,

Peter Maneff

Division of Materials and Waste Management

Central District Office

Het Mill

NOTICE:

Ohio EPA's failure to list specific deficiencies or violations in this letter does not relieve your company from having to comply with applicable regulations.

PROCESS DESCRIPTION SECTION

Give a general process description (include all processes done at the facility)

Closed Loop Refining and Recovery, 1675 Watkins Rd. Columbus 43207, is a glass recycling facility that accepts Cathode Ray Tubes (CRT, TV glass) which contain lead. This facility is a storage and breaking plant for Closed Loop Glass Solutions' (a proposed furnace/processing facility to be located at 1635 Watkins Rd). The storage facility is currently bringing in approximately 8 truckloads a week of CRTs to hold as feed stock for the furnace. Closed Loop also runs a breaker for the CRTs which allows them to consolidate and store more feed stock onsite. They have been processing/breaking up to 10-11 truckloads a week for continued storage. As part of this breaking process they generate a phosphor cake (D008) from a wash process and baghouse dust (D008) from the air filtration system. Both of these waste streams will be reclaim and recycled for their heavy metal content. In addition the process generates lead dust/floorsweepings (D008) which are sent to Petro Chem for disposal.

Glycol is generated as part of a TV breakdown process; this material is recycled into new antifreeze.

As part of the conditional exclusion for CRTs the facility cannot speculatively accumulate CRTs. The most current mass balance could not be provided at the time of the inspection. Recently in an effort to move product downstream for recycling, Closed Loop has started up a glass cleaning operation (Closed Loop Glass Solutions, 2200 Fairwood Ave.) that will remove the remaining frit and coatings from the broken glass and allow that glass to be recycled back into new CRT glass.

WASTE ACTIVITIES SUMMARY SECTION

For each of the processes listed above that generate a waste give the following information: (1) name of process generating waste, (2) name or description of waste generated, (3) EPA waste codes, (4) quantity generated per month, (5) type of accumulation container used, (6) waste accumulation location in facility, (7) type of on-site treatment (if used), (8) name of off-site management facility (9) type of activity occurring at off-site management facility and (10) P2 activities

At the time of the inspection Closed Loop was operating as a SQG of hazardous waste

Floor Sweepings (D008); approximately 1-2 gaylords per month depending on the use of the breaker. Currently this is equating to SQG status/1700 lbs per month but has the potential to be more. The waste is being sent to Petro Chem Processing in Lycaste Michigan for disposal.

Glycol (non-hazardous); Two 275 gallon totes/month of glycol are being sent to Crystal Clean for recycling back into antifreeze.

Phosphor filter cake and baghouse dust (potentially D008) is being accumulated for offsite reclamation. Currently there is not enough on-site to justify a shipment (1 gaylord), however, this waste stream will also be subject to the speculative accumulation provisions in 3745-51-02 for the 2015 calendar year.

CONDITIONAL EXCLUSIONS FOR USED CATHODE RAY TUBES

NOTE: This inspection checklist applies to CRT collectors and processors of used intact and used broken cathode ray tubes (CRTs) that are destined for recycling. It does not apply to companies who generate and store CRTs. Used, intact "CRTs" as defined in rule 3745-50-10 of the Administrative Code (and below) are not wastes within the United States unless they are disposed, or unless they are speculatively "accumulated speculatively" as defined in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code by CRT collectors or glass processors.

| RE | CYCLER | RS RECEIVING BROKEN USED CRTS AND PROCESSED CRT GLAS | SUNE | ERC | OING RECYCL | ING |
|----|---------------|---|------|-------------|-------------|-------------|
| 1. | | to processing,. | | | | |
| | a. | Are used broken CRTs stored properly by: [3745-51-39(A)(1)] as follows: (A used, broken CRT means glass removed from its housing or casing whose vacuum has been released) | Yes | \boxtimes | No 🗌 N/A | |
| | | i. Stored in a building with a roof, floor and walls? Or | Yes | \boxtimes | No 🗌 N/A | |
| | | ii. Placed in a container such as a package or a vehicle constructed, filled, and closed to minimize releases to the environment of CRT glass? | Yes | | No ⊠ N/A | |
| | b. | Is each container containing CRTs labeled or marked clearly with one of the following phrases "Used cathode ray tube(s) – containing leaded glass" or "Leaded glass from televisions or computers" and is each container also labeled "Do not mix with other glass materials"? [3745-51-39(A)(2)] | Yes | | No □ N/A | |
| | C. | Are CRTs transported in a container: [3745-51-39(A)(3)] | Yes | \boxtimes | No 🗌 N/A | |
| | | i. Constructed, filled, and closed to minimize releases to the environment of CRT glass? And | Yes | \boxtimes | No 🗌 N/A | |
| | | ii. Labeled or marked clearly with one of the following phrases "Used cathode ray tube(s) – containing leaded glass" or "Leaded glass from televisions or computers" and is each container also labeled "Do not mix with other glass materials"? | Yes | | No □ N/A | |
| | d. | If CRTs are accumulated speculatively or used in a manner constituting land disposal, does the owner or operator (o/o) of the recycling facility comply with the applicable requirements in 3745-266-20 to 3745-266-23? [3745-51-39(A)(4)] | Yes | | No □ N/A [| |
| | e. | If the facility is an exporter of CRTs, does the o/o notify U.S. EPA of an intended exports before the CRTs are scheduled to leave the United States, based on the requirements in 40 CFR 261.39(a)(5)(i) to (a)(5)(ix)? [3745-51-39(A)(5)] | Yes | | No 🗌 N/A [| X |
| 2. | Are u | sed, broken CRTs undergoing "CRT processing": | Yes | | No 🗌 N/A [| |
| | a. | Storage [3745-51-39(B)(1)] The processor is speculatively accumulating the CRTs undergoing processing or have been processed if either of the following questions is answered "No". If the processor is speculatively accumulating CRTs or processed CRT glass that is a hazardous waste they are storing a hazardous waste in violation of ORC § 3734.02(E) and (F). | Yes | | No N/A | XI |
| | and an inches | Can the processor demonstrate that the CRTs have a feasible means of being recycled; and Ohio EPA has requested a recycler list. | | | | ⊠ |
| | | During the calendar year, commencing January first, is the amount of material that is recycled, or transferred to a different site for recycling, equals at least seventy-five per cent by weight or volume of the amount of that material accumulated at the beginning of the | Yes | | No □ N/A ▷ | |

{Closed Loop Refining and Recovery/January 16, 2015}

| | | calendar year. Ohio EPA has requested and is waiting on an updated inventory report. | | | | | | | |
|---------------------------|---|---|---------------------|---------------|---------------------------------|-------------|--|--|--|
| | b. | Processing | | | | | | | |
| | | i. Based on all activities specified in 3745-50-10(A)(25)(b) and (c) and the activities are performed in a building with a roof, floor, and walls? [3745-51-39(B)(2)] | Yes | \boxtimes | No 🔲 N/A | | | | |
| | | ii. With no activities that use temperatures high enough to volatilize lead from CRTs? [3745-51-39(B)(2)] | Yes | | No □ N/A | | | | |
| NOTE or furt monite | her bre ors." | processing activities defined in 3745-50-10(A)(25)(b) and (c) include "apaking or separating broken CRTs" and "sorting or otherwise managing | intentio glass r | nally emov | breaking intact /ed from CRT | CRTs | | | |
| 3. | Is glass from used, broken CRTs destined for recycling at a CRT glass manufacturer or a lead smelter after processing accumulated speculatively? [3745-51-39(C)] | | | | | | | | |
| 4. | If glas o/o co | ss from used CRTs is used in a manner constituting disposal, does the emply with 3745-266-20 to 3745-266-23? [3745-5139(D)] | Yes | | No 🔲 N/A | \boxtimes | | | |
| EXPO | RTS O | F USED, INTACT CRTs | | | | | | | |
| NOTE CFR 2 | : Used 61.39(a | d, intact CRTs exported for recycling are not wastes if they meet the not (a)(5) and if they are not accumulated speculatively. [3745-51-40] | tice and | d cons | sent conditions | of 40 | | | |
| NOTE 5 bece | : Viola use the | tions regarding exporting used, intact CETs foreign destinations should e federal counterpart provisions are not delegable to states. | d be ref | erred | to U.S. EPA Re | egion | | | |

DEFINITIONS:

"CRT" or "cathode ray tube" means a vacuum tube, composed primarily of glass, which is the visual or video display component of an electronic device. A used, intact CRT means a CRT whose vacuum has not been released. A used, broken CRT means glass removed from its housing or casing whose vacuum has been released. Used CRTs are "spent materials" as defined in rule 3745-51-01 of the Administrative Code.

"CRT collector" means a person who receives used, intact CRTs for recycling, repair, resale, or donation

"CRT processing" means conducting all of the following activities:

- (a) Receiving broken or intact CRTs; and
- (b) Intentionally breaking intact CRTs or further breaking or separating broken CRTs; and
- (c) Sorting or otherwise managing glass removed from CRT monitors.

A material is "accumulated speculatively" if it is accumulated before being recycled. A material is not accumulated speculatively if the person accumulating the material can show that the material is potentially recyclable and has a feasible means of being recycled; and that during the calendar year, commencing January first, the amount of material that is recycled, or transferred to a different site for recycling, equals at least seventy-five per cent by weight or volume of the amount of that material accumulated at the beginning of the calendar year. In calculating the percentage of turnover, the seventy-five per cent requirement is to be applied to materials of the same type (e.g., slags from a single smelting process) that is recycled in the same way (i.e., from which the same material is recovered or that is used in the same way). Materials accumulated in units that would be exempt from regulation under paragraph (C) of rule 3745-51-04 of the Administrative Code shall not be included in the calculation. (Materials that are already defined as "wastes" also shall not be included in making the calculation.) Materials are no longer in this category once they are removed from accumulation for recycling.

| | | SMALL QUANTITY GENERATOR REQUIREMENT COMPLETE AND ATTACH A PROCESS, WASTE, P2 SUMN | | HEE | Т | | | |
|-------------------|---|--|---|---------------|----------------|--|---|---------------------------------------|
| SQG: E LQG: ≥ | 3etweer : 1,000 i | Kg. (Approximately 25-30 gallons) of waste in a calendar month or < 1 In 100 and 1,000 Kg. (About 25 to under 300 gallons) of waste in a calent Kg. (~300 gallons) of waste in a calendar month or ≥1 Kg. of acutely has evert from gallons to pounds: Amount in gallons x Specific Gravity x 8.34 | dar mo zardous | nth. s was | te in a | a cal | enda | |
| Safety | Equipm | ent Used: | | | | | | |
| GENER | RAL RE | QUIREMENTS | *************************************** | | | | v | |
| 1. | [374 | e all wastes generated at the facility been adequately evaluated? 5-52-11] | Yes | \boxtimes | No | | N/A | |
| 2. | | the generator obtained a U.S. EPA I.D. number? [3745-52-12] | Yes | | No | | N/A | |
| 3. | wast [OR | the generator transported or caused to be transported hazardous e to other than a facility authorized to manage the hazardous waste? C 3734.02 (F)] | Yes | П | No | Ø | N/A | |
| 4. | Has the generator disposed of hazardous waste on-site without a permit or at another facility other than a facility authorized to dispose of hazardous waste? [ORC 3734.02 (E) & (F)] | | | | | | | |
| 5. | Does | s the generator accumulate hazardous waste? | Yes | Ø | No | | N/A | |
| NOTE: require: | nents n | SQG does not accumulate or treat hazardous waste, it is not subject to 5 night still apply, e.g. manifest, marking, LDR, etc. | 2-34 st | anda | rds. A | All ot | her | · · · · · · · · · · · · · · · · · · · |
| 6. | days §373 | the generator accumulated hazardous wastes in excess of (180/270) without a permit or an extension from the Director? [3745-52-34; ORC 4-02(E)&(F)] | Yes | | No | × | | |
| NOTE: (E)] | | shipping waste to a facility greater than 200 miles away can accumulate | on-site | e for | 270 d | ays. | [374 | 5-52-34 |
| 7. | Is the | e generator accumulating more than 6,000 kg on site? [3745-52-34(D)] | Yes | | No | × | N/A | |
| without | an exte | g = approximately 27, 55-gallon drums. If the facility is accumulating wonsion/permit or is accumulating greater than 6,000 kg on-site, it is classive. Complete applicable TSD checklists. | aste foi ified as | grea a sto | ter th rage | an 1 facili | 80/27 ty and | 0 days d TSD |
| 8. | | the generator treat hazardous waste in a: | 1 | | | | | |
| | a. | Container that meets 3745-66-70 to 3745-66-77? | Yes | × | No | | N/A | |
| | b. | Tank that meets 3745-66-101? | Yes | | No | П | N/A | × |
| | C. | Drip pads that meet 3745-69-40 to 3745-69-45? | Yes | | No | | N/A | × |
| | d. | Containment building that meets 3745-256-100 to 3745-256-102? | Yes | | No | | N/A | × |
| NOTE: | Comple | ete appropriate checklist for each unit. | • | | | | *************************************** | |
| | | is treated to meet LDRs, use LDR checklist. | | | , | | | · |
| | | QUIREMENTS | | | | ······································ | | · ; |
| 9. | as de | If hazardous wastes either reclaimed under a contractual agreement fined in OAC rule 3745-52-20(E), or shipped off-site accompanied by nifest (U.S. EPA Form 8700-22)? [3745-52-20(A)(1)] | Yes | × | No | | N/A | |
| 10. | | rastes reclaimed under a contractual agreement? If so: [3745-52-0(E)] | Yes | | No | × | N/A | |
| | | | | | | | | |

| | a. | Does the contractual agreement specify the type of waste and frequency of shipment? | Yes | | No □ N/A | × | | |
|--|----------------------|---|-------------------|-----------------|--|-------------|--|--|
| | b. | Is the transport vehicle owned and operated by the reclaimer? | Yes | | No □ N/A | × | | |
| | C. | Is a copy of the reclamation agreement kept on-site for at least three years after termination/expiration of the agreement? | Yes | | No □ N/A | \boxtimes | | |
| NOTE: I | f waste: | s are reclaimed under a contractual agreement and an answer to quest | ions 1 | 7/a) t | hrough 10(c) is | no the | | |
| generato | r is in vi reemen | iolation of 3745-52-20 (A) (B) & (D), 3745-52-22 and 3745-52-23. Ever t, LDRs still apply. Complete LDR checklist. | if the | wast | e is being recla | imed | | |
| 11. | | tems 1 through 20 of each manifest been completed? 52-20(A)(1)] & [3745-52-27(A)] | Yes | × | No □ N/A | | | |
| situations | s, items | A Form 8700-22(A) (the continuation form) may be needed in addition t (21) through (35) must also be complete. [3745-52-20(A)(1)] | o Forn | 7 870 | 00-22. In these | | | |
| 12. | handle | each manifest designate at least one facility which is permitted to the waste? [3745-52-20(B)] | Yes | × | No □ N/A | | | |
| emergen | cy whic | erator may designate on the manifest one alternative facility to handle t h prevents the delivery of waste to the primary designated facility. [374] | he wa: 5-52-20 | ste in 0(C)] | the event of ar | 7 | | |
| 13. | the de | ransporter was unable to deliver a shipment of hazardous waste to signated facility did the generator designate an alternative TSD or give the transporter instructions to return the waste? [3745-52- | Yes | × | No □ N/A | | | |
| 14. | | he manifests been signed by the generator and initial transporter? 52-23 (A) (1) and (2)] | Yes | × | No □ N/A | | | |
| NOTE: F | Remind : | the generator that the certification statement they signed indicates: 1) the | nev ha | ve pr | operly prepared | d the | | |
| shipment | for tran | sportation and 2) they have made a good faith effort to minimize their w | /aste g | ener | ation. | | | |
| 15. | If the g | enerator received a rejected load or residue, did the generator: | | | | | | |
| | a. | Sign item 20 of the new manifest or item 18c of the original manifest? [3745-52-23(F)(1) | Yes | | No □ N/A | \boxtimes | | |
| | b. | Provide the transporter a copy of the manifest? [3745-52-23(F)(2)] | Yes | | No □ N/A | × | | |
| | | Send a copy of the manifest to the designated facility that returned the shipment with 30 days after delivery of the rejected shipment? [3745-52-23(F)(3)] | Yes | | No □ N/A | × | | |
| 16. | within 6 submit | enerator did not receive a return copy of each completed manifest 60 days of being accepted by the transporter did the generator to Ohio EPA, a copy of the manifest with some indication that the tor has not received confirmation of delivery? [3745-52-42(B)] | Yes | | No 🗀 N/A | × | | |
| 17. | [3745-5 | | | × | No □ N/A | | | |
| facility car accumula | n accep te the w | tor who sends a shipment of hazardous waste to a TSD facility with the t and manage the waste and later receives that shipment back as a reje raste on-site for <90 days or <180 days depending on the amount of ha. 3745-52-34(M)] | ected lo | oad o | r residue mav | | | |
| | | nerated at one location and transported along a publicly accessible roa | d for t | emno | rary consolidat | ed | | |
| storage or | r treatm | ent on a contiguous property also owned by the same person is not con | sidere | d "on | n-site" and mani | ifestina | | |
| and transp | oorter re | equirements must be met. To transport "along" a public right-of-way the | destir | ation | facility has to a | act as a | | |
| transfer facility or have a permit because this is considered to be "off-site." For additional information see the definition of "on-site" in OAC rule 3745-50-10. | | | | | | | | |
| | | Marie 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | | | | |
| | | S AND PREVENTION | | | and the first of the same of t | | | |
| 18. | is all ef | nergency coordinator available at all times (on-site or on-call)? | Yes | Ø | No □ N/A | | | |

| | | -52-34(D)(5)(a)] | | | | 110 |
|-----|------------------|---|-----|---|---|---------------------------------------|
| 19. | Has t | he following been posted by the telephone: [3745-52-34(D)(5)(b)] | | | | |
| | a. | Name and telephone number of emergency coordinator? | Yes | | No ⊠ N/A | |
| | b. | Location of fire and spill control equipment, and, if present, fire alarm(s)? | Yes | | No ⊠ N/A | |
| | C. | Telephone number of local fire department? | Yes | | No ⊠ N/A | |
| 20. | | mployees familiar with waste handling and emergency procedures? -52-34(D)(5)(c)] | Yes | × | No □ N/A | |
| 21. | 34(D) | ne facility properly responded to all fires and spills? [3745-52- (5)(d)] | Yes | | No □ N/A | × |
| 22. | unpia: 31] | facility operated to minimize the possibility of fire, explosion, or any nned sudden or nonsudden release of hazardous waste? [3745-65- | Yes | × | No □ N/A | |
| 23. | | the generator have the following equipment at the facility if it is ed due to actual hazards associated with the waste: | | | *************************************** | |
| | a. | Internal Alarm system? [3745-65-32(A)] | Yes | × | No. □ N/A | |
| | b. | Emergency communication device? [3745-65-32(B)] | Yes | × | No □ N/A | |
| | C. | Portable fire control, spill control and decon equipment? [3745-65-32(C)]? | Yes | × | No □ N/A | |
| | d. | Water of adequate volume/pressure per documentation or facility rep? [3745-65-32(D)] | Yes | × | No □ N/A | |
| 24. | | ergency equipment tested (inspected) as necessary to ensure its operation in time of emergency? [3745-65-33] | Yes | Ø | No □ N/A | |
| | а. | Are inspections recorded in a log or summary? [3745-65-33] | Yes | × | No 🔲 N/A | |
| 25. | comm is not i | rsonnel have immediate access to an internal alarm or emergency unication device when handling hazardous waste (unless the device required under OAC 3745-65-32)? [3745-65-34(A)] | Yes | × | No □ N/A | |
| 26. | a devid | e is only one employee on the premises is there immediate access to be (ex. phone, hand-held two-way radio) capable of summoning all emergency assistance (unless not required under OAC 3745-65-8745-65-34(B)] | Yes | × | No □ N/A | |
| 27. | or spill | quate aisle space provided for unobstructed movement of emergency control equipment? [3745-65-35] | Yes | × | No □ N/A | |
| 28. | Has th possib | e generator attempted to familiarize emergency authorities with le hazards and facility layout? [3745-65-37(A)] | Yes | × | No □ N/A | |
| 29. | has the | authorities have declined to enter into arrangements or agreements, e generator documented such a refusal? [3745-65-37(B)] | Yes | | No □ N/A | × |
| | | CUMULATION AREA REQUIREMENTS | | | | |
| 30. | | he generator ensure that satellite accumulation area(s): | | | | · · · · · · · · · · · · · · · · · · · |
| | | Are at or near a point of generation? [3745-52-34(C)(1)] | Yes | × | No □ N/A | |
| | | Are under the control of the operator of the process generating the waste? [3745-52-34(C)(1)] | Yes | × | No □ N/A | |
| | C. | Do not exceed a total of 55 gallons of hazardous waste per waste stream? [3745-52-34(C)(1)] | Yes | Ø | No □ N/A | |

| | d. | Do not exceed one quart of acutely hazardous waste at any one time? [3745-52-34(C)(1)] | Yes | | No □ N/A | × |
|-------------------|----------------|---|--------------------|--------------|-----------------------------------|---|
| | e. | Containers are closed, in good condition and compatible with wastes stored in them? [3745-52-34(C)(1)(a)] | Yes | × | No □ N/A | . 🗀 |
| | f. | Containers are marked with the words "Hazardous Waste" or other words identifying the contents? [3745-52-34(C)(1)(b)] | Yes | × | No □ N/A | |
| 31. | Is the | e generator accumulating hazardous waste(s) in excess of the amounts I in the preceding question? If so: | Yes | | No □ N/A | |
| | а. | Did the generator comply with 3745-52-34(A)(1) through (4) or other applicable generator requirements within three days? [3745-52-34(C)(2)] | Yes | | No □ N/A | × |
| | b. | Did the generator mark the container(s) holding the excess with the accumulation date when the 55 gallon (one quart) limit was exceeded? [3745-52-34(C)(2)] | Yes | | N o □ N/A | |
| genera hazardo | tion in th | tellite accumulation area is limited to 55 gallons of hazardous waste acc ne process under the control of the operator of the process generating th te). There could be individual waste streams accumulated in an area fro | e wasi | te (le | ess than 1 quart | for acute |
| 32. | | AGEMENT OF CONTAINERS | 1 | | 75 | |
| | [3745 | he generator marked containers with the words "Hazardous Waste?" i-52-34(D)(4)] | Yes | X | No □ N/A | |
| 33. | Is the | accumulation date on each container? [3745-52-34(D)(4)] | Yes | \boxtimes | No □ N/A | |
| 34. | Are h | azardous wastes stored in containers which are: | | | | |
| | a. | Closed (except when adding/removing wastes)? [3745-66-73(A)] | Yes | \boxtimes | No □ N/A | |
| | b. | In good condition? [3745-66-71] | Yes | × | No □ N/A | |
| | C. | Compatible with wastes stored in them? [3745-66-72] | Yes | × | No □ N/A | |
| | d. | Handled in a manner which prevents rupture/leakage? [3745-66-73(B)] | Yes | × | No □ N/A | |
| NOTE: | Record | location on process summary sheets and photograph the area. | <u> </u> | | | *************************************** |
| 35. | Is the | container accumulation area(s) inspected at least once during the I from Sunday to Saturday? [3745-66-74] | Yes | Ø | No □ N/A | |
| | a. | Are inspections recorded in a log or summary? [3745-66-74] | Yes | × | No □ N/A | |
| 36. | | ontainers of incompatible wastes stored separately from each other by s of a dike, berm, wall or other device? [3745-66-77(C)] | Yes | | No □ N/A | × |
| 37. | mater 17(B) | generator places incompatible wastes, or incompatible wastes and ials in the same container, is it done in accordance with 3745-65- ? [3745-66-77(A)] | Yes | | No □ N/A | |
| 38. | previo | generator places hazardous waste in an unwashed container that usly held an incompatible waste, is it done in accordance with 3745-(B)? [3745-66-77(B)] | Yes | | No □ N/A | × |
| mixture (| or comn | 45-65-17(B) requires that the generator treat, store, or dispose of ignitabingling of incompatible wastes, or incompatible wastes and materials so ditions or threaten human health or the environment. | le or r that it | eacti doe | ive waste, and to s not create | he |

| | RANSPORT REQUIREMENTS | | | | | | |
|----------------------|--|------------------|----------------|---|-------------|-----------------|---|
| 39. | Does each generator package/label its hazardous waste in accordance with the applicable DOT regulations? [3745-52-30, 3745-52-31 and 3745-52-32(A)] | Yes | × | No | | N/A | |
| 40. | Does each container ≤119 gallons have a completed hazardous waste label? [3745-52-32(B)] | Yes | × | No | | N/A | |
| 41. | Before off-site transportation, does the generator placard <u>or</u> offer the appropriate DOT placards to the initial transporter? [3745-52-33] | Yes | \boxtimes | No | | N/A | |
| NOTE: | Continue with the generator LDR requirements on the next page. | | | | | | |
| | GENERATOR LDR CHECKLIST | | | | | | ······································ |
| | DOES NOT APPLY TO CESQGS | | | | | | |
| GENER | AL REQUIREMENTS | | | *************************************** | | | |
| 1. | If LDRs do not apply, does the generator have a statement that lists how | Yes | | No | 1773 | N/A | · • • • • • • • • • • • • • • • • • • • |
| | the HW was generated, why LDRs don't apply and where the HW went? [3745-270-07(A)(7)] | 100 | L! | NO | نبا | IN/A | \boxtimes |
| 2. | Did the generator determine if the HW/soil must be treated to meet the LDR treatment standard prior to disposal? Generator knowledge or testing may be used. [3745-270-07(A)(1)] If not, | Yes | X | No | | N/A | |
| 1,1 | a. Did the generator send the waste to a permitted HW TREATMENT facility? [3745-270-07(A)(1)] | Yes | \boxtimes | No | | N/A | |
| NOTE: | This is done by determining if the HW /soil contains levels of constituents greate | r than | the le | evels d | giver | in its | s I DR |
| treatme. | nt standard in 3745-270-40. However, if a specific treatment method is given in | 3745-2 | 270-4 | 40 for i | the F | +W r | no |
| determi | nation is required [3745-270-07(A)(1)(b)]. If soil, generator can choose to have : | soil tre | ated | to LDI | R lev | ⁄els g | iven in |
| | 0-49 (alternative treatment levels for soils). | | | | | | |
| 3. | Does the generator have documentation of how he determined whether the HW/soil meets or does not meet the LDR treatment standard in 2, above? [3745-270-07(A)(6)(a) or 3745-270-07(A)(6)(b)] | Yes | | No | | N/A | |
| 4. | Does the generator keep the documentation required in #2, above, on-site for at least three years from the last date the HW/soil was sent on-site/off-site for treatment/disposal? [3745-270-07(A)(8)] | Yes | | No | | N/A | |
| 5. | Does the generator generate a listed HW that exhibits a characteristic? If | Yes | | No | \boxtimes | N/A | |
| | yes, | 103 | لـــا | 140 | | 14/75 | L.J |
| | a. Did the generator determine if the listed HW exhibits a characteristic that is not treated under the LDR treatment standard for the listed HW? [3745-270-09(A)] | Yes | | No | | N/A | Ø |
| FOR EX | AMPLE: F006 that exhibits the characteristic for silver or K062 that is corrosive, I in 3745-270-40 to determine what constituents the listed HW is treated for. | D002. | Rei | view Li | DR t | reatn | nent |
| 6. | Did the generator determine if its characteristic HW contains underlying hazardous constituents that need to be treated? [3745-270-09(A)] | Yes | × | No | | N/A | |
| universa contains | his is done by evaluating which underlying hazardous constituents (UHC) are in I treatment standards given in 3745-270-48. This requirement does not apply to >10% TOC) D001 wastes or listed HWs. | the H high to | W at otal o | levels organic | abc can | ve th bon (i | e i.e., |
| | Vritten documentation of this determination is not required. | | | | | | |
| 7. | Did the generator treat his HW /soil on-site to meet the LDR treatment standard? | Yes | | No I | × I | V/A | |
| NOTE: II | "Yes" see question #16. | ···· | | | | | |
| 8. | Did the generator send a one-time LDR notification form to the TSD with the first shipment to that facility2 [3745-270-07(A)(2)] | Yes | \boxtimes | No [| 1 | N/A | |

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| | а. | waste | e generator chose not to make the determination of whether his e must be treated, did he send a notice to the TSD facility with shipment? [3745-270-07(A)(2)] If so, did the notice include: | Yes | S 🗵 | No □ N/A | |
|--------------------------------|---------------------|------------------------------|--|-------------|-------------|-------------------------------------|------------------|
| | | i | Applicable HW codes? | Yes | ; × | No □ N/A | . 🗆 |
| | | 11 | Manifest number of the first shipment to the TSD? | Yes | × | No □ N/A | . 🗆 |
| | | lii | A statement that conveys that the HW may or may not be subject to the LDR treatment standards and the TSD must make that determination."? | Yes | | No 🗆 N/A | |
| 9. | HW c | hanged | erator resubmit the LDR notification form to the TSD when the d or the generator used a new TSD? [3745-270-07(A)(2)] | Yes | | No □ N/A | Ø |
| 10. | Does [3745 | the ger 5-270-07 | nerator have a copy of the LDR notification form/notice on file? 7(A)(2)] | Yes | | No ⊠ N/A | |
| | a. | Is the [3745 | form/notice kept on file for three years after last HW shipped? -270-07(A)(8)] | Yes | | No □ N/A | |
| NOTIFIC | | | | 1 | | | |
| 11. | Does | the LDI | R Notification form contain the following information: | | | | |
| | a. | 07(A)(| , - <u>-</u> | Yes | \boxtimes | No □ N/A | |
| | b. | HW if | cable waste codes (includes characteristic codes for a listed applicable)? [3745-270-07(A)(2)] | Yes | \boxtimes | No □ N/A | |
| | C. | A state be trea 07(A)(| tement that conveys that the HW is subject to LDRs and must eated to meet LDR treatment requirements? [3745-270-(2)] | Yes | × | No □ N/A | |
| | d. | A desi | ignation whether the HW is a wastewater or non-wastewater? -270-07(A)(2)] | Yes | × | No □ N/A | |
| NOTE: A wastewa method 9 | iter or ni | on-wast or TOC. | | TOC. | If ye | ou doubt the HV 160.2 for TSS, S | V is a SW-846 |
| | e. | Desigr [3745- | nation of the waste subcategory when applicable? -270-07(A)(2)] | Yes | \boxtimes | No □ N/A | |
| NOTE: S have sub | Subcate ocategoi | gories a ries | are found on the LDR treatment standards table under the applic | able и | vaste | code. Not all F | / Ws |
| | f. | A listin charac | ng of the underlying hazardous constituents for which a cteristic waste must be treated? [3745-270-07(A)(2)] | Yes | \boxtimes | No □ N/A | |
| NOTE: N constitue | Vot requ ents. | uired if ti | the waste is high TOC D001 or the TSD tests its treatment residu | ies for | all u | nderlying hazar | dous |
| | g. | form w | HW is F001-F005 or F039, did the generator note on the LDR what solvents or constituents, respectively, the waste contains just be treated for? [3745-270-07(A)(2)] | Yes | | No □ N/A | \boxtimes |
| NOTE: N | Vot requ | iired if tl | the TSD tests its treatment residues for all underlying hazardous | constit | tuent | ts. | |
| PROHIBI | ITED DI | ILUTION | N | | | | |
| 12. | | | ated by burning? | Yes | | No □ N/A | |
| 40 | | go to # | | | | | |
| 13. | is the r | fvv a m | netal-bearing HW? | Yes | | No □ N/A | |
| NOTE: G | enerally | ı, metal | l-bearing HWs contain heavy metals above TCLP levels or were | listed (| due t | to the presence | of |
| metais. 🗡 | A IIST OT I | ine resti | tricted metal-bearing HWs are given in the Appendix to 3745-270 |)-03. | | | |

| 14. | a. | Metal-bearing HWs cannot be incinerated, combusted or, blended and burned for fuel unless one of the following conditions apply. [3745-270-03(c)] | | | | | | | |
|-------------------|--|--|--|----------|-------|---------|--------|-------|---|
| | | i. | Contains > 1% TOC? | Yes | | No | | N/A | |
| | | ii. | Contains organic constituents or cyanide at levels greater than the UTS levels? | Yes | | No | | N/A | |
| | | iii. | Is made up of combustible material e.g., paper, wood, plastic? | Yes | | No | | N/A | |
| | | iv. | Has a reasonable heating value (e.g., > 5000 Btu)? | Yes | | No | | N/A | |
| | | V. | Co-generated with a HW that must be combusted? | Yes | | No | | N/A | |
| | b. If all responses to 14 a.i. through 14 a.v. are "No", HW is being improperly treated by dilution, violation of 3745-270-03(C). Is HW being treated by dilution? | | | | | | | N/A | |
| 15. | Was | | treated by wastewater treatment? | Yes | | No | | N/A | |
| | a. | Is a LE specifi | OR treatment method, other than DEACT or a numerical value, ied for the waste? [3745-270-03(B) and 3745-270-40(A)(3)] | Yes | | No | | N/A | |
| NOTE: | If "Yes", | HW is i | improperly being treated by dilution. | 1 | | | | | |
| | b. | Does t | the waste carry the D001 code <u>and</u> contain ≥10% TOC? | Yes | | No | | N/A | |
| | C. | Does t separa | he wastewater treatment process include a process to ate/recover the organic phase of the waste? | Yes | | No | | N/A | |
| NOTE: is in viola | lf the an ation of | swers to [3745-2 | o b & c are "yes" and "no", respectively, waste is improperly be. 70-03(B)] and 3745-270-40(A)(3)]. | ing trea | ted b | y dilui | tion (| and g | enerator |
| NOTE: / | A list of | separat. | ion/recovery processes are given in 3745-270-42 under RORG | | | | | | |
| GENERA | ATOR T | REATN | IENT | | | | | | |
| 16. | | _ | erator treat to meet LDRs on-site? | Yes | | No | | N/A | × |
| | drip pa | ad or co | ator treat his hazardous waste/soil on-site in a tank, container, ntainment building to meet the LDR treatment standard? | Yes | | No | | N/A | \boxtimes |
| | If "Yes | | plete the rest of the checklist. If "No"stopyou are done. | | | | | | |
| | а. | describ | he generator have a written waste analysis plan (WAP) that bes the procedures he will follow to treat the HW/soil to the eatment standard? [3745-270-07(A)(5)] | Yes | | No | | N/A | × |
| | b. | Did the | generator use a detailed chemical and physical analysis of /////////////////////////////////// | Yes | | No | | N/A | \boxtimes |
| NOTE: T | his is a | laborato | ory analysis but it does not have to be kept by the generator. | I | | | | | *************************************** |
| | C. | Does th | ne WAP contain all information necessary to treat the HW/soil DR treatment standard? [3745-270-07(A)(5)(a)] | Yes | | No | | N/A | \boxtimes |
| | d. | Does the to demediately 13745-2 | ne WAP include the testing frequency of the treated HW/soil onstrate that the LDR treatment standard is being met? 270-07(A)(5)(a)] | Yes | | No | | N/A | × |
| | e. | | ne generator keep the WAP on-site? [3745-270-07(A)(5)(b)] | Yes | | No | | N/A | |
| | f. | Is the V inspect | VAP available for the inspector's review during the ion? [3745-270-07(A)(5)(b)] | Yes | | No | | N/A | \boxtimes |
| | | | | | | | | | |

| NOTIFIC | CATION | V FORI | VI FOR | GENERATOR TREATMENT | **** | | |
|---------|--------|--|---|--|------|--|--------------|
| 17. | а. | | | information in #11 a-g above and | Yes | No □ N/A | × |
| | b. | If the certif | treated ication | d HW/soil is listednotification contains the following statement: | Yes | No □ N/A | × |
| | | am fa know comp to 37 are s the p | amiliar vledge o blies wi 45-270 ignifica ossibili | der penalty of law that I personally have examined and with the waste, through analysis and testing or through of the waste, to support this certification that the waste the treatment standards specified in rule 3745-270-40 1-49 of the Administrative Code. I am aware that there and penalties for submitting a false certification, including ty of fine and imprisonment." | | | |
| | C. | | ra HW | t HW/soil no longer exhibits a characteristic and is no //, did the generator: | | | ************ |
| | | i. | Prep | are a one-time notification? [3745-270-09 (D)] | Yes | No □ N/A | \boxtimes |
| | | in. | Main | tain a copy of the notice onsite? [3745-270-09(D)] | Yes | No □ N/A | × |
| | | iii. | Inclu | de in the notification: [3745-270-09(D)] | | and installation is a single contract of the c | |
| | | - The state of the | 1, | Name & address of receiving landfill? | Yes | No □ N/A | X |
| | | | 2. | Description of HW when generated? | Yes | No □ N/A | × |
| | | | 3. | HW code when generated? | Yes | No □ N/A | X |
| | | | 4. | Treatability group when generated? | Yes | No □ N/A | |
| | | | 5. | Underlying hazardous constituents present when generated? | Yes | No □ N/A | \boxtimes |
| | | iv. | Conta 3745- | ain the certification statement as required by -270-07(B)(4)? | Yes | No □ N/A | × |

Ohio Environmental Protection Agency

| Send to Central Office | RCRA SUBTITLE C S | For Onio EPA use only | | | | | |
|---|--|--|--|---|--|--|--|
| Carallete de la differencia de la fina | IDENTIFICATION/VERIFICATION | _ | ·· · | | | | |
| Site EPA ID No. | ms required to be submitted to CO should b EPA ID Number: OHR 000 167 718 | e e-mailed | to <u>RCRAInfoData@ep</u> | <u>a.state.oh.us.</u> | | | |
| Site Name | | | Website: | | | | |
| | Name: Closed Loop Refining and Red | (Optional) | | | | | |
| Site Location Informatio | Street Address: 1675 Watkins Rd. | **** | J-320100010000/2011111111 | | | | |
| e de la companya de La companya de la co | City, Town, or Village: Columbus | City, Town, or Village: Columbus State: OH | | | | | |
| Aug De Weigen ber | County Name: Franklin | | Zip Code: 43207 | | | | |
| Site Land Type | Private County District | Federal | Indian Municipa | al State Other | | | |
| (check only one) | | | | | | | |
| NAICS code(s) | | | | | | | |
| www.census.gov/epcd/www/naics.html | | | | | | | |
| Facility Representative | First Name: Robert | MI: | Last Name: Cru | | | | |
| A CONTROL OF THE CONT | Title: Operations Manager | J. 1VII. | Last Name. Cru | łZ | | | |
| Additional names can be | Phone Number: 614-295-8165 | | Dhana | , | | | |
| recorded in number 12 | (a) (b | | Phone Number Exte | ension: | | | |
| The supplied that the supplied in the supplied of the supplied to the supplied of the supplied to the supplied | E-Mail Address: | |] " | | | | |
| Only provide address information if it is different | Fax Number: | ~~~~~ | Fax Number Extens | ion: | | | |
| than the site address | Sheet of P.O. Box. | | · · · · · · · · · · · · · · · · · · · | | | | |
| $\mathcal{L}_{t}(\mathbf{r},\mathbf{r}) = \mathcal{L}_{t}(\mathbf{r},\mathbf{r}) \cdot \mathcal{L}_{t}(\mathbf{r},\mathbf{r}) \cdot \mathbf{r} \cdot \mathbf{r}$ | City, Town or Village: | | ** | | | | |
| | State: | Zip Co | ode: | | | | |
| Legal Owner And | Name of Site's Legal Owner: | | Became Owner | | | | |
| Operator of the Site. List Additional Owners | Closed Loop Refining and Recovery | | dd/yyyy): | | | | |
| and/or Operators in the | Owner Private County Distri | ict Feder | al Indian Municip | pal State Other | | | |
| Comment Section or on | Street or P.O. Box: | } L_ J | | | | | |
| another copy of this form | City, Town or Village: | Owno | r Phone #: | | | | |
| page | State: | Count | | | | | |
| | Name of Site's Operator: | | Became Operator | Code: | | | |
| | Closed Loop Refining and Recovery | | [d/yyyy): 05/01/2012 | | | | |
| An order a managed brained on a page. | Operator Private County Distr | | * | al State Other | | | |
| | Type: | | | | | | |
| | Street or P.O. Box: 435 S. 59 th Avenue | | | | | | |
| The state of the s | City, Town or Village: Phoenix | Operato | or Phone #: 602-538-3 | 634 | | | |
| | State: AZ | Country | USA Zip | Code: 85043 | | | |
| | COMPANIE OF THE PROPERTY OF TH | | | | | | |
| VIOLATIONS CITED? | ☑ Yes ☐ No | | | | | | |
| | | | | | | | |
| | RK "X" AS APPROPRIATE | | STREET, COLORES OF | | | | |
| ☐ Not a HW Generator | UNKNOWN: | Large (| Quantity Generator (L | QG) | | | |
| | Cited for violation of 3745-52-11 Short-Term/Temporary Generator | N/Cmall (| 2 | 001 | | | |
| | (generates from a short-term or | | Quantity Generator (S | | | | |
| | one-time event and not from on-going | US In | onally Exempt Small of the properties of Hazardous N | Waste | | | |
| | processes). Check the box for the | | | *************************************** | | | |
| | applicable generator status and provide | Genera | Waste (Hazardous an | d Radioactive) | | | |
| | a comment. | Genera | atO1 | | | | |

| TYPE OF REGULATED WASTE ACTIVITY (MARK "X" IN ALL OF THE APPR | |
|---|--|
| | nd/or Industrial Furnace |
| · — | tity On-Site Burner Exemption elting, Refining Furnace Exemption |
| | ection Control Facility |
| ; <u></u> | dous Waste from Off-site |
| | Toda Water Form On Site |
| UNIVERSAL WASTE ACTIVITIES (INDICATE TYPES OF UNIVERSAL WAST | E MANAGED |
| (CHECK ALL BOXES THAT APPLY) | |
| ☐ Small Quantity Handler of Universal Waste ☐ Destination Faci | lity for Universal Waste |
| ☐ Large Quantity Handler of Universal Waste | |
| (accumulates 5,000 kg. or more) | |
| CHECK ALL BOXES BELOW THAT APPLY FOR THE TYPES OF UNIVERSA | AL WASTE THE FACILITY MANAGES |
| Batteries | |
| Pesticides | |
| ☐ Mercury containing equipment | |
| │ | |
| Used Oil Generator | |
| Used Oil Transporter | |
| Used Oil Transfer Facility | |
| Used Oil Processor | |
| Used Oil Re-refiner | |
| Off-Specification Used Oil Burner | |
| Used Oil Fuel Marketer who directs shipment of Off-Spec Used Oil | |
| Used Oil Fuel Marketer who first claims the Used Oil meets the specification | IS |
| Eligible Academic Entities with Laboratories: Facility has previously notified that they pursuant to OAC rules 3745-52-200 through 3745-52-216. Check the box(es) below to indicate the | are opting into managing laboratory hazardous waste |
| College or University | |
| ☐ Teaching hospital that is owned by or has a formal written affiliation agreement | ant with a college or university |
| Non-profit Institute that is owned by or has a formal written affiliation agreem | ent with a college or university |
| Waste Codes for Federally Regulated Hazardous Wastes. Please list the codes for the | 3 federally requisted bazardous waste handled at the |
| site. List them in the order they are presented in the regulations (e.g. D001, D003, F007, U112), I | JSB an additional name or list them in the comments if |
| more space is needed. If the waste codes are the same as listed in the most recent RCRAInfo so indicate the date of the most recent source record | urce record, you do not need to list them. Instead just |
| D008 | |
| COMMENTS: USE THIS AREA TO DESCRIBE WHETHER THE INSPECTION | WAS ANNOUNCED WHETHER THE |
| WASTE IS STORED IN TANKS OR CONTAINERS, ETC. | |
| Announced Yes No Additional Facility Representatives: | Patrick O'Hara |
| Tanks Yes No | · |
| Containers Yes No | \$2000\$13000 poor poor poor part of the state |
| | Date of Inspection/Time |
| Name of Inspector(s) Name of Inspector(s) | (mm/dd/yyyy) (hh mm) |
| Peter Maneff | 01/16/2015 |
| Comments: C | 111115 |
| Facility is recyling CRTs under a conditional exclusion | Q |

BASELINE ENVIRONMENTAL CONDITIONS AND CLOSURE COST EVALUATION

THE CLOSED LOOP INC. FACILITY 1675 & 1655 WATKINS ROAD COLUMBUS, OHIO

Prepared for:

Garrison Southfield Park LLC 1290 Avenue of the Americas, 9th Floor New York, NY 10104

December 1, 2015



1375 Euclid Avenue, Suite 600 Cleveland, Ohio 44115 Phone: (216) 622-2400 Project No. 60447615

Table 1 Analytical Data Summary - Building 1655 Closed Loop Facility Columbus, Ohio

| | | VAP | Building 1655 | | | | | | | | |
|------------------|-------|---|--------------------------|--------------------------|-------------------------|-------------------------|--------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Parameter | Units | Commercial/ Industrial GNS ⁽¹⁾ | DS-01-1655 11/12/2015 | DS-02-1655 11/12/2015 | DS-07-1655 11/9/2015 | DS-08-1655 11/9/2015 | DUP A 11/9/2015 | DS-09-1655 11/9/2015 | DS-10-1655 11/9/2015 | DS-11-1655 11/9/2015 | DS-12-1655 11/9/2015 |
| Arsenic | mg/Kg | 77 | 30 U | 30 U | 26 U | 71 U | 140 U | 23 U | 22 U | 28 U | 26 U |
| Barium | mg/Kg | 680,000 | 450 | 150 J | 150 J | 300 J | 350 J | 140 J | 180 J | 210 J | 210 J |
| Cadmium | mg/Kg | 2,600 | 3.6 J | 1.8 J | 7.2 J | 16 J | 23 J | 3.7 J | 4.2 J | 4.4 J | 2.9 J |
| Chromium | mg/Kg | 210 | 170 | 160 | 40 | 38 J | 35 J | 18 | 43 | 98 | 78 |
| Lead | mg/Kg | 800 | 13000 | 3300 | 3100 | 3000 | 2700 | 2500 | 2400 | 2300 | 2800 |
| Mercury | mg/Kg | 3.1 | 0.11 | 0.084 J | 0.081 J | 0.19 | 0.17 | 0.052 J | 0.098 | 0.14 | 0.092 J |
| Selenium | mg/Kg | 20,000 | 40 U | 40 U | 35 U | 94 U | 190 U | 30 U | 30 U | 38 U | 34 U |
| Silver | mg/Kg | 20,000 | 6.1 J | 1.7 J | 1.3 J | 8.2 J | 14 J | 2.2 J | 3.3 J | 5.7 J | 5.8 J |
| TCLP Analysis | Units | TCLP Limits ⁽²⁾ | | | | | | | | | |
| Arsenic | mg/L | 5 | 0.50 U | NS | NS | 0.50 U | NS | NS | 0.50 U | NS | 0.50 U |
| Barium | mg/L | 100 | 6.0 J | NS | NS | 1.8 J | NS | NS | 5.1 J | NS | 5.7 J |
| Cadmium | mg/L | 1 | 0.013 J | NS | NS | 0.038 J | NS | NS | 0.023 J | NS | 0.019 J |
| Chromium | mg/L | 5 | 0.025 J | NS | NS | 0.012 J | NS | NS | 0.039 J | NS | 0.043 J |
| Lead | mg/L | 5 | 180 | NS | NS | 4.7 | NS | NS | 92 | NS | 120 |
| Mercury | mg/L | 0.2 | 0.0020 U | NS | NS | 0.0020 U | NS | NS | 0.0020 U | NS | 0.0020 U |
| Selenium | mg/L | 1 | 0.25 U | NS | NS | 0.25 U | NS | NS | 0.25 U | NS | 0.25 U |
| Silver | mg/L | 5 | 0.50 U | NS | NS | 0.50 U | NS | NS | 0.50 U | NS | 0.50 U |
| Percent Moisture | % | | 0.79 | 1.2 | 0.42 | 1.6 | 1 | 0.96 | 0.99 | 0.89 | 0.73 |
| Percent Solids | % | | 99 | 99 | 100 | 98 | 99 | 99 | 99 | 99 | 99 |

U = The analyte was not detected. Value shown is the sample reporting limit.

NS = Not Sampled

Concentration exceeds the VAP Commercial/Industrial Standard or TCLP limits.

- (1) Ohio Voluntary Action Program Generic Direct-Contact Soil Standards for Commercial/Industrial Land Use Categories (June 2015).
- (2) Toxicity Characteristic Leaching Procedure (TCLP) Regulatory Levels.



UJ = The analyte was not detected at or above the sample reporting limit. However, the reporting limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

J = Estimated concentration because the result was below the sample reporting limit.

Table 2 Analytical Data Summary - Building 1675 Closed Loop Facility Columbus, Ohio

| | | VAP | Building 1675 | | | | | | | | | | | |
|------------------|-------|---|--------------------------|---------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Parameter | Units | Commercial/ Industrial GNS ⁽¹⁾ | DS-01-1675 11/12/2015 | DUP B 11/12/2015 | DS-02-1675 11/12/2015 | DS-03-1675 11/9/2015 | DS-04-1675 11/9/2015 | DS-08-1675 11/9/2015 | DS-09-1675 11/9/2015 | DS-10-1675 11/12/2015 | DS-11-1675 11/9/2015 | DS-12-1675 11/9/2015 | DS-13-1675 11/9/2015 | DS-14-1675 11/9/2015 |
| Arsenic | mg/Kg | 77 | 230 U | 260 U | 270 U | 100 U | 260 U | 64 U | 120 U | 66 U | 26 U | 260 U | 66 U | 150 U |
| Barium | mg/Kg | 680,000 | 380 J | 680 J | 640 J | 230 J | 210 J | 410 J | 520 J | 280 J | 190 J | 390 J | 400 J | 320 J |
| Cadmium | mg/Kg | 2,600 | 37 J | 48 J | 52 J | 16 J | 25 J | 15 J | 23 J | 5.2 J | 4.9 J | 33 J | 14 J | 30 J |
| Chromium | mg/Kg | 210 | 50 J | 58 J | 54 J | 28 J | 170 U | 35 J | 52 J | 40 J | 14 J | 37 J | 60 | 84 J |
| Lead | mg/Kg | 800 | 3800 J | 13000 J | 15000 | 2900 | 2200 | 8000 | 11000 | 6200 | 5100 | 5200 | 9100 | 2300 |
| Mercury | mg/Kg | 3.1 | 0.17 | 0.18 | 0.3 | 0.093 J | 0.042 J | 0.10 J | 0.17 | 0.1 | 0.015 J | 0.3 | 0.46 | 0.25 |
| Selenium | mg/Kg | 20,000 | 310 UJ | 61 J | 370 U | 140 U | 350 U | 85 U | 170 U | 88 U | 35 U | 350 U | 89 U | 200 U |
| Silver | mg/Kg | 20,000 | 16 J | 21 J | 14 J | 8.7 J | 22 J | 9.7 J | 14 J | 8.4 J | 2.5 J | 15 J | 6.7 J | 15 J |
| TCLP Analysis | Units | TCLP Limits ⁽²⁾ | | | | | | | | | | | | |
| Arsenic | mg/L | 5 | 0.50 U | NS | NS | 0.50 U | NS | NS | 0.50 U | NS | 0.50 U | NS | 0.50 U | NS |
| Barium | mg/L | 100 | 6.6 J | NS | NS | 7.5 J | NS | NS | 6.8 J | NS | 7.2 J | NS | 0.35 J | NS |
| Cadmium | mg/L | 1 | 0.083 J | NS | NS | 0.012 J | NS | NS | 0.056 J | NS | 0.0092 J | NS | 0.088 J | NS |
| Chromium | mg/L | 5 | 0.037 J | NS | NS | 0.049 J | NS | NS | 0.034 J | NS | 0.059 J | NS | 0.012 J | NS |
| Lead | mg/L | 5 | 39 | NS | NS | 190 | NS | NS | 58 | NS | 220 | NS | 11 | NS |
| Mercury | mg/L | 0.2 | 0.0020 U | NS | NS | 0.00017 J | NS | NS | 0.0020 U | NS | 0.000097 J | NS | 0.00011 J | NS |
| Selenium | mg/L | 1 | 0.25 U | NS | NS | 0.25 U | NS | NS | 0.25 U | NS | 0.25 U | NS | 0.25 U | NS |
| Silver | mg/L | 5 | 0.0010 J | NS | NS | 0.50 U | NS | NS | 0.50 U | NS | 0.50 U | NS | 0.0013 J | NS |
| Percent Moisture | % | | 0.89 | 0.96 | 0.71 | 0.35 | 0.44 | 0.84 | 1.6 | 0.66 | 2.5 | 1.6 | 1.8 | 2 |
| Percent Solids | % | | 99 | 99 | 99 | 100 | 100 | 99 | 98 | 99 | 97 | 98 | 98 | 98 |

U = The analyte was not detected. Value shown is the sample reporting limit.

NS = Not Sampled

Concentration exceeds the VAP Commercial/Industrial Standard or TCLP limits.

- (1) Ohio Voluntary Action Program Generic Direct-Contact Soil Standards for Commercial/Industrial Land Use Categories (June 2015).
- (2) Toxicity Characteristic Leaching Procedure (TCLP) Regulatory Levels.

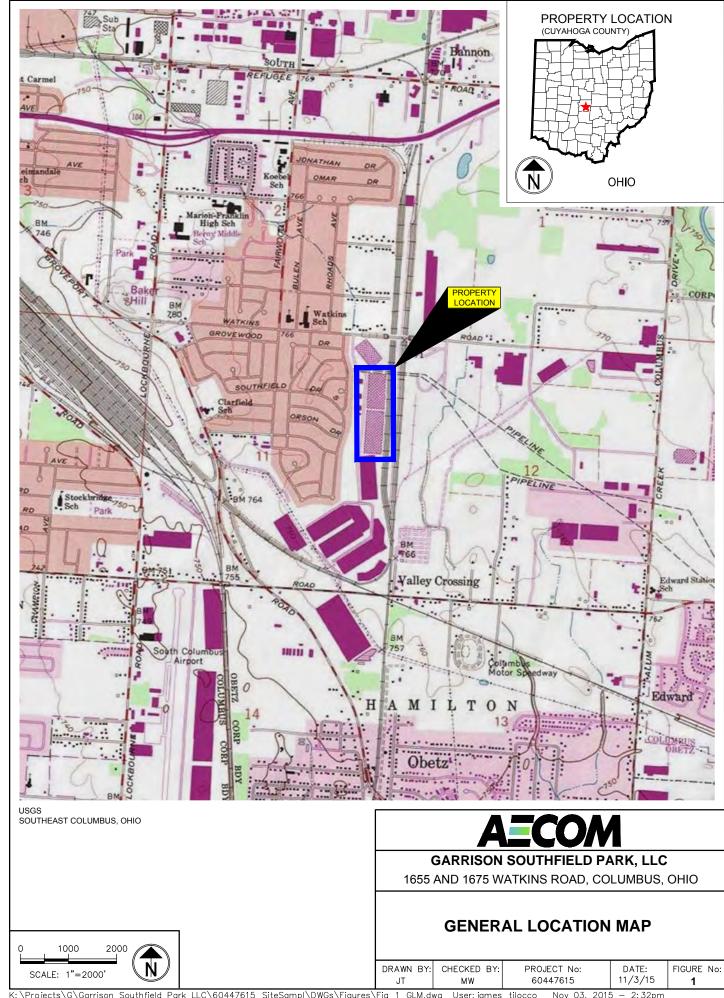


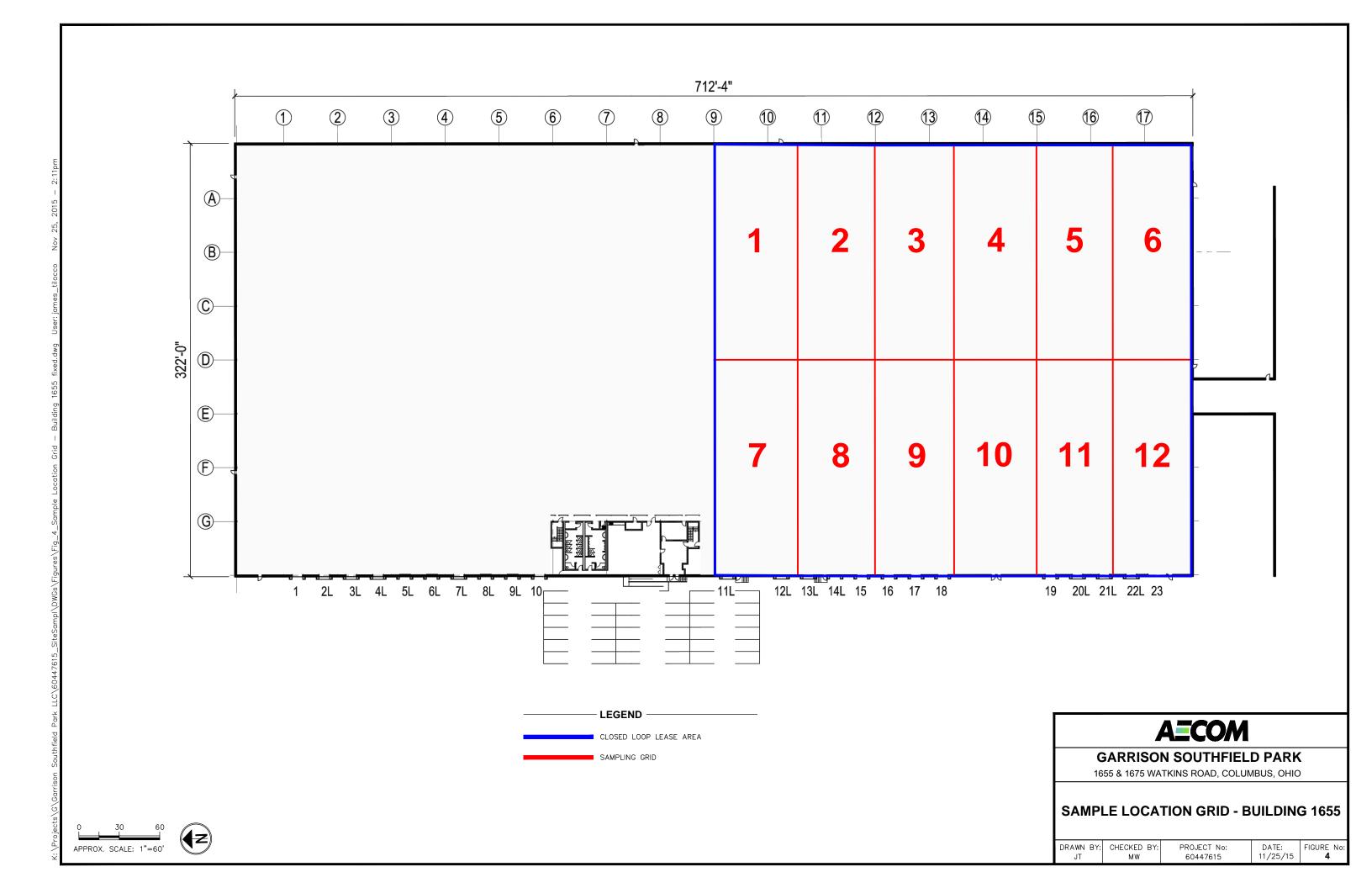
UJ = The analyte was not detected at or above the sample reporting limit. However, the reporting limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

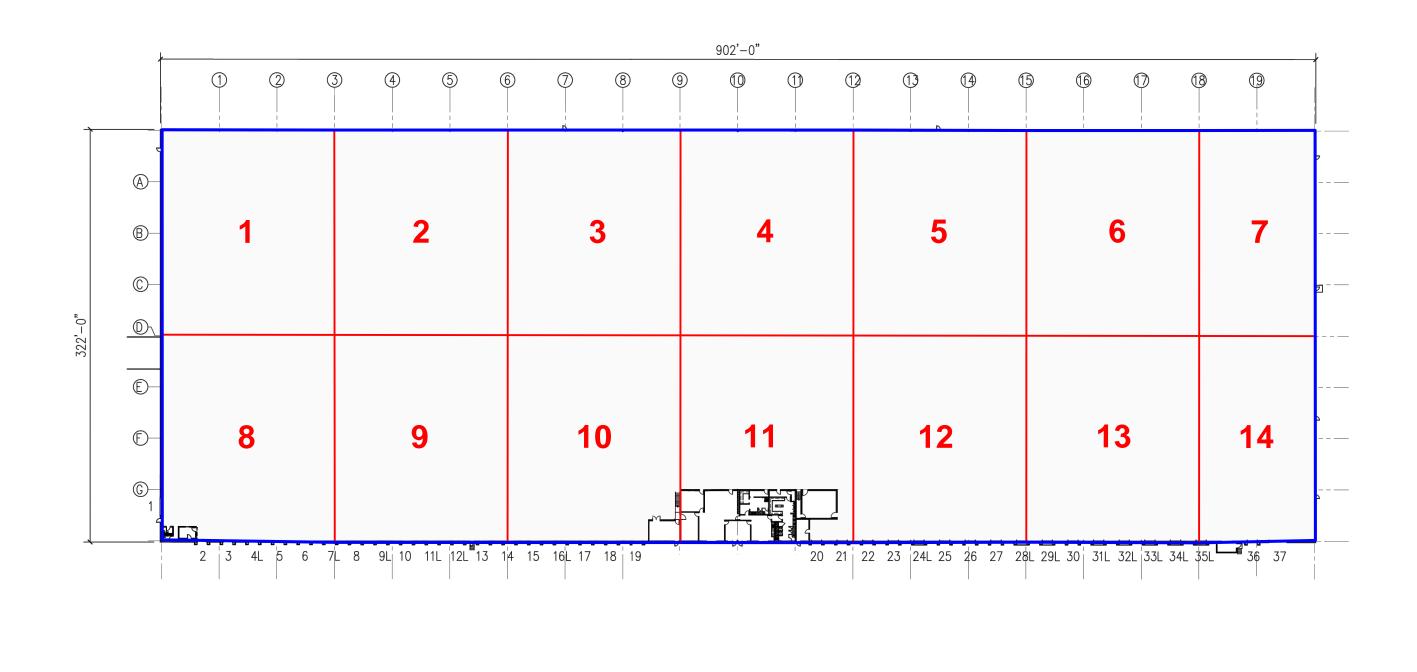
J = Estimated concentration because the result was below the sample reporting limit.

Table 3 Mercury Concentrations in Ambient Air Closed Loop Facility Columbus, Ohio

| Building | Sample Grid | Date | Time | Mercury Concentration (mg/m³) |
|----------|--------------|------------|----------|-------------------------------------|
| 1655 | 2 | 11/12/2015 | 10:05 AM | 0.007 |
| 1655 | 2 | 11/12/2015 | 10:30 AM | 0.025 |
| 1655 | 7 | 11/12/2015 | 10:00 AM | 0.008 |
| 1655 | 8 | 11/9/2015 | 10:30 AM | <0.003 |
| 1655 | 10 | 11/9/2015 | 11:30 AM | <0.003 |
| 1655 | 10 | 11/12/2015 | 10:55 AM | 0.027 |
| 1655 | 12 | 11/12/2015 | 9:55 AM | <0.003 |
| 1675 | 1 | 11/12/2015 | 2:25 PM | 0.025 |
| 1675 | Btw 1 & 8 | 11/12/2015 | 2:20 PM | 0.023 |
| 1675 | 3 | 11/12/2015 | 3:05 PM | 0.02 |
| 1675 | 3 (Conveyor) | 11/12/2015 | 3:15 PM | 0.011 |
| 1675 | 8 | 11/9/2015 | 3:45 PM | 0.035 |
| 1675 | 10 | 11/9/2015 | 3:30 PM | 0.044 |
| 1675 | 10 | 11/12/2015 | 1:50 PM | 0.015 |
| 1675 | 11 | 11/12/2015 | 1:45 PM | 0.02 |
| 1675 | 12 | 11/12/2015 | 1:35 PM | 0.034 |
| 1675 | 12 | 11/9/2015 | 2:00 PM | 0.027 |









AECOM

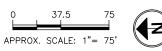
GARRISON SOUTHFIELD PARK

1655 & 1675 WATKINS ROAD, COLUMBUS, OHIO

SAMPLE LOCATION GRID - BUILDING 1675

DRAWN BY: CHECKED BY: PROJECT No: MW 60447615

DATE: 11/25/15 FIGURE No:



ARIZONA INSTRUMENT LLC

3375 N. Delaware St., Chandler, AZ 85225 (800) 528-7411 • (602) 470-1414 www.azic.com • customerservice@azic.com



Certification of Instrument Calibration

Pine Environmental 92 N. Main St, Bldg 20 Windsor, NJ 08561 RMA# 2266937

This is to certify that the Jerome **X431 0002** Gold Film Mercury Analyzer, Serial Number **4219**, with Sensor Number **08-9-22-X4D**, was calibrated with standard units traceable to NIST.

Calibration Status as Received:

Out of Calibration

| | | Actual | | | ion Gas | Allowable Range | | | |
|-----------|------------------|-------------------------|----------|----------|----------|---|--|--|--|
| Incoming: | Level 1 RSD % | 0.064 11. 7 9 | mg/m3 Hg | 0.101 | mg/m3 Hg | 0.096 - 0.106 mg/m3 Hg <5% | | | |
| Outgoing: | Level 1 RSD % | 0.101 0.80 | mg/m3 Hg | 0.100 | mg/m3 Hg | 0.095 - 0.105 mg/m3 Hg <3% | | | |
| | Level 2 SD | | mg/m3 Hg | 0.025 mg | g/m3 Hg | 0.020 - 0.030 mg/m3 Hg <0.005 mg/m3 Hg | | | |
| | Level 3 SD | | mg/m3 Hg | 0,010 mg | y/m3 Hg | 0.005 - 0.015 mg/m3 Hg <0.005 mg/m3 Hg | | | |

Calibration Status as Left: In Calibration

Estimated Uncertainty of Calibration System: 3.5%

Calibration Date: 22-Sep-2015

Recalibration Date: 21-Sep-2016

Temperature °F: 74.40

% Relative Humidity: 34.10

Cheryl thader

Approved By:____

Title: Cheryl Hradek - Quality Control

Date Approved: 25-Sep-2015

Equipment Used:

Permeation Tube: <u>498-45577</u> NIST#: <u>ISO12712</u>; <u>072958-697-060314</u> Calibration Date: <u>22-Jan-2015</u> Calibration Date Due: <u>22-Jan-2016</u>

DynaCalibrator: M-1878 NIST#: 14-2485

Calibration Date: 19-Nov-2014 Calibration Date Due: 20-Nov-2015

Digital Multimeter: 89990030 NIST#: 7000660

Calibration Date: 14-Apr-2015 Calibration Date Due: 14-Apr-2016

Flowmeter: 154482 NIST#: 150422154482 000

Calibration Date: 22-Apr-2015 Calibration Date Due: 22-Apr-2016

Calibration Procedure Used: 730-0041

Arizona Instrument certifies that the above listed instrument meets or exceeds all published specifications and has been calibrated using standards whose accuracy are traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY within the limitations of the Institute's calibration services, or have been derived from accepted values of natural physical constraints, or have been derived by the ratio type of self-calibration techniques.

Disclaimer: Any unauthorized adjustments, removal or breaking of QC seals, or other customer modifications on your Jerome Analyzer WILL VOID this factory calibration, Because any of the above acts could affect the calibration and readings of the instrument, their certification will no longer be valid and, further, Arizona Instrument LLC WILL NOT be responsible for any liabilities created as a result of using the instrument after such adjustments, seal removal, or modifications. As long as a functional test is within range, according to the procedure outlined in the Operator's Manual, the instrument is performing correctly.

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Data Quality Review Report Closed Loop Facility Columbus, Ohio

Data Packages: 240-57769 & 240-57899

I. INTRODUCTION

Twenty-one dust samples were collected at the Closed Loop Facility in Columbus, Ohio, on November 9 and 12, 2015. All samples were submitted to TestAmerica in North Canton, Ohio, for analysis of the parameters listed in Table 1.

Table 1
Sample and Analysis Summary

| | | | | Requested | Analyses ⁽¹⁾ |
|---------------|------------|-------------|--------|-----------|-------------------------|
| Laboratory ID | Sample ID | Sample Date | Matrix | Metals | TCLP |
| 240-57769-1 | DS-11-1675 | 11/09/15 | Solid | X | X |
| 240-57769-2 | DS-03-1675 | 11/09/15 | Solid | X | X |
| 240-57769-3 | DS-13-1675 | 11/09/15 | Solid | X | X |
| 240-57769-4 | DS-09-1675 | 11/09/15 | Solid | X | X |
| 240-57769-5 | DS-10-1655 | 11/09/15 | Solid | X | X |
| 240-57769-6 | DS-12-1655 | 11/09/15 | Solid | X | X |
| 240-57769-7 | DS-08-1655 | 11/09/15 | Solid | X | X |
| 240-57769-8 | DS-14-1675 | 11/09/15 | Solid | X | |
| 240-57769-9 | DS-12-1675 | 11/09/15 | Solid | X | |
| 240-57769-10 | DS-07-1655 | 11/09/15 | Solid | X | |
| 240-57769-11 | DS-04-1675 | 11/09/15 | Solid | X | |
| 240-57769-12 | DS-09-1655 | 11/09/15 | Solid | X | |
| 240-57769-13 | DUP A | 11/09/15 | Solid | X | |
| 240-57769-14 | DS-08-1675 | 11/09/15 | Solid | X | |
| 240-57769-15 | DS-11-1655 | 11/09/15 | Solid | X | |
| 240-57899-1 | DS-01-1675 | 11/12/15 | Solid | X | X |
| 240-57899-2 | DS-01-1655 | 11/12/15 | Solid | X | X |
| 240-57899-3 | DS-02-1655 | 11/12/15 | Solid | X | |
| 240-57899-4 | DS-10-1675 | 11/12/15 | Solid | X | |
| 240-57899-5 | DS-02-1675 | 11/12/15 | Solid | X | |
| 240-57899-6 | DUP B | 11/12/15 | Solid | X | |

(1) Method References: Metals = Total Metals TCLP = Toxicity Ch

= Total Metals by SW-846 Method 6010C/7471B

= Toxicity Characteristic Leaching Procedure Metals by SW-846 Method 6010C/7470A

Source: SW-846 = "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", USEPA, Third Edition, November 1986 and its updates.

AECOM Page 2

AECOM performed a standard review for data quality for all samples listed in Table 1. A standard review includes assessment of supporting quality control (QC) parameters and a review for compliance with the cited methods, but does not include reconstruction of the analytical data. The following information was reviewed:

- Report Narratives
- Chain-of-Custody and sample login documents
- AECOM sample ID and laboratory sample ID
- Sample results by sample, by analytical fraction
- Analytical methods performed
- Units of measure and detection limits
- Laboratory data qualifiers
- Date samples were digested and/or analyzed
- Laboratory Method Blank results
- Laboratory Control Sample (LCS) results
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) results
- Duplicate sample results
- Surrogate recoveries (where applicable)
- Internal Standard responses (where applicable and noted in case narratives)
- Any nonconformances or analytical problems noted in the case narratives
- Electronic Data

Guidance documents for the review process included the referenced analytical methods, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review" (July 2008), and "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (October 2004).

II. DATA REVIEW

The sections below describe the data review procedures and any findings identified during the review process. Unless otherwise noted, the acceptance criteria described in each section were met for each sample, and no qualifications were required. The qualifier flags used are as follows:

- U = The analyte was analyzed for, but was not detected. Value shown is the sample reporting limit.
- **J** = Estimated concentration because the result was below the sample reporting limit or quality control criteria were not met.
- UJ = The analyte was not detected at or above the sample reporting limit. However, the reporting limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

AECOM Page 3

A. Sample Receipt and Handling

The Chain of Custody and sample receiving documents are reviewed for correct sample identifications, preservatives, temperatures, dates, signatures, and condition of the containers and custody seals upon receipt. Lack of proper preservation can result in qualification or rejection of data, depending on the specific parameters and severity of the exceedance. Other discrepancies or deficiencies may require contacting the laboratory for additional information and are assessed in accordance with the guidance documents on a case-by-case basis.

• All samples were received intact at the laboratory. The cooler temperatures at the time of receipt were 0.4°C and 4.7°C, within SW-846 preservation criteria (SW-846 preservation guidelines require that samples be maintained at ≤6°C). No discrepancies were noted on the login documents.

B. Holding Times

The laboratory report is reviewed to determine if analyses were performed within the method-required holding times.

The analyses performed on the samples under review were in compliance with method holding time criteria.

C. Blanks

Blank samples can include laboratory method blanks, instrument blanks, equipment blanks, and trip blanks. Blanks are evaluated to determine whether conditions exist resulting in reported sample concentrations that are not related to site contamination (i.e., if samples are contaminated from an external source). Contamination introduced from an external source is demonstrated when an analyte is detected in a blank, and the concentration in an associated sample is not significantly higher (less than five times for most analytes or less than ten times for common laboratory contaminants).

- Arsenic was detected in the TCLP method blank in both data packages. The concentrations
 in the associated samples were less than five times the concentration in the method blank;
 therefore, the associated samples were qualified as nondetect ("U") at the reporting limit.
- Barium, chromium, and/or lead were detected in the TCLP method blank in one or both data packages. The concentrations in the associated samples were greater than five times the concentration in the method blank; therefore, no qualifications were necessary.
- Lead and/or chromium were detected in the total metals method blank in one or both data packages. The concentrations in the associated samples were greater than five times the concentration in the method blank; therefore, no qualifications were necessary.

D. Laboratory Control Samples

A Laboratory Control Sample (LCS) is a "contaminant-free matrix" spiked with a known concentration of all analytes of interest or a representative subset of the target analytes. The LCS is carried through the complete sample preparation and the analytical procedures and thereby provides information on the method's performance. Percent recoveries are monitored to provide a

AECOM Page 4

continuous measure of each method's accuracy. The LCS recoveries are compared with established method performance criteria to determine data acceptability.

All LCS recoveries were within the laboratory's QC acceptance criteria.

E. Matrix Spike/Matrix Spike Duplicate Samples

An aliquot of the matrix (i.e., a groundwater sample) is spiked with a known concentration of representative analytes of interest to obtain Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples. The MS/MSD samples are subjected to the entire preparation and analytical procedure in order to assess matrix effects on the method, as well as to evaluate instrument performance. Accuracy and precision for the matrix are determined by calculating the percent recovery and the relative percent difference (RPD) of the two spiked samples.

MS/MSD analyses were not performed during this sampling event.

F. Duplicate/Replicate Samples

Duplicate or replicate samples are analyzed to monitor and estimate the precision of data generated. Field duplicate results also serve as an indicator of sample representativeness and data reproducibility. If significant differences between analyses are identified, associated data are qualified as estimated.

Samples DS-08-1655 and DUP-A and DS-01-1675 and DUP-B were collected as field duplicates. The field duplicate results for samples DS-01-1675 and DUP-B for barium, lead, and selenium did not meet project acceptance criteria for precision. The results were qualified as estimated ("J"/"UJ"). All other results met the project acceptance criteria for precision.

III. DATA USABILITY

Based on the findings of this data quality review, the analytical data are considered usable for supporting project objectives.

The final data set, with qualifiers, is presented in Table 2.

Table 2 Analytical Data Summary Closed Loop Facility Columbus, Ohio

| | | | | | | Building 1655 | | | | |
|------------------|-------|------------|------------|------------|------------|---------------|------------|------------|------------|------------|
| | | DS-01-1655 | DS-02-1655 | DS-07-1655 | DS-08-1655 | DUP A | DS-09-1655 | DS-10-1655 | DS-11-1655 | DS-12-1655 |
| | | 11/12/2015 | 11/12/2015 | 11/9/2015 | 11/9/2015 | 11/9/2015 | 11/9/2015 | 11/9/2015 | 11/9/2015 | 11/9/2015 |
| Parameter | Units | | | | | | | | | |
| Arsenic | mg/Kg | 30 U | 30 U | 26 U | 71 U | 140 U | 23 U | 22 U | 28 U | 26 U |
| Barium | mg/Kg | 450 | 150 J | 150 J | 300 J | 350 J | 140 J | 180 J | 210 J | 210 J |
| Cadmium | mg/Kg | 3.6 J | 1.8 J | 7.2 J | 16 J | 23 J | 3.7 J | 4.2 J | 4.4 J | 2.9 J |
| Chromium | mg/Kg | 170 | 160 | 40 | 38 J | 35 J | 18 | 43 | 98 | 78 |
| Lead | mg/Kg | 13000 | 3300 | 3100 | 3000 | 2700 | 2500 | 2400 | 2300 | 2800 |
| Mercury | mg/Kg | 0.11 | 0.084 J | 0.081 J | 0.19 | 0.17 | 0.052 J | 0.098 | 0.14 | 0.092 J |
| Selenium | mg/Kg | 40 U | 40 U | 35 U | 94 U | 190 U | 30 U | 30 U | 38 U | 34 U |
| Silver | mg/Kg | 6.1 J | 1.7 J | 1.3 J | 8.2 J | 14 J | 2.2 J | 3.3 J | 5.7 J | 5.8 J |
| | | | | | | | | | | |
| TCLP Analysis | Units | | | | | | | | | |
| Arsenic | mg/L | 0.50 U | NS | NS | 0.50 U | NS | NS | 0.50 U | NS | 0.50 U |
| Barium | mg/L | 6.0 J | NS | NS | 1.8 J | NS | NS | 5.1 J | NS | 5.7 J |
| Cadmium | mg/L | 0.013 J | NS | NS | 0.038 J | NS | NS | 0.023 J | NS | 0.019 J |
| Chromium | mg/L | 0.025 J | NS | NS | 0.012 J | NS | NS | 0.039 J | NS | 0.043 J |
| Lead | mg/L | 180 | NS | NS | 4.7 | NS | NS | 92 | NS | 120 |
| Mercury | mg/L | 0.0020 U | NS | NS | 0.0020 U | NS | NS | 0.0020 U | NS | 0.0020 U |
| Selenium | mg/L | 0.25 U | NS | NS | 0.25 U | NS | NS | 0.25 U | NS | 0.25 U |
| Silver | mg/L | 0.50 U | NS | NS | 0.50 U | NS | NS | 0.50 U | NS | 0.50 U |
| Percent Moisture | % | 0.79 | 1.2 | 0.42 | 1.6 | 1 | 0.96 | 0.99 | 0.89 | 0.73 |
| Percent Solids | % | 99 | 99 | 100 | 98 | 99 | 99 | 99 | 99 | 99 |

U = The analyte was not detected. Value shown is the sample reporting limit.



J = Estimated concentration because the result was below the sample reporting limit.

UJ = The analyte was not detected at or above the sample reporting limit. However, the reporting limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NS = Not Sampled

Table 2 Analytical Data Summary Closed Loop Facility Columbus, Ohio

| | | | Building 1675 | | | | | | | | | | |
|------------------|-------|--------------------------|---------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Parameter | Units | DS-01-1675 11/12/2015 | DUP B 11/12/2015 | DS-02-1675 11/12/2015 | DS-03-1675 11/9/2015 | DS-04-1675 11/9/2015 | DS-08-1675 11/9/2015 | DS-09-1675 11/9/2015 | DS-10-1675 11/12/2015 | DS-11-1675 11/9/2015 | DS-12-1675 11/9/2015 | DS-13-1675 11/9/2015 | DS-14-1675 11/9/2015 |
| Arsenic | mg/Kg | 230 U | 260 U | 270 U | 100 U | 260 U | 64 U | 120 U | 66 U | 26 U | 260 U | 66 U | 150 U |
| Barium | mg/Kg | 380 J | 680 J | 640 J | 230 J | 210 J | 410 J | 520 J | 280 J | 190 J | 390 J | 400 J | 320 J |
| Cadmium | mg/Kg | 37 J | 48 J | 52 J | 16 J | 25 J | 15 J | 23 J | 5.2 J | 4.9 J | 33 J | 14 J | 30 J |
| Chromium | mg/Kg | 50 J | 58 J | 54 J | 28 J | 170 U | 35 J | 52 J | 40 J | 14 J | 37 J | 60 | 84 J |
| Lead | mg/Kg | 3800 J | 13000 J | 15000 | 2900 | 2200 | 8000 | 11000 | 6200 | 5100 | 5200 | 9100 | 2300 |
| Mercury | mg/Kg | 0.17 | 0.18 | 0.3 | 0.093 J | 0.042 J | 0.10 J | 0.17 | 0.1 | 0.015 J | 0.3 | 0.46 | 0.25 |
| Selenium | mg/Kg | 310 UJ | 61 J | 370 U | 140 U | 350 U | 85 U | 170 U | 88 U | 35 U | 350 U | 89 U | 200 U |
| Silver | mg/Kg | 16 J | 21 J | 14 J | 8.7 J | 22 J | 9.7 J | 14 J | 8.4 J | 2.5 J | 15 J | 6.7 J | 15 J |
| TCLP Analysis | Units | | | | | | | | | | | | |
| Arsenic | mg/L | 0.50 U | NS | NS | 0.50 U | NS | NS | 0.50 U | NS | 0.50 U | NS | 0.50 U | NS |
| Barium | mg/L | 6.6 J | NS | NS | 7.5 J | NS | NS | 6.8 J | NS | 7.2 J | NS | 0.35 J | NS |
| Cadmium | mg/L | 0.083 J | NS | NS | 0.012 J | NS | NS | 0.056 J | NS | 0.0092 J | NS | 0.088 J | NS |
| Chromium | mg/L | 0.037 J | NS | NS | 0.049 J | NS | NS | 0.034 J | NS | 0.059 J | NS | 0.012 J | NS |
| Lead | mg/L | 39 | NS | NS | 190 | NS | NS | 58 | NS | 220 | NS | 11 | NS |
| Mercury | mg/L | 0.0020 U | NS | NS | 0.00017 J | NS | NS | 0.0020 U | NS | 0.000097 J | NS | 0.00011 J | NS |
| Selenium | mg/L | 0.25 U | NS | NS | 0.25 U | NS | NS | 0.25 U | NS | 0.25 U | NS | 0.25 U | NS |
| Silver | mg/L | 0.0010 J | NS | NS | 0.50 U | NS | NS | 0.50 U | NS | 0.50 U | NS | 0.0013 J | NS |
| Percent Moisture | % | 0.89 | 0.96 | 0.71 | 0.35 | 0.44 | 0.84 | 1.6 | 0.66 | 2.5 | 1.6 | 1.8 | 2 |
| Percent Solids | % | 99 | 99 | 99 | 100 | 100 | 99 | 98 | 99 | 97 | 98 | 98 | 98 |

U = The analyte was not detected. Value shown is the sample reporting limit.



J = Estimated concentration because the result was below the sample reporting limit.

UJ = The analyte was not detected at or above the sample reporting limit. However, the reporting limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NS = Not Sampled



THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton 4101 Shuffel Street NW North Canton, OH 44720 Tel: (330)497-9396

TestAmerica Job ID: 240-57899-1

TestAmerica SDG: Garrison Southfield Park, LLC

Client Project/Site: Closed Loop

For:

URS Corporation 1375 Euclid Avenue Suite 600 Cleveland, Ohio 44115

Attn: Seda Ergun

Authorized for release by: 11/18/2015 5:05:07 PM

Mark Loeb, Project Manager II (330)966-9387

mark.loeb@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

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Definitions/Glossary

Client: URS Corporation
Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

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Qualifiers

Metals

| Qualifier | Qualifier Description |
|-----------|--|
| U | Indicates the analyte was analyzed for but not detected. |
| В | Compound was found in the blank and sample. |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| | |

General Chemistry

| Qualifier | Qualifier Description |
|-----------|---|
| F3 | Duplicate RPD exceeds the control limit |

Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|----------------|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |

RPD TEF TEQ

ND

PQL

QC

RER

RL

Reporting Limit or Requested Limit (Radiochemistry)
Relative Percent Difference, a measure of the relative difference between two points
Toxicity Equivalent Factor (Dioxin)
Toxicity Equivalent Quotient (Dioxin)

Not detected at the reporting limit (or MDL or EDL if shown)

Practical Quantitation Limit

Quality Control

Relative error ratio

TestAmerica Canton

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11/18/2015

Case Narrative

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Job ID: 240-57899-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: URS Corporation

Project: Closed Loop

Report Number: 240-57899-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/13/2015 2:34 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.4° C.

TCLP METALS (ICP)

Samples DS-01-1675 (240-57899-1) and DS-01-1655 (240-57899-2) were analyzed for TCLP metals (ICP) in accordance with EPA SW-846 Methods 1311/6010C. The samples were leached on 11/16/2015, prepared on 11/17/2015 and analyzed on 11/18/2015.

Barium and Lead were detected in method blank MB 240-207131/2-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Arsenic, Barium, Chromium and Lead were detected in method blank LB 240-207033/1-B at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Samples DS-01-1675 (240-57899-1)[5X] and DS-01-1655 (240-57899-2)[100X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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Case Narrative

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Job ID: 240-57899-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP)

Samples DS-01-1675 (240-57899-1), DS-01-1655 (240-57899-2), DS-02-1655 (240-57899-3), DS-10-1675 (240-57899-4), DS-02-1675 (240-57899-5) and DUP B (240-57899-6) were analyzed for total metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on $\frac{11}{17}$ 2015 and analyzed on $\frac{11}{18}$ 2015.

Chromium was detected in method blank MB 240-207146/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The following samples was diluted due to the nature of the sample matrix: DS-01-1675 (240-57899-1)[200X], DS-01-1655 (240-57899-2) [20X], DS-02-1655 (240-57899-3)[20X], DS-10-1675 (240-57899-4)[50X], DS-02-1675 (240-57899-5)[200X] and DUP B (240-57899-6) [200X]. Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP MERCURY

Samples DS-01-1675 (240-57899-1) and DS-01-1655 (240-57899-2) were analyzed for TCLP mercury in accordance with EPA SW-846 Methods 1311/7470A. The samples were leached on 11/16/2015, prepared on 11/17/2015 and analyzed on 11/18/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

MERCURY

Samples DS-01-1675 (240-57899-1), DS-01-1655 (240-57899-2), DS-02-1655 (240-57899-3), DS-10-1675 (240-57899-4), DS-02-1675 (240-57899-5) and DUP B (240-57899-6) were analyzed for mercury in accordance with EPA SW-846 Method 7471B. The samples were prepared on 11/17/2015 and analyzed on 11/18/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples DS-01-1675 (240-57899-1), DS-01-1655 (240-57899-2), DS-02-1655 (240-57899-3), DS-10-1675 (240-57899-4), DS-02-1675 (240-57899-5) and DUP B (240-57899-6) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 11/13/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Method Summary

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

| Method | Method Description | Protocol | Laboratory |
|----------|--------------------|----------|------------|
| 6010C | Metals (ICP) | SW846 | TAL CAN |
| 7470A | Mercury (CVAA) | SW846 | TAL CAN |
| 7471B | Mercury (CVAA) | SW846 | TAL CAN |
| Moisture | Percent Moisture | FPA | TAL CAN |

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Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

Matrix

Solid

Solid

Solid

Solid

Solid

Solid

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID

DS-01-1675

DS-01-1655

DS-02-1655

DS-10-1675

DS-02-1675

DUP B

Lab Sample ID

240-57899-1

240-57899-2

240-57899-3

240-57899-4

240-57899-5

240-57899-6

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

| Collected | Received |
|----------------|----------------|
| 11/12/15 00:00 | 11/13/15 14:34 |
| 11/12/15 00:00 | 11/13/15 14:34 |
| 11/12/15 00:00 | 11/13/15 14:34 |
| 11/12/15 00:00 | 11/13/15 14:34 |

11/12/15 00:00 11/13/15 14:34

11/12/15 00:00 11/13/15 14:34

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Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Lab Sample ID: 240-57899-1

Lab Sample ID: 240-57899-2

Lab Sample ID: 240-57899-3

Lab Sample ID: 240-57899-4

Client Sample ID: DS-01-1675

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|---------|-------|---------|---|--------|-----------|
| Barium | 380 | J | 3100 | 64 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Cadmium | 37 | J | 78 | 3.3 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Chromium | 50 | JB | 160 | 12 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Lead | 3800 | | 160 | 3.4 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Silver | 16 | J | 160 | 9.9 | mg/Kg | 200 | ₽ | 6010C | Total/NA |
| Arsenic | 0.0047 | JB | 0.50 | 0.0029 | mg/L | 1 | | 6010C | TCLP |
| Barium | 6.6 | JB | 10 | 0.0010 | mg/L | 1 | | 6010C | TCLP |
| Cadmium | 0.083 | J | 0.10 | 0.00014 | mg/L | 1 | | 6010C | TCLP |
| Chromium | 0.037 | JB | 0.50 | 0.00055 | mg/L | 1 | | 6010C | TCLP |
| Lead | 39 | В | 2.5 | 0.0095 | mg/L | 5 | | 6010C | TCLP |
| Silver | 0.0010 | J | 0.50 | 0.00092 | mg/L | 1 | | 6010C | TCLP |
| Hg | 0.17 | | 0.10 | 0.014 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-01-1655

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|---------|-------|---------|---|--------|-----------|
| Barium | 450 | | 400 | 8.1 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Cadmium | 3.6 | J | 9.9 | 0.42 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Chromium | 170 | В | 20 | 1.5 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Lead | 13000 | | 20 | 0.43 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Silver | 6.1 | J | 20 | 1.2 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Arsenic | 0.0051 | JB | 0.50 | 0.0029 | mg/L | 1 | | 6010C | TCLP |
| Barium | 6.0 | JB | 10 | 0.0010 | mg/L | 1 | | 6010C | TCLP |
| Cadmium | 0.013 | J | 0.10 | 0.00014 | mg/L | 1 | | 6010C | TCLP |
| Chromium | 0.025 | JB | 0.50 | 0.00055 | mg/L | 1 | | 6010C | TCLP |
| Lead | 180 | В | 50 | 0.19 | mg/L | 100 | | 6010C | TCLP |
| Hg | 0.11 | | 0.11 | 0.016 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-02-1655

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|-------|-------|---------|---|--------|-----------|
| Barium | 150 | J | 400 | 8.2 | mg/Kg | | ₩ | 6010C | Total/NA |
| Cadmium | 1.8 | J | 10 | 0.42 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Chromium | 160 | В | 20 | 1.5 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Lead | 3300 | | 20 | 0.44 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Silver | 1.7 | J | 20 | 1.3 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Hg | 0.084 | J | 0.10 | 0.014 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-10-1675

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|-------|-------|-------|---------|----|--------|-----------|
| Barium | 280 | J | 880 | 18 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Cadmium | 5.2 | J | 22 | 0.93 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Chromium | 40 | JB | 44 | 3.3 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Lead | 6200 | | 44 | 0.97 | mg/Kg | 50 | Ċ. | 6010C | Total/NA |
| Silver | 8.4 | J | 44 | 2.8 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Hg | 0.10 | | 0.096 | 0.013 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-02-1675

Lab Sample ID: 240-57899-5

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Detection Summary

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-02-1675 (Continued)

Lab Sample ID: 240-57899-5

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|-------|-------|-------|---------|----|--------|-----------|
| Barium | 640 | J | 3700 | 75 | mg/Kg | 200 | 苺 | 6010C | Total/NA |
| Cadmium | 52 | J | 92 | 3.8 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Chromium | 54 | JB | 180 | 14 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Lead | 15000 | | 180 | 4.0 | mg/Kg | 200 | Φ. | 6010C | Total/NA |
| Silver | 14 | J | 180 | 12 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Hg | 0.30 | | 0.089 | 0.012 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DUP B Lab Sample ID: 240-57899-6

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|-------|-------|---------|----|--------|-----------|
| Barium | 680 | J | 3500 | 72 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Cadmium | 48 | J | 88 | 3.7 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Chromium | 58 | JB | 180 | 13 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Lead | 13000 | | 180 | 3.9 | mg/Kg | 200 | ₩. | 6010C | Total/NA |
| Selenium | 61 | J | 350 | 60 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| Silver | 21 | J | 180 | 11 | mg/Kg | 200 | ₩ | 6010C | Total/NA |
| На | 0.18 | | 0.11 | 0.016 | ma/Ka | 1 | | 7471B | Total/NA |

This Detection Summary does not include radiochemical test results.

11/18/2015

Client: URS Corporation TestAmerica Job ID: 240-57899-1 Project/Site: Closed Loop SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-01-1675

Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-1

Matrix: Solid

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|--------|-----------|------|---------|------|---|----------------|----------------|---------|
| Arsenic | 0.0047 | J B | 0.50 | 0.0029 | mg/L | | 11/17/15 10:30 | 11/18/15 10:24 | 1 |
| Barium | 6.6 | JB | 10 | 0.0010 | mg/L | | 11/17/15 10:30 | 11/18/15 10:24 | 1 |
| Cadmium | 0.083 | J | 0.10 | 0.00014 | mg/L | | 11/17/15 10:30 | 11/18/15 10:24 | 1 |
| Chromium | 0.037 | JB | 0.50 | 0.00055 | mg/L | | 11/17/15 10:30 | 11/18/15 10:24 | 1 |
| Lead | 39 | В | 2.5 | 0.0095 | mg/L | | 11/17/15 10:30 | 11/18/15 10:58 | 5 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/17/15 10:30 | 11/18/15 10:24 | 1 |
| Silver | 0.0010 | J | 0.50 | 0.00092 | mg/L | | 11/17/15 10:30 | 11/18/15 10:24 | 1 |

Method: 7470A - Mercury (CVAA) - TCLP Analyte Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac 0.0020 U 0.0020 0.000090 mg/L <u>11/17/15 14:00</u> <u>11/18/15 08:41</u> Mercury

| General Chemistry Analyte | Result Q | ualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------------------------|----------|----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/13/15 16:36 | 1 |
| Percent Moisture | 0.89 | | 0.10 | 0.10 | % | | | 11/13/15 16:36 | 1 |

Client: URS Corporation TestAmerica Job ID: 240-57899-1 Project/Site: Closed Loop SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-01-1675 Lab Sample ID: 240-57899-1

Date Collected: 11/12/15 00:00 Matrix: Solid Date Received: 11/13/15 14:34 Percent Solids: 99.1

| Method: 6010C - Metals (ICP) Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|--------------------------------------|--------|-----------|------|-------|-------|----------|----------------|----------------|---------|
| Arsenic | 230 | U - | 230 | 64 | mg/Kg | <u></u> | 11/17/15 11:10 | 11/18/15 11:14 | 200 |
| Barium | 380 | J | 3100 | 64 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 11:14 | 200 |
| Cadmium | 37 | J | 78 | 3.3 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 11:14 | 200 |
| Chromium | 50 | JB | 160 | 12 | mg/Kg | ₽ | 11/17/15 11:10 | 11/18/15 11:14 | 200 |
| Lead | 3800 | | 160 | 3.4 | mg/Kg | ☼ | 11/17/15 11:10 | 11/18/15 11:14 | 200 |
| Selenium | 310 | U | 310 | 53 | mg/Kg | ☼ | 11/17/15 11:10 | 11/18/15 11:14 | 200 |
| Silver | 16 | J | 160 | 9.9 | mg/Kg | | 11/17/15 11:10 | 11/18/15 11:14 | 200 |
| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.17 | | 0.10 | 0.014 | mg/Kg | <u> </u> | 11/17/15 15:55 | 11/18/15 11:50 | 1 |

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-01-1655

Lab Sample ID: 240-57899-2 Date Collected: 11/12/15 00:00 Matrix: Solid Date Received: 11/13/15 14:34

| Method: 6010C - Metals (ICP) - | TCLP | | | MDI | | | | | |
|--------------------------------|--------|-----------|------|---------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 0.0051 | JB | 0.50 | 0.0029 | mg/L | | 11/17/15 10:30 | 11/18/15 10:28 | 1 |
| Barium | 6.0 | JB | 10 | 0.0010 | mg/L | | 11/17/15 10:30 | 11/18/15 10:28 | 1 |
| Cadmium | 0.013 | J | 0.10 | 0.00014 | mg/L | | 11/17/15 10:30 | 11/18/15 10:28 | 1 |
| Chromium | 0.025 | JB | 0.50 | 0.00055 | mg/L | | 11/17/15 10:30 | 11/18/15 10:28 | 1 |
| Lead | 180 | В | 50 | 0.19 | mg/L | | 11/17/15 10:30 | 11/18/15 11:10 | 100 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/17/15 10:30 | 11/18/15 10:28 | 1 |
| Silver | 0.50 | U | 0.50 | 0.00092 | mg/L | | 11/17/15 10:30 | 11/18/15 10:28 | 1 |

| | AA) - TCLP | | | | | | | | |
|---------|------------|-----------|--------|------------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL I | Unit | D | Prepared | Analyzed | Dil Fac |
| Mercury | 0.0020 | U | 0.0020 | 0.000090 r | mg/L | | 11/17/15 14:00 | 11/18/15 08:43 | 1 |

| General Chemistry Analyte | Result Qu | alifier RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------------------------|-----------|------------|------|------|---|----------|----------------|---------|
| Percent Solids | 99 | 0.10 | 0.10 | % | | | 11/13/15 16:36 | 1 |
| Percent Moisture | 0.79 | 0.10 | 0.10 | % | | | 11/13/15 16:36 | 1 |

Client: URS Corporation TestAmerica Job ID: 240-57899-1 Project/Site: Closed Loop SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-01-1655

Lab Sample ID: 240-57899-2 Date Collected: 11/12/15 00:00 Matrix: Solid

Date Received: 11/13/15 14:34 Percent Solids: 99.2

| Method: 6010C - Metals (ICP) Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|--------------------------------------|--------|-----------|------|-------|-------|-------------|----------------|----------------|---------|
| Arsenic | 30 | U | 30 | 8.1 | mg/Kg | <u> </u> | 11/17/15 11:10 | 11/18/15 10:37 | 20 |
| Barium | 450 | | 400 | 8.1 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 10:37 | 20 |
| Cadmium | 3.6 | J | 9.9 | 0.42 | mg/Kg | ₽ | 11/17/15 11:10 | 11/18/15 10:37 | 20 |
| Chromium | 170 | В | 20 | 1.5 | mg/Kg | \$ | 11/17/15 11:10 | 11/18/15 10:37 | 20 |
| Lead | 13000 | | 20 | 0.43 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 10:37 | 20 |
| Selenium | 40 | U | 40 | 6.7 | mg/Kg | ₽ | 11/17/15 11:10 | 11/18/15 10:37 | 20 |
| Silver | 6.1 | J | 20 | 1.2 | mg/Kg | \$ | 11/17/15 11:10 | 11/18/15 10:37 | 20 |
| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.11 | | 0.11 | 0.016 | mg/Kg | | 11/17/15 15:55 | 11/18/15 11:52 | 1 |

Client: URS Corporation TestAmerica Job ID: 240-57899-1 Project/Site: Closed Loop

99

1.2

SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-02-1655

Percent Solids

Percent Moisture

Lab Sample ID: 240-57899-3 Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

| Matrix: Solid | |
|----------------------|--|
| Percent Solids: 98.8 | |

11/13/15 16:36

11/13/15 16:36

| Method: 6010C - Metals (ICP) Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|--------------------------------------|--------|-----------|------|-------|-------|----------------------------|----------------|----------------|---------|
| Arsenic | 30 | | 30 | | mg/Kg | \ | <u> </u> | 11/18/15 10:41 | 20 |
| Barium | 150 | J | 400 | 8.2 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 10:41 | 20 |
| Cadmium | 1.8 | J | 10 | 0.42 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 10:41 | 20 |
| Chromium | 160 | В | 20 | 1.5 | mg/Kg | | 11/17/15 11:10 | 11/18/15 10:41 | 20 |
| Lead | 3300 | | 20 | 0.44 | mg/Kg | ☼ | 11/17/15 11:10 | 11/18/15 10:41 | 20 |
| Selenium | 40 | U | 40 | 6.8 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 10:41 | 20 |
| Silver | 1.7 | J | 20 | 1.3 | mg/Kg | | 11/17/15 11:10 | 11/18/15 10:41 | 20 |
| _ Method: 7471B - Mercury (CVAA) | | | | | | | | | |
| Analyte | | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.084 | J | 0.10 | 0.014 | mg/Kg | - \$ | 11/17/15 15:55 | 11/18/15 11:54 | 1 |
| _ General Chemistry | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |

0.10

0.10

0.10 %

0.10 %

Client: URS Corporation TestAmerica Job ID: 240-57899-1 Project/Site: Closed Loop SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-10-1675 Lab Sample ID: 240-57899-4

0.66

Percent Moisture

Date Collected: 11/12/15 00:00 **Matrix: Solid**

Date Received: 11/13/15 14:34 Percent Solids: 99.3

| Method: 6010C - Metals (ICP) Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|--------------------------------------|--------|-----------|-------|-------|-------|----------------------------|----------------|----------------|---------|
| Arsenic | 66 | U | 66 | 18 | mg/Kg | <u></u> | 11/17/15 11:10 | 11/18/15 10:45 | 50 |
| Barium | 280 | J | 880 | 18 | mg/Kg | ☼ | 11/17/15 11:10 | 11/18/15 10:45 | 50 |
| Cadmium | 5.2 | J | 22 | 0.93 | mg/Kg | ☼ | 11/17/15 11:10 | 11/18/15 10:45 | 50 |
| Chromium | 40 | JB | 44 | 3.3 | mg/Kg | ₽ | 11/17/15 11:10 | 11/18/15 10:45 | 50 |
| Lead | 6200 | | 44 | 0.97 | mg/Kg | ☼ | 11/17/15 11:10 | 11/18/15 10:45 | 50 |
| Selenium | 88 | U | 88 | 15 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 10:45 | 50 |
| Silver | 8.4 | J | 44 | 2.8 | mg/Kg | ₽ | 11/17/15 11:10 | 11/18/15 10:45 | 50 |
| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.10 | | 0.096 | 0.013 | mg/Kg | - \$ | 11/17/15 15:55 | 11/18/15 11:57 | 1 |
| General Chemistry | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/13/15 16:36 | |

0.10

0.10 %

11/13/15 16:36

Client: URS Corporation TestAmerica Job ID: 240-57899-1
Project/Site: Closed Loop SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-02-1675 Lab Sample ID: 240-57899-5

Date Collected: 11/12/15 00:00 Matrix: Solid
Date Received: 11/13/15 14:34 Percent Solids: 99.3

| Method: 6010C - Metals (ICP) | | | | | | | | | |
|--------------------------------|--------|-----------|-------|-------|-------|----------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 270 | U | 270 | 75 | mg/Kg | <u> </u> | 11/17/15 11:10 | 11/18/15 11:18 | 200 |
| Barium | 640 | J | 3700 | 75 | mg/Kg | ☼ | 11/17/15 11:10 | 11/18/15 11:18 | 200 |
| Cadmium | 52 | J | 92 | 3.8 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 11:18 | 200 |
| Chromium | 54 | JB | 180 | 14 | mg/Kg | | 11/17/15 11:10 | 11/18/15 11:18 | 200 |
| Lead | 15000 | | 180 | 4.0 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 11:18 | 200 |
| Selenium | 370 | U | 370 | 62 | mg/Kg | ☼ | 11/17/15 11:10 | 11/18/15 11:18 | 200 |
| Silver | 14 | J | 180 | 12 | mg/Kg | | 11/17/15 11:10 | 11/18/15 11:18 | 200 |
| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.30 | | 0.089 | 0.012 | mg/Kg | <u> </u> | 11/17/15 15:55 | 11/18/15 11:59 | 1 |
| General Chemistry | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/13/15 16:36 | 1 |

0.10

0.71

Percent Moisture

0.10 %

6

8

9

10

11

12

1

11/13/15 16:36

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DUP B

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Lab Sample ID: 240-57899-6

| olient Gample ib. bor b | Lab Sample ID. 240-37033-0 |
|--------------------------------|----------------------------|
| Date Collected: 11/12/15 00:00 | Matrix: Solid |
| Date Received: 11/13/15 14:34 | Percent Solids: 99.0 |
| | |

| Date Received: 11/13/15 14:34 | | | | | | | | Percent Solid | s: 99.0 |
|--------------------------------------|--------|-----------|------|-------|-------|----------|----------------|----------------|---------|
| Method: 6010C - Metals (ICP) Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 260 | U | 260 | 72 | mg/Kg | <u></u> | 11/17/15 11:10 | 11/18/15 11:22 | 200 |
| Barium | 680 | J | 3500 | 72 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 11:22 | 200 |
| Cadmium | 48 | J | 88 | 3.7 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 11:22 | 200 |
| Chromium | 58 | JB | 180 | 13 | mg/Kg | | 11/17/15 11:10 | 11/18/15 11:22 | 200 |
| Lead | 13000 | | 180 | 3.9 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 11:22 | 200 |
| Selenium | 61 | J | 350 | 60 | mg/Kg | ₩ | 11/17/15 11:10 | 11/18/15 11:22 | 200 |
| Silver | 21 | J | 180 | 11 | mg/Kg | \$ | 11/17/15 11:10 | 11/18/15 11:22 | 200 |
| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.18 | | 0.11 | 0.016 | mg/Kg | <u> </u> | 11/17/15 15:55 | 11/18/15 12:03 | 1 |
| General Chemistry | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/13/15 16:36 | 1 |
| Percent Moisture | 0.96 | | 0.10 | 0.10 | % | | | 11/13/15 16:36 | 1 |

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-207131/2-A

Matrix: Solid

Analysis Batch: 207392

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 207131

| | MB | MB | | | | | | | |
|----------|---------|-----------|------|---------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 0.50 | U | 0.50 | 0.0029 | mg/L | | 11/17/15 10:30 | 11/18/15 10:08 | 1 |
| Barium | 0.00105 | J | 10 | 0.0010 | mg/L | | 11/17/15 10:30 | 11/18/15 10:08 | 1 |
| Cadmium | 0.10 | U | 0.10 | 0.00014 | mg/L | | 11/17/15 10:30 | 11/18/15 10:08 | 1 |
| Chromium | 0.50 | U | 0.50 | 0.00055 | mg/L | | 11/17/15 10:30 | 11/18/15 10:08 | 1 |
| Lead | 0.00416 | J | 0.50 | 0.0019 | mg/L | | 11/17/15 10:30 | 11/18/15 10:08 | 1 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/17/15 10:30 | 11/18/15 10:08 | 1 |
| Silver | 0.50 | U | 0.50 | 0.00092 | mg/L | | 11/17/15 10:30 | 11/18/15 10:08 | 1 |
| | | | | | | | | | |

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 207131

Matrix: Solid Analysis Batch: 207392 LCS LCS Spike %Rec. Added Analyte Result Qualifier Unit D %Rec Limits Arsenic 2.00 2.09 mg/L 50 - 150 105 Barium 2.00 1.93 J mg/L 96 50 - 150Cadmium 0.0500 0.0501 J mg/L 100 50 - 150 Chromium 0.200 0.197 J mg/L 99 50 - 150 Lead 0.500 0.454 J mg/L 91 50 - 150 Selenium 2.00 2.17 mg/L 108 50 - 150 Silver 0.0500 0.0554 J 111 50 - 150 mg/L

Lab Sample ID: MB 240-207146/1-A

Lab Sample ID: LCS 240-207131/3-A

Matrix: Solid

Analysis Batch: 207392

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 207146

| MB | MB | | | | | | | |
|--------|-----------------------------------|---|--|---|--|--|---|--|
| Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| 1.5 | U | 1.5 | 0.41 | mg/Kg | | 11/17/15 11:10 | 11/18/15 09:28 | 1 |
| 20 | U | 20 | 0.41 | mg/Kg | | 11/17/15 11:10 | 11/18/15 09:28 | 1 |
| 0.50 | U | 0.50 | 0.021 | mg/Kg | | 11/17/15 11:10 | 11/18/15 09:28 | 1 |
| 0.0812 | J | 1.0 | 0.075 | mg/Kg | | 11/17/15 11:10 | 11/18/15 09:28 | 1 |
| 1.0 | U | 1.0 | 0.022 | mg/Kg | | 11/17/15 11:10 | 11/18/15 09:28 | 1 |
| 2.0 | U | 2.0 | 0.34 | mg/Kg | | 11/17/15 11:10 | 11/18/15 09:28 | 1 |
| 1.0 | U | 1.0 | 0.063 | mg/Kg | | 11/17/15 11:10 | 11/18/15 09:28 | 1 |
| | Result 1.5 20 0.50 0.0812 1.0 2.0 | MB MB Result Qualifier 1.5 U 20 U 0.50 U 0.0812 J 1.0 U 2.0 U 1.0 U | Result Qualifier RL 1.5 U 1.5 20 U 20 0.50 U 0.50 0.0812 J 1.0 1.0 U 1.0 2.0 U 2.0 | Result Qualifier RL MDL 1.5 U 1.5 0.41 20 U 20 0.41 0.50 U 0.50 0.021 0.0812 J 1.0 0.075 1.0 U 1.0 0.022 2.0 U 2.0 0.34 | Result Qualifier RL MDL unit 1.5 U 1.5 0.41 mg/Kg 20 U 20 0.41 mg/Kg 0.50 U 0.50 0.021 mg/Kg 0.0812 J 1.0 0.075 mg/Kg 1.0 U 1.0 0.022 mg/Kg 2.0 U 2.0 0.34 mg/Kg | Result Qualifier RL MDL Unit D 1.5 U 1.5 0.41 mg/Kg 20 U 20 0.41 mg/Kg 0.50 U 0.50 0.021 mg/Kg 0.0812 J 1.0 0.075 mg/Kg 1.0 U 1.0 0.022 mg/Kg 2.0 U 2.0 0.34 mg/Kg | Result Qualifier RL MDL Unit D Prepared 1.5 U 1.5 0.41 mg/Kg 11/17/15 11:10 20 U 20 0.41 mg/Kg 11/17/15 11:10 0.50 U 0.50 0.021 mg/Kg 11/17/15 11:10 0.0812 J 1.0 0.075 mg/Kg 11/17/15 11:10 1.0 U 1.0 0.022 mg/Kg 11/17/15 11:10 2.0 U 2.0 0.34 mg/Kg 11/17/15 11:10 | Result Qualifier RL MDL Unit D Prepared Analyzed 1.5 U 1.5 0.41 mg/Kg 11/17/15 11:10 11/18/15 09:28 20 U 20 0.41 mg/Kg 11/17/15 11:10 11/18/15 09:28 0.50 U 0.50 0.021 mg/Kg 11/17/15 11:10 11/18/15 09:28 0.0812 J 1.0 0.075 mg/Kg 11/17/15 11:10 11/18/15 09:28 1.0 U 1.0 0.022 mg/Kg 11/17/15 11:10 11/18/15 09:28 2.0 U 2.0 0.34 mg/Kg 11/17/15 11:10 11/18/15 09:28 |

Lab Sample ID: LCS 240-207146/2-A

Matrix: Solid

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Analysis Batch: 207392 Prep Batch: 207146 LCS LCS Spike %Rec. Added Analyte Result Qualifier Unit %Rec Limits 200 Arsenic 191 mg/Kg 95 80 - 120 Barium 200 186 mg/Kg 93 80 - 120 Cadmium 5.00 4.74 mg/Kg 95 80 - 120Chromium 20.0 19.3 mg/Kg 96 80 - 120 50.0 Lead 46.1 mg/Kg 92 80 - 120 Selenium 200 192 mg/Kg 96 80 - 120 5.00 Silver 5.14 mg/Kg 103 80 - 120

TestAmerica Canton

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LB 240-207033/1-B

Matrix: Solid

Analysis Batch: 207392

Client Sample ID: Method Blank **Prep Type: TCLP**

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

%Rec.

Limits

Prep Type: Total/NA

Prep Batch: 207134

Prep Batch: 207131

| | LB | LB | | | | | | | |
|----------|---------|-----------|------|---------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 0.00495 | J | 0.50 | 0.0029 | mg/L | | 11/17/15 10:30 | 11/18/15 10:03 | 1 |
| Barium | 0.00280 | J | 10 | 0.0010 | mg/L | | 11/17/15 10:30 | 11/18/15 10:03 | 1 |
| Cadmium | 0.10 | U | 0.10 | 0.00014 | mg/L | | 11/17/15 10:30 | 11/18/15 10:03 | 1 |
| Chromium | 0.00161 | J | 0.50 | 0.00055 | mg/L | | 11/17/15 10:30 | 11/18/15 10:03 | 1 |
| Lead | 0.00758 | J | 0.50 | 0.0019 | mg/L | | 11/17/15 10:30 | 11/18/15 10:03 | 1 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/17/15 10:30 | 11/18/15 10:03 | 1 |
| Silver | 0.50 | U | 0.50 | 0.00092 | mg/L | | 11/17/15 10:30 | 11/18/15 10:03 | 1 |
| | | | | | | | | | |

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-207134/2-A

Matrix: Solid

Analysis Batch: 207339

MB MB

Result Qualifier RL **MDL** Unit Analyte Prepared Analyzed Dil Fac 0.0020 <u>11/17/15 14:00</u> <u>11/18/15 08:24</u> Mercury 0.0020 U 0.000090 mg/L

Lab Sample ID: LCS 240-207134/3-A

Matrix: Solid

Analysis Batch: 207339

Spike Analyte Mercury

Added 0.00500

LCS LCS Result Qualifier 0.00568

Unit mg/L

D %Rec 114

80 - 120 Client Sample ID: Method Blank

Prep Type: TCLP

Prep Batch: 207134

Prep Type: Total/NA Prep Batch: 207152

Prep Type: Total/NA

Prep Batch: 207134

Lab Sample ID: LB 240-207033/1-C

Matrix: Solid

Analysis Batch: 207339

LB LB

Analyte

Result Qualifier RL Mercury 0.0020 U 0.0020

MDL Unit 0.000090 mg/L

Prepared 11/17/15 14:00 11/18/15 07:39

Prepared

Analyzed

Dil Fac

Client Sample ID: Method Blank

11/17/15 15:55 11/18/15 11:17

Client Sample ID: Lab Control Sample

Analyzed

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 240-207152/1-A

Matrix: Solid

Analysis Batch: 207407

MB MB

Result Qualifier Analyte 0 10 U Hg

Lab Sample ID: LCS 240-207152/2-A

Matrix: Solid

Analysis Batch: 207407

Analyte Hg

Spike LCS LCS Added Result Qualifier 0.833

RL

0.10

0.815

MDL Unit

0.014 mg/Kg

Unit mg/Kg

D %Rec 98

Prep Type: Total/NA Prep Batch: 207152 %Rec. Limits

80 - 120

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QC Sample Results

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-01-1675

38

Method: Moisture - Percent Moisture

0.89

Lab Sample ID: 240-57899-1 DU

Matrix: Solid

Analysis Batch: 206747

Analyte Percent Solids Percent Moisture

| | | | | | | | Prep Typ | oe: Tot | al/NA | |
|---|--------|-----------|--------|-----------|------|---|----------|---------|-------|--|
| | Sample | Sample | DU | DU | | | | | RPD | |
| | Result | Qualifier | Result | Qualifier | Unit | D | | RPD | Limit | |
| - | 99 | | 99 | | % | | | 0.3 | 20 | |

0.61 F3

QC Association Summary

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Metals

Leach Batch: 207033

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-------------------|------------------|-----------|--------|--------|------------|
| 240-57899-1 | DS-01-1675 | TCLP | Solid | 1311 | |
| 240-57899-2 | DS-01-1655 | TCLP | Solid | 1311 | |
| LB 240-207033/1-B | Method Blank | TCLP | Solid | 1311 | |
| LB 240-207033/1-C | Method Blank | TCLP | Solid | 1311 | |

Prep Batch: 207131

| Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--|---|---|---|
| DS-01-1675 | TCLP | Solid | 3010A | 207033 |
| DS-01-1655 | TCLP | Solid | 3010A | 207033 |
| Method Blank | TCLP | Solid | 3010A | 207033 |
| Lab Control Sample | Total/NA | Solid | 3010A | |
| Method Blank | Total/NA | Solid | 3010A | |
| | DS-01-1675 DS-01-1655 Method Blank Lab Control Sample | DS-01-1675 TCLP DS-01-1655 TCLP Method Blank TCLP Lab Control Sample Total/NA | DS-01-1675 TCLP Solid DS-01-1655 TCLP Solid Method Blank TCLP Solid Lab Control Sample Total/NA Solid | DS-01-1675 TCLP Solid 3010A DS-01-1655 TCLP Solid 3010A Method Blank TCLP Solid 3010A Lab Control Sample Total/NA Solid 3010A |

Prep Batch: 207134

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57899-1 | DS-01-1675 | TCLP | Solid | 7470A | 207033 |
| 240-57899-2 | DS-01-1655 | TCLP | Solid | 7470A | 207033 |
| LB 240-207033/1-C | Method Blank | TCLP | Solid | 7470A | 207033 |
| LCS 240-207134/3-A | Lab Control Sample | Total/NA | Solid | 7470A | |
| MB 240-207134/2-A | Method Blank | Total/NA | Solid | 7470A | |

Prep Batch: 207146

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57899-1 | DS-01-1675 | Total/NA | Solid | 3050B | |
| 240-57899-2 | DS-01-1655 | Total/NA | Solid | 3050B | |
| 240-57899-3 | DS-02-1655 | Total/NA | Solid | 3050B | |
| 240-57899-4 | DS-10-1675 | Total/NA | Solid | 3050B | |
| 240-57899-5 | DS-02-1675 | Total/NA | Solid | 3050B | |
| 240-57899-6 | DUP B | Total/NA | Solid | 3050B | |
| LCS 240-207146/2-A | Lab Control Sample | Total/NA | Solid | 3050B | |
| MB 240-207146/1-A | Method Blank | Total/NA | Solid | 3050B | |

Prep Batch: 207152

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57899-1 | DS-01-1675 | Total/NA | Solid | 7471B | |
| 240-57899-2 | DS-01-1655 | Total/NA | Solid | 7471B | |
| 240-57899-3 | DS-02-1655 | Total/NA | Solid | 7471B | |
| 240-57899-4 | DS-10-1675 | Total/NA | Solid | 7471B | |
| 240-57899-5 | DS-02-1675 | Total/NA | Solid | 7471B | |
| 240-57899-6 | DUP B | Total/NA | Solid | 7471B | |
| LCS 240-207152/2-A | Lab Control Sample | Total/NA | Solid | 7471B | |
| MB 240-207152/1-A | Method Blank | Total/NA | Solid | 7471B | |

Analysis Batch: 207339

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57899-1 | DS-01-1675 | TCLP | Solid | 7470A | 207134 |
| 240-57899-2 | DS-01-1655 | TCLP | Solid | 7470A | 207134 |
| LB 240-207033/1-C | Method Blank | TCLP | Solid | 7470A | 207134 |
| LCS 240-207134/3-A | Lab Control Sample | Total/NA | Solid | 7470A | 207134 |
| MB 240-207134/2-A | Method Blank | Total/NA | Solid | 7470A | 207134 |

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4 4

12

QC Association Summary

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Metals (Continued)

Analysis Batch: 207392

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57899-1 | DS-01-1675 | TCLP | Solid | 6010C | 207131 |
| 240-57899-1 | DS-01-1675 | TCLP | Solid | 6010C | 207131 |
| 240-57899-1 | DS-01-1675 | Total/NA | Solid | 6010C | 207146 |
| 240-57899-2 | DS-01-1655 | TCLP | Solid | 6010C | 207131 |
| 240-57899-2 | DS-01-1655 | TCLP | Solid | 6010C | 207131 |
| 240-57899-2 | DS-01-1655 | Total/NA | Solid | 6010C | 207146 |
| 240-57899-3 | DS-02-1655 | Total/NA | Solid | 6010C | 207146 |
| 240-57899-4 | DS-10-1675 | Total/NA | Solid | 6010C | 207146 |
| 240-57899-5 | DS-02-1675 | Total/NA | Solid | 6010C | 207146 |
| 240-57899-6 | DUP B | Total/NA | Solid | 6010C | 207146 |
| LB 240-207033/1-B | Method Blank | TCLP | Solid | 6010C | 207131 |
| LCS 240-207131/3-A | Lab Control Sample | Total/NA | Solid | 6010C | 207131 |
| LCS 240-207146/2-A | Lab Control Sample | Total/NA | Solid | 6010C | 207146 |
| MB 240-207131/2-A | Method Blank | Total/NA | Solid | 6010C | 207131 |
| MB 240-207146/1-A | Method Blank | Total/NA | Solid | 6010C | 207146 |

Analysis Batch: 207407

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57899-1 | DS-01-1675 | Total/NA | Solid | 7471B | 207152 |
| 240-57899-2 | DS-01-1655 | Total/NA | Solid | 7471B | 207152 |
| 240-57899-3 | DS-02-1655 | Total/NA | Solid | 7471B | 207152 |
| 240-57899-4 | DS-10-1675 | Total/NA | Solid | 7471B | 207152 |
| 240-57899-5 | DS-02-1675 | Total/NA | Solid | 7471B | 207152 |
| 240-57899-6 | DUP B | Total/NA | Solid | 7471B | 207152 |
| LCS 240-207152/2-A | Lab Control Sample | Total/NA | Solid | 7471B | 207152 |
| MB 240-207152/1-A | Method Blank | Total/NA | Solid | 7471B | 207152 |

General Chemistry

Analysis Batch: 206747

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|----------------|------------------|-----------|--------|----------|------------|
| 240-57899-1 | DS-01-1675 | Total/NA | Solid | Moisture | _ |
| 240-57899-1 DU | DS-01-1675 | Total/NA | Solid | Moisture | |
| 240-57899-2 | DS-01-1655 | Total/NA | Solid | Moisture | |
| 240-57899-3 | DS-02-1655 | Total/NA | Solid | Moisture | |
| 240-57899-4 | DS-10-1675 | Total/NA | Solid | Moisture | |
| 240-57899-5 | DS-02-1675 | Total/NA | Solid | Moisture | |
| 240-57899-6 | DUP B | Total/NA | Solid | Moisture | |

Client: URS Corporation Project/Site: Closed Loop

Total/NA

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Client Sample ID: DS-01-1675

Analysis

Moisture

Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-1

Matrix: Solid

Batch Dilution Batch **Batch Prepared** Method Run Factor or Analyzed **Prep Type** Type Number Analyst Lab **TCLP** Leach 1311 207033 11/16/15 17:10 SMH **TAL CAN TCLP** 3010A 207131 11/17/15 10:30 DEE TAL CAN Prep **TCLP** Analysis 6010C 1 207392 11/18/15 10:24 KLC TAL CAN **TCLP** TAL CAN Leach 1311 207033 11/16/15 17:10 SMH **TCLP** Prep 3010A 207131 11/17/15 10:30 DEE TAL CAN **TCLP** 5 TAL CAN 6010C 207392 11/18/15 10:58 KLC Analysis **TCLP** Leach 1311 207033 11/16/15 17:10 SMH TAL CAN **TCLP** Prep 7470A 207134 11/17/15 14:00 DEE TAL CAN **TCLP** Analysis 7470A 1 207339 11/18/15 08:41 WAL TAL CAN 206747 11/13/15 16:36 BLW TAL CAN

Lab Sample ID: 240-57899-1

Client Sample ID: DS-01-1675 Date Collected: 11/12/15 00:00 Matrix: Solid Date Received: 11/13/15 14:34

1

Percent Solids: 99.1

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|---------------|-----------------|-----|--------------------|-----------------|----------------------|---------|---------|
| Total/NA | Prep | 3050B | | | 207146 | 11/17/15 11:10 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 200 | 207392 | 11/18/15 11:14 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 207152 | 11/17/15 15:55 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 207407 | 11/18/15 11:50 | WAL | TAL CAN |

Lab Sample ID: 240-57899-2 Client Sample ID: DS-01-1655 Date Collected: 11/12/15 00:00 **Matrix: Solid**

Date Received: 11/13/15 14:34

| _ | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| TCLP | Leach | 1311 | | | 207033 | 11/16/15 17:10 | SMH | TAL CAN |
| TCLP | Prep | 3010A | | | 207131 | 11/17/15 10:30 | DEE | TAL CAN |
| TCLP | Analysis | 6010C | | 1 | 207392 | 11/18/15 10:28 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 207033 | 11/16/15 17:10 | SMH | TAL CAN |
| TCLP | Prep | 3010A | | | 207131 | 11/17/15 10:30 | DEE | TAL CAN |
| TCLP | Analysis | 6010C | | 100 | 207392 | 11/18/15 11:10 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 207033 | 11/16/15 17:10 | SMH | TAL CAN |
| TCLP | Prep | 7470A | | | 207134 | 11/17/15 14:00 | DEE | TAL CAN |
| TCLP | Analysis | 7470A | | 1 | 207339 | 11/18/15 08:43 | WAL | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 206747 | 11/13/15 16:36 | BLW | TAL CAN |

Client Sample ID: DS-01-1655 Lab Sample ID: 240-57899-2

Date Collected: 11/12/15 00:00 **Matrix: Solid** Date Received: 11/13/15 14:34 Percent Solids: 99.2

Batch Batch Dilution Batch Prepared **Prep Type** Type Method Run **Factor** Number or Analyzed Analyst Total/NA 3050B 207146 11/17/15 11:10 DEE TAL CAN Prep

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Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-01-1655

Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Lab Sample ID: 240-57899-2

Matrix: Solid

Percent Solids: 99.2

Batch Dilution Batch Batch Prepared **Prep Type** Type Method Run **Factor** Number or Analyzed Analyst Lab Total/NA Analysis 6010C 20 207392 11/18/15 10:37 KLC TAL CAN Total/NA Prep 7471B 207152 11/17/15 15:55 DEE TAL CAN Total/NA Analysis 7471B 1 207407 11/18/15 11:52 WAL TAL CAN

Client Sample ID: DS-02-1655 Lab Sample ID: 240-57899-3

Date Collected: 11/12/15 00:00 Matrix: Solid

Date Received: 11/13/15 14:34

Batch Batch Dilution **Batch Prepared** Туре Method Run **Factor** Number or Analyzed Analyst **Prep Type** Lab 206747 11/13/15 16:36 BLW TAL CAN Total/NA Analysis Moisture

Client Sample ID: DS-02-1655 Lab Sample ID: 240-57899-3

Date Collected: 11/12/15 00:00 **Matrix: Solid** Date Received: 11/13/15 14:34 Percent Solids: 98.8

Batch Dilution Batch Batch **Prepared Prep Type** Type Method Run **Factor** Number or Analyzed Analyst Lab Prep Total/NA 3050B 207146 11/17/15 11:10 DEE TAL CAN Total/NA 207392 11/18/15 10:41 KLC TAL CAN Analysis 6010C 20 Total/NA Prep 7471B 207152 11/17/15 15:55 DEE TAL CAN

Client Sample ID: DS-10-1675 Lab Sample ID: 240-57899-4

1

207407 11/18/15 11:54 WAL

TAL CAN

Date Collected: 11/12/15 00:00 Matrix: Solid

Date Received: 11/13/15 14:34

Analysis

7471B

Total/NA

Batch Dilution Batch Batch Prepared **Prep Type** Type Method Run **Factor** Number or Analyzed Analyst 11/13/15 16:36 BLW TAL CAN Total/NA Analysis Moisture

Client Sample ID: DS-10-1675 Lab Sample ID: 240-57899-4

Date Collected: 11/12/15 00:00 Matrix: Solid

Date Received: 11/13/15 14:34 Percent Solids: 99.3

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | | | 207146 | 11/17/15 11:10 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 50 | 207392 | 11/18/15 10:45 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 207152 | 11/17/15 15:55 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 207407 | 11/18/15 11:57 | WAL | TAL CAN |

Lab Chronicle

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-02-1675

TestAmerica Job ID: 240-57899-1 SDG: Garrison Southfield Park, LLC

Lab Sample ID: 240-57899-5

Matrix: Solid

Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Batch Batch Dilution Batch Prepared **Prep Type** Type Method Run **Factor** Number or Analyzed Analyst 206747 11/13/15 16:36 BLW TAL CAN Total/NA Analysis Moisture

Client Sample ID: DS-02-1675 Lab Sample ID: 240-57899-5

Date Collected: 11/12/15 00:00 Matrix: Solid Date Received: 11/13/15 14:34 Percent Solids: 99.3

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | | | 207146 | 11/17/15 11:10 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 200 | 207392 | 11/18/15 11:18 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 207152 | 11/17/15 15:55 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 207407 | 11/18/15 11:59 | WAL | TAL CAN |

Client Sample ID: DUP B Lab Sample ID: 240-57899-6

Date Collected: 11/12/15 00:00 **Matrix: Solid**

Date Received: 11/13/15 14:34

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | Moisture | | | 206747 | 11/13/15 16:36 | BLW | TAL CAN |

Client Sample ID: DUP B Lab Sample ID: 240-57899-6

Date Collected: 11/12/15 00:00 **Matrix: Solid**

Date Received: 11/13/15 14:34 Percent Solids: 99.0

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | - | · —— — | 207146 | 11/17/15 11:10 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 200 | 207392 | 11/18/15 11:22 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 207152 | 11/17/15 15:55 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 207407 | 11/18/15 12:03 | WAL | TAL CAN |

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Certification Summary

Client: URS Corporation TestAmerica Job ID: 240-57899-1
Project/Site: Closed Loop SDG: Garrison Southfield Park, LLC

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|-------------------|---------------|------------|------------------|------------------------|
| California | NELAP | 9 | 01144CA | 06-30-14 * |
| California | State Program | 9 | 2927 | 04-30-17 |
| Connecticut | State Program | 1 | PH-0590 | 12-31-15 |
| Illinois | NELAP | 5 | 200004 | 07-31-16 |
| Kansas | NELAP | 7 | E-10336 | 01-31-16 * |
| Kentucky (UST) | State Program | 4 | 58 | 02-26-16 |
| Kentucky (WW) | State Program | 4 | 98016 | 12-31-15 |
| L-A-B | DoD ELAP | | L2315 | 07-18-16 |
| Minnesota | NELAP | 5 | 039-999-348 | 12-31-15 |
| Nevada | State Program | 9 | OH-000482008A | 07-31-16 |
| New Jersey | NELAP | 2 | OH001 | 11-30-15 * |
| New York | NELAP | 2 | 10975 | 03-31-16 |
| Ohio VAP | State Program | 5 | CL0024 | 09-14-17 |
| Oregon | NELAP | 10 | 4062 | 02-23-16 |
| Pennsylvania | NELAP | 3 | 68-00340 | 08-31-16 |
| Texas | NELAP | 6 | T104704517-15-5 | 08-31-16 |
| USDA | Federal | | P330-13-00319 | 11-26-16 |
| Virginia | NELAP | 3 | 460175 | 09-14-16 |
| Washington | State Program | 10 | C971 | 01-12-16 |
| West Virginia DEP | State Program | 3 | 210 | 12-31-15 |
| Wisconsin | State Program | 5 | 999518190 | 08-31-16 |

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^{*} Certification renewal pending - certification considered valid.



TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



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1-13-15 Time Special Instructions/ Conditions of Receipt (A fee may be assessed if samples are retained fonger than 1 month) Chain of Custody Number 009611Page_ **TestAmerica** THE LEADER IN ENVIRONMENTAL TESTING Lab Number 4 Analysis (Attach list if more space is needed) Date [1/13 Months ☐ Return To Client 🗡 Disposal By Lab 🔲 Archive For medals 202A \overline{Z} 7 7 QC Requirements (Specify) 13 Sie Contact Serk Mark Loes Containers & Preservatives CarrierWaypii Number IDH 0.3/60,4 Telephone Number (Area Code)/Fax Number 2/6-6 2 2 4 0EONH †OSZH Project Manager Walf səudur 11-13-15 11434)53 G2 7 DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy 11:30 Sample Disposal <u>jios</u> Matrix pəç 11/13 ∀!ب ☐ 21 Days ☐ Other. ☐ Poison B A Unknown Time Soit 600 Zip Code スノン Date | | 14 Days (Containers for each sample may be combined on one line) State OH 1375 EUCLID AVE Skin Irritan DS-01-1675-11655 ☐ 7 Days Sample I.D. No. and Description 05-02-1655 5291-01-50 Hammable Hammable Contract/Purchase Order/Quote No. AFCOM Project Name and Location (State) **Custody Record** DS-01-1675 ☐ 48 Hours Possible Hazard Identification city Cleveland Turn Around Time Required 1- 70-5(DUP B 1. Relinquished By 3. Relinquished By 2. Relingflished By ☐ Non-Hazard Chain of 24 Hours TAL-4142 (0408)
Client Comments

Page 28 of 29

11/18/2015

| TestAmerica Canton Sample Receipt Form/Narrative Canton Facility Login #: 57800 |
|---|
| Client AECOM, Site Name , Cooley unpacked by: |
| Cooler Received on 11/13/15 Opened on 11/13/15 |
| FedEx: 1st Grd Exp UPS FAS Stetson Client Drop Off PestAmerica Courser Other |
| Receipt After-hours: Drop-off Date/Time Storage Location |
| TestAmerica Cooler # Foam Box Client Cooler Box Other Packing material used: Bubble Wrap Foam Plastic Bag None Other |
| Packing material used: Bubble Wrap Foam Plastic Bag None Other COOLANT: Wet Ice Blue Ice Dry Ice Water None |
| 1. Cooler temperature upon receipt |
| IR GUN# 53 (CF +0.1 °C) Observed Cooler Temp. C > °C Corrected Cooler Temp. C , C |
| IR GUN# 48 (CF -0.3 °C) Observed Cooler Temp. °C Corrected Cooler Temp. See Multiple |
| IR GUN# 5 (CF +0.4 °C) Observed Cooler Temp. <u>°C Corrected Cooler Temp.</u> °C Cooler Form IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. <u>°C Corrected Cooler Temp.</u> °C |
| 2. Were custody seals on the outside of the cooler(s)? If Yes Quantity Yes (No) |
| -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA |
| -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No |
| 3. Shippers' packing slip attached to the cooler(s)? Yes No. |
| 4. Did custody papers accompany the sample(s)? 5. Were the custody papers relinquished & signed in the appropriate place? Yes No |
| 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes |
| 7. Did all bottles arrive in good condition (Unbroken)? |
| 8. Could all bottle labels be reconciled with the COC? Yes No |
| 9. Were correct bottle(s) used for the test(s) indicated? 10. Sufficient quantity received to perform in directed analysis? |
| 10. Sufficient quantity received to perform indicated analyses? 11. Were sample(s) at the correct pH upon receipt? Yes No WA PH Strip Lot# HC554612 |
| 12. Were VOAs on the COC? Yes No |
| 13. Were air bubbles >6 mm in any VOA vials? Yes No WA |
| 14. Was a trip blank present in the cooler(s)? Trip Blank Lot#Yes No |
| Contacted PM Date by via Verbal Voice Mail Other Concerning |
| 14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: |
| 14. CHAIN OF CUSTODI & SAMPLE DISCREPANCIES |
| Samples I to have I Is which start with 50" rather |
| than "DS", which is how they are listed on the |
| <u> </u> |
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| 15. SAMPLE CONDITION |
| Sample(s) were received after the recommended holding time had expired. |
| Sample(s) were received in a broken container. |
| Sample(s) were received with bubble >6 mm in diameter. (Notify PM) |
| 6. SAMPLE PRESERVATION |
| Sample(s) were further preserved in the laboratory. Time preserved: Preservative(s) added/Lot number(s): |
| rine preservedrreservative(s) added/Lot number(s): |



THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton 4101 Shuffel Street NW North Canton, OH 44720 Tel: (330)497-9396

TestAmerica Job ID: 240-57769-1 Client Project/Site: Closed Loop

For:

URS Corporation 1375 Euclid Avenue Suite 600 Cleveland, Ohio 44115

Attn: Seda Ergun

Authorized for release by: 11/17/2015 5:22:11 PM

Mark Loeb, Project Manager II (330)966-9387

mark.loeb@testamericainc.com

.....LINKS

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Have a Question?



Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: URS Corporation TestAmerica Job ID: 240-57769-1 Project/Site: Closed Loop

Qualifiers

Metals

Qualifier **Qualifier Description** Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. U Indicates the analyte was analyzed for but not detected.

В Compound was found in the blank and sample.

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report. Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery CFL Contains Free Liquid **CNF** Contains no Free Liquid

DER Duplicate error ratio (normalized absolute difference)

Dilution Factor Dil Fac

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision level concentration MDA Minimum detectable activity **EDL Estimated Detection Limit**

MDC Minimum detectable concentration

MDL Method Detection Limit MLMinimum Level (Dioxin)

NC Not Calculated

Not detected at the reporting limit (or MDL or EDL if shown) ND

PQL Practical Quantitation Limit

QC **Quality Control RER** Relative error ratio

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

Toxicity Equivalent Factor (Dioxin) **TEF TEQ** Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: URS Corporation Project/Site: Closed Loop TestAmerica Job ID: 240-57769-1

Job ID: 240-57769-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: URS Corporation

Project: Closed Loop

Report Number: 240-57769-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/11/2015 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.7° C.

TCLP METALS (ICP)

Samples DS-11-1675 (240-57769-1), DS-03-1675 (240-57769-2), DS-13-1675 (240-57769-3), DS-09-1675 (240-57769-4), DS-10-1655 (240-57769-5), DS-12-1655 (240-57769-6) and DS-08-1655 (240-57769-7) were analyzed for TCLP metals (ICP) in accordance with EPA SW-846 Methods 1311/6010C. The samples were leached on 11/12/2015, prepared on 11/13/2015 and analyzed on 11/16/2015.

Arsenic, Barium and Chromium were detected in method blank LB 240-206575/1-B at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The following samples was diluted due to the nature of the sample matrix: DS-11-1675 (240-57769-1)[100X], DS-03-1675 (240-57769-2) [100X], DS-09-1675 (240-57769-4)[10X], DS-10-1655 (240-57769-5)[20X] and DS-12-1655 (240-57769-6)[100X]. Elevated reporting limits (RLs) are provided.

Insufficient sample was provided to perform the leaching procedure with the required 100g for the following sample: DS-08-1655

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Case Narrative

Client: URS Corporation TestAmerica Job ID: 240-57769-1
Project/Site: Closed Loop

Job ID: 240-57769-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

(240-57769-7). The volume of leaching fluid was adjusted proportionally to maintain a 20:1 ratio of leaching fluid to weight of sample. Reporting limits (RLs) are not affected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP)

Samples DS-11-1675 (240-57769-1), DS-03-1675 (240-57769-2), DS-13-1675 (240-57769-3), DS-09-1675 (240-57769-4), DS-10-1655 (240-57769-5), DS-12-1655 (240-57769-6), DS-08-1655 (240-57769-7), DS-14-1675 (240-57769-8), DS-12-1675 (240-57769-9), DS-07-1655 (240-57769-10), DS-04-1675 (240-57769-11), DS-09-1655 (240-57769-12), DUP A (240-57769-13), DS-08-1675 (240-57769-14) and DS-11-1655 (240-57769-15) were analyzed for total metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/12/2015 and analyzed on 11/13/2015.

Lead was detected in method blank MB 240-206494/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The following samples was diluted due to the nature of the sample matrix: DS-11-1675 (240-57769-1)[20X], DS-03-1675 (240-57769-2) [100X], DS-13-1675 (240-57769-3)[50X], DS-09-1675 (240-57769-4)[100X], DS-10-1655 (240-57769-5)[20X], DS-12-1655 (240-57769-6) [20X], DS-08-1655 (240-57769-7)[50X], DS-14-1675 (240-57769-8)[100X], DS-12-1675 (240-57769-9)[250X], DS-07-1655 (240-57769-10) [20X], DS-04-1675 (240-57769-11)[250X], DS-09-1655 (240-57769-12)[20X], DUP A (240-57769-13)[100X], DS-08-1675 (240-57769-14) [50X] and DS-11-1655 (240-57769-15)[20X]. Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP MERCURY

Samples DS-11-1675 (240-57769-1), DS-03-1675 (240-57769-2), DS-13-1675 (240-57769-3), DS-09-1675 (240-57769-4), DS-10-1655 (240-57769-5), DS-12-1655 (240-57769-6) and DS-08-1655 (240-57769-7) were analyzed for TCLP mercury in accordance with EPA SW-846 Methods 1311/7470A. The samples were leached on 11/12/2015, prepared on 11/13/2015 and analyzed on 11/16/2015.

Insufficient sample was provided to perform the leaching procedure with the required 100g for the following sample: DS-08-1655 (240-57769-7). The volume of leaching fluid was adjusted proportionally to maintain a 20:1 ratio of leaching fluid to weight of sample. Reporting limits (RLs) are not affected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

MERCURY

Samples DS-11-1675 (240-57769-1), DS-03-1675 (240-57769-2), DS-13-1675 (240-57769-3), DS-09-1675 (240-57769-4), DS-10-1655 (240-57769-5), DS-12-1655 (240-57769-6), DS-08-1655 (240-57769-7), DS-14-1675 (240-57769-8), DS-12-1675 (240-57769-9), DS-07-1655 (240-57769-10), DS-04-1675 (240-57769-11), DS-09-1655 (240-57769-12), DUP A (240-57769-13), DS-08-1675 (240-57769-14) and DS-11-1655 (240-57769-15) were analyzed for mercury in accordance with EPA SW-846 Method 7471B. The samples were prepared on 11/12/2015 and analyzed on 11/13/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples DS-11-1675 (240-57769-1), DS-03-1675 (240-57769-2), DS-13-1675 (240-57769-3), DS-09-1675 (240-57769-4), DS-10-1655 (240-57769-5), DS-12-1655 (240-57769-6), DS-08-1655 (240-57769-7), DS-14-1675 (240-57769-8), DS-12-1675 (240-57769-9), DS-07-1655 (240-57769-10), DS-04-1675 (240-57769-11), DS-09-1655 (240-57769-12), DUP A (240-57769-13), DS-08-1675 (240-57769-14) and DS-11-1655 (240-57769-15) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 11/12/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Method Summary

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

| Method | Method Description | Protocol | Laboratory |
|----------|--------------------|----------|------------|
| 6010C | Metals (ICP) | SW846 | TAL CAN |
| 7470A | Mercury (CVAA) | SW846 | TAL CAN |
| 7471B | Mercury (CVAA) | SW846 | TAL CAN |
| Moisture | Percent Moisture | EPA | TAL CAN |

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

| Lab Sample ID | Client Sample ID | Matrix | Collected Received |
|---------------|------------------|--------|-------------------------------|
| 240-57769-1 | DS-11-1675 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-2 | DS-03-1675 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-3 | DS-13-1675 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-4 | DS-09-1675 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-5 | DS-10-1655 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-6 | DS-12-1655 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-7 | DS-08-1655 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-8 | DS-14-1675 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-9 | DS-12-1675 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-10 | DS-07-1655 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-11 | DS-04-1675 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-12 | DS-09-1655 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-13 | DUP A | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-14 | DS-08-1675 | Solid | 11/09/15 00:00 11/11/15 10:00 |
| 240-57769-15 | DS-11-1655 | Solid | 11/09/15 00:00 11/11/15 10:00 |

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Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-11-1675

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|----------|-----------|--------|----------|-------|---------|---|--------|-----------|
| Barium | 190 | J | 350 | 7.2 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Cadmium | 4.9 | J | 8.8 | 0.37 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Chromium | 14 | J | 18 | 1.3 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Lead | 5100 | В | 18 | 0.39 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Silver | 2.5 | J | 18 | 1.1 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Arsenic | 0.0039 | JB | 0.50 | 0.0029 | mg/L | 1 | | 6010C | TCLP |
| Barium | 7.2 | JB | 10 | 0.0010 | mg/L | 1 | | 6010C | TCLP |
| Cadmium | 0.0092 | J | 0.10 | 0.00014 | mg/L | 1 | | 6010C | TCLP |
| Chromium | 0.059 | JB | 0.50 | 0.00055 | mg/L | 1 | | 6010C | TCLP |
| Lead | 220 | | 50 | 0.19 | mg/L | 100 | | 6010C | TCLP |
| Mercury | 0.000097 | J | 0.0020 | 0.000090 | mg/L | 1 | | 7470A | TCLP |
| Hg | 0.015 | J | 0.089 | 0.012 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-03-1675

| ab Sample ID: 240-57769-2 |
|---------------------------|
|---------------------------|

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|---------|-----------|--------|----------|-------|---------|---|--------|-----------|
| Barium | 230 | J | 1400 | 28 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Cadmium | 16 | J | 34 | 1.4 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Chromium | 28 | J | 68 | 5.1 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Lead | 2900 | В | 68 | 1.5 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Silver | 8.7 | J | 68 | 4.3 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Arsenic | 0.0046 | JB | 0.50 | 0.0029 | mg/L | 1 | | 6010C | TCLP |
| Barium | 7.5 | JB | 10 | 0.0010 | mg/L | 1 | | 6010C | TCLP |
| Cadmium | 0.012 | J | 0.10 | 0.00014 | mg/L | 1 | | 6010C | TCLP |
| Chromium | 0.049 | JB | 0.50 | 0.00055 | mg/L | 1 | | 6010C | TCLP |
| Lead | 190 | | 50 | 0.19 | mg/L | 100 | | 6010C | TCLP |
| Mercury | 0.00017 | J | 0.0020 | 0.000090 | mg/L | 1 | | 7470A | TCLP |
| Hg | 0.093 | J | 0.096 | 0.013 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-13-1675

Lab Sample ID: 240-57769-3

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|---------|-----------|--------|----------|-------|---------|---|--------|-----------|
| Barium | 400 | J | 890 | 18 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Cadmium | 14 | J | 22 | 0.93 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Chromium | 60 | | 44 | 3.3 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Lead | 9100 | В | 44 | 0.97 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Silver | 6.7 | J | 44 | 2.8 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Arsenic | 0.012 | JB | 0.50 | 0.0029 | mg/L | 1 | | 6010C | TCLP |
| Barium | 0.35 | JB | 10 | 0.0010 | mg/L | 1 | | 6010C | TCLP |
| Cadmium | 0.088 | J | 0.10 | 0.00014 | mg/L | 1 | | 6010C | TCLP |
| Chromium | 0.012 | JB | 0.50 | 0.00055 | mg/L | 1 | | 6010C | TCLP |
| Lead | 11 | | 0.50 | 0.0019 | mg/L | 1 | | 6010C | TCLP |
| Silver | 0.0013 | J | 0.50 | 0.00092 | mg/L | 1 | | 6010C | TCLP |
| Mercury | 0.00011 | J | 0.0020 | 0.000090 | mg/L | 1 | | 7470A | TCLP |
| Hg | 0.46 | | 0.12 | 0.017 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-09-1675

Lab Sample ID: 240-57769-4

| Analyte | Result Quali | fier RL | MDL | Unit | Dil Fac | D Method | Prep Type |
|---------|--------------|---------|-----|-------|---------|--------------------|-----------|
| Barium | 520 J | 1700 | 34 | mg/Kg | 100 | [☆] 6010C | Total/NA |

This Detection Summary does not include radiochemical test results.

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Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-09-1675 (Continued)

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-4

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|-------|---------|-------|---------|---|--------|-----------|
| Cadmium | 23 | J | 42 | 1.7 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Chromium | 52 | J | 83 | 6.2 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Lead | 11000 | В | 83 | 1.8 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Silver | 14 | J | 83 | 5.2 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Arsenic | 0.0062 | JB | 0.50 | 0.0029 | mg/L | 1 | | 6010C | TCLP |
| Barium | 6.8 | JB | 10 | 0.0010 | mg/L | 1 | | 6010C | TCLP |
| Cadmium | 0.056 | J | 0.10 | 0.00014 | mg/L | 1 | | 6010C | TCLP |
| Chromium | 0.034 | JB | 0.50 | 0.00055 | mg/L | 1 | | 6010C | TCLP |
| Lead | 58 | | 5.0 | 0.019 | mg/L | 10 | | 6010C | TCLP |
| Hg | 0.17 | | 0.092 | 0.013 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|-------|---------|-------|---------|---|--------|-----------|
| Barium | 180 | J | 300 | 6.1 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Cadmium | 4.2 | J | 7.5 | 0.31 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Chromium | 43 | | 15 | 1.1 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Lead | 2400 | В | 15 | 0.33 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Silver | 3.3 | J | 15 | 0.94 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Arsenic | 0.0061 | JB | 0.50 | 0.0029 | mg/L | 1 | | 6010C | TCLP |
| Barium | 5.1 | JB | 10 | 0.0010 | mg/L | 1 | | 6010C | TCLP |
| Cadmium | 0.023 | J | 0.10 | 0.00014 | mg/L | 1 | | 6010C | TCLP |
| Chromium | 0.039 | JB | 0.50 | 0.00055 | mg/L | 1 | | 6010C | TCLP |
| Lead | 92 | | 10 | 0.038 | mg/L | 20 | | 6010C | TCLP |
| Hg | 0.098 | | 0.090 | 0.013 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|---------|-------|---------|----|--------|-----------|
| Barium | 210 | J | 340 | 7.0 | mg/Kg | 20 | ₹ | 6010C | Total/NA |
| Cadmium | 2.9 | J | 8.5 | 0.36 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Chromium | 78 | | 17 | 1.3 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Lead | 2800 | В | 17 | 0.38 | mg/Kg | 20 | ₩. | 6010C | Total/NA |
| Silver | 5.8 | J | 17 | 1.1 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Arsenic | 0.0051 | JB | 0.50 | 0.0029 | mg/L | 1 | | 6010C | TCLP |
| Barium | 5.7 | JB | 10 | 0.0010 | mg/L | 1 | | 6010C | TCLP |
| Cadmium | 0.019 | J | 0.10 | 0.00014 | mg/L | 1 | | 6010C | TCLP |
| Chromium | 0.043 | JB | 0.50 | 0.00055 | mg/L | 1 | | 6010C | TCLP |
| Lead | 120 | | 50 | 0.19 | mg/L | 100 | | 6010C | TCLP |
| Hg | 0.092 | J | 0.10 | 0.014 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-08-1655 Lab Sample ID: 240-57769-7

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|--------|-------|---------|---|--------|-----------|
| Barium | 300 | J | 940 | 19 | mg/Kg | 50 | ☼ | 6010C | Total/NA |
| Cadmium | 16 | J | 24 | 0.99 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Chromium | 38 | J | 47 | 3.5 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Lead | 3000 | В | 47 | 1.0 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Silver | 8.2 | J | 47 | 3.0 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Arsenic | 0.0091 | JB | 0.50 | 0.0029 | mg/L | 1 | | 6010C | TCLP |

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

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Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-8

Lab Sample ID: 240-57769-9

Lab Sample ID: 240-57769-10

Lab Sample ID: 240-57769-11

Lab Sample ID: 240-57769-12

Lab Sample ID: 240-57769-7

| Client Sample ID: | DS-08-1655 | (Continued) |
|-------------------|------------|-------------|
| | | |

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|---------|-------|---------|---|--------|-----------|
| Barium | 1.8 | JB | 10 | 0.0010 | mg/L | | _ | 6010C | TCLP |
| Cadmium | 0.038 | J | 0.10 | 0.00014 | mg/L | 1 | | 6010C | TCLP |
| Chromium | 0.012 | JB | 0.50 | 0.00055 | mg/L | 1 | | 6010C | TCLP |
| Lead | 4.7 | | 0.50 | 0.0019 | mg/L | 1 | | 6010C | TCLP |
| Hg | 0.19 | | 0.11 | 0.015 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-14-1675

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|-------|-------|---------|---|--------|-----------|
| Barium | 320 | J | 2000 | 41 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Cadmium | 30 | J | 51 | 2.1 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Chromium | 84 | J | 100 | 7.6 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Lead | 2300 | В | 100 | 2.2 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Silver | 15 | J | 100 | 6.4 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Hg | 0.25 | | 0.11 | 0.015 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-12-1675

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|-------|-------|-------|---------|---|--------|-----------|
| Barium | 390 | J | 3500 | 71 | mg/Kg | 250 | ₩ | 6010C | Total/NA |
| Cadmium | 33 | J | 86 | 3.6 | mg/Kg | 250 | ₩ | 6010C | Total/NA |
| Chromium | 37 | J | 170 | 13 | mg/Kg | 250 | ₩ | 6010C | Total/NA |
| Lead | 5200 | В | 170 | 3.8 | mg/Kg | 250 | ₩ | 6010C | Total/NA |
| Silver | 15 | J | 170 | 11 | mg/Kg | 250 | ₩ | 6010C | Total/NA |
| Hg | 0.30 | | 0.090 | 0.013 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-07-1655

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|-------|-------|---------|---|--------|-----------|
| Barium | 150 | J | 350 | 7.2 | mg/Kg | 20 | ☼ | 6010C | Total/NA |
| Cadmium | 7.2 | J | 8.7 | 0.37 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Chromium | 40 | | 17 | 1.3 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Lead | 3100 | В | 17 | 0.38 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Silver | 1.3 | J | 17 | 1.1 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Hg | 0.081 | J | 0.10 | 0.015 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-04-1675

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---------|--------|-----------|------|-------|-------|---------|---|--------|-----------|
| Barium | 210 | J | 3500 | 71 | mg/Kg | 250 | ₩ | 6010C | Total/NA |
| Cadmium | 25 | J | 87 | 3.6 | mg/Kg | 250 | ₩ | 6010C | Total/NA |
| Lead | 2200 | В | 170 | 3.8 | mg/Kg | 250 | ₩ | 6010C | Total/NA |
| Silver | 22 | J | 170 | 11 | mg/Kg | 250 | ₩ | 6010C | Total/NA |
| Hg | 0.042 | J | 0.11 | 0.015 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

Client Sample ID: DS-09-1655

| · · · · · · · · · · · · · · · · · · · | | | | | - | - |
|---------------------------------------|------------------|-----|------------|-----------|--------|-----------|
| Analyte | Result Qualifier | RL | MDL Unit | Dil Fac D | Method | Prep Type |
| Barium | 140 J | 300 | 6.2 mg/Kg | 20 🛱 | 6010C | Total/NA |
| Cadmium | 3.7 J | 7.6 | 0.32 mg/Kg | 20 ☼ | 6010C | Total/NA |

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

11/17/2015

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Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

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Client Sample ID: DS-09-1655 (Continued)

Lab Sample ID: 240-57769-12

| Analyte | Result Qual | ifier RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|-------------|----------|-------|-------|---------|---|--------|-----------|
| Chromium | 18 | 15 | 1.1 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Lead | 2500 B | 15 | 0.33 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Silver | 2.2 J | 15 | 0.96 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Hg | 0.052 J | 0.10 | 0.014 | mg/Kg | 1 | ₽ | 7471B | Total/NA |

5

Client Sample ID: DUP A

Lab Sample ID: 240-57769-13

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|-------|-------|-------|---------|----|--------|-----------|
| Barium | 350 | J | 1900 | 38 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Cadmium | 23 | J | 46 | 1.9 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Chromium | 35 | J | 93 | 7.0 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Lead | 2700 | В | 93 | 2.0 | mg/Kg | 100 | ₩. | 6010C | Total/NA |
| Silver | 14 | J | 93 | 5.8 | mg/Kg | 100 | ₩ | 6010C | Total/NA |
| Hg | 0.17 | | 0.096 | 0.013 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

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Client Sample ID: DS-08-1675

Lab Sample ID: 240-57769-14

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|------|-------|-------|---------|---|--------|-----------|
| Barium | 410 | J | 850 | 18 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Cadmium | 15 | J | 21 | 0.90 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Chromium | 35 | J | 43 | 3.2 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Lead | 8000 | В | 43 | 0.94 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Silver | 9.7 | J | 43 | 2.7 | mg/Kg | 50 | ₩ | 6010C | Total/NA |
| Hg | 0.10 | J | 0.11 | 0.015 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

13

Client Sample ID: DS-11-1655

Lab Sample ID: 240-57769-15

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|----------|--------|-----------|-------|-------|-------|---------|---|--------|-----------|
| Barium | 210 | J | 380 | 7.7 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Cadmium | 4.4 | J | 9.4 | 0.40 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Chromium | 98 | | 19 | 1.4 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Lead | 2300 | В | 19 | 0.41 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Silver | 5.7 | J | 19 | 1.2 | mg/Kg | 20 | ₩ | 6010C | Total/NA |
| Hg | 0.14 | | 0.096 | 0.013 | mg/Kg | 1 | ₩ | 7471B | Total/NA |

This Detection Summary does not include radiochemical test results.

Client: URS Corporation Project/Site: Closed Loop TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-1 Client Sample ID: DS-11-1675 Date Collected: 11/09/15 00:00

Matrix: Solid

Date Received: 11/11/15 10:00

| Method: 6010C - Metals (ICP) | - TCLP | | | | | | | | |
|------------------------------|--------|-----------|------|---------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 0.0039 | JB | 0.50 | 0.0029 | mg/L | | 11/13/15 10:23 | 11/16/15 13:06 | 1 |
| Barium | 7.2 | JB | 10 | 0.0010 | mg/L | | 11/13/15 10:23 | 11/16/15 13:06 | 1 |
| Cadmium | 0.0092 | J | 0.10 | 0.00014 | mg/L | | 11/13/15 10:23 | 11/16/15 13:06 | 1 |
| Chromium | 0.059 | JB | 0.50 | 0.00055 | mg/L | | 11/13/15 10:23 | 11/16/15 13:06 | 1 |
| Lead | 220 | | 50 | 0.19 | mg/L | | 11/13/15 10:23 | 11/16/15 14:17 | 100 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/13/15 10:23 | 11/16/15 13:06 | 1 |
| Silver | 0.50 | U | 0.50 | 0.00092 | mg/L | | 11/13/15 10:23 | 11/16/15 13:06 | 1 |

| Method: 7470A - Mercury (CVA | AA) - TCLP | | | | | | | | | |
|------------------------------|------------|-----------|--------|----------|------|---|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D |) | Prepared | Analyzed | Dil Fac |
| Mercury | 0.000097 | J | 0.0020 | 0.000090 | mg/L | | | 11/13/15 14:00 | 11/16/15 16:22 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 97 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 2.5 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-11-1675

Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-1

Matrix: Solid Percent Solids: 97.5

| Method: 6010C - Metals (ICP) | | | | | | | | | |
|--------------------------------|--------|-----------|-------|-------|-------|----------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 26 | U | 26 | 7.2 | mg/Kg | <u> </u> | 11/12/15 10:45 | 11/13/15 14:25 | 20 |
| Barium | 190 | J | 350 | 7.2 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 14:25 | 20 |
| Cadmium | 4.9 | J | 8.8 | 0.37 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 14:25 | 20 |
| Chromium | 14 | J | 18 | 1.3 | mg/Kg | ₽ | 11/12/15 10:45 | 11/13/15 14:25 | 20 |
| Lead | 5100 | В | 18 | 0.39 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:25 | 20 |
| Selenium | 35 | U | 35 | 6.0 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 14:25 | 20 |
| Silver | 2.5 | J | 18 | 1.1 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:25 | 20 |
| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.015 | J | 0.089 | 0.012 | mg/Kg | <u> </u> | 11/12/15 15:45 | 11/13/15 14:32 | 1 |

Client: URS Corporation Project/Site: Closed Loop TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-03-1675

Lab Sample ID: 240-57769-2 Date Collected: 11/09/15 00:00

Matrix: Solid

| Date | Received: | 11/11/15 | 10:00 |
|------|-----------|----------|-------|
| | | | |

| Method: 6010C - Metals (ICAnalyte | • | Qualifier | RL | MDL | l Init | | Branarad | Analyzad | Dil Fac |
|-----------------------------------|--------|-----------|------|---------|--------|---|----------------|----------------|---------|
| Allalyte | Result | Qualifier | KL . | | | D | Prepared | Analyzed | DII Fac |
| Arsenic | 0.0046 | JB | 0.50 | 0.0029 | mg/L | | 11/13/15 10:23 | 11/16/15 13:10 | 1 |
| Barium | 7.5 | JB | 10 | 0.0010 | mg/L | | 11/13/15 10:23 | 11/16/15 13:10 | 1 |
| Cadmium | 0.012 | J | 0.10 | 0.00014 | mg/L | | 11/13/15 10:23 | 11/16/15 13:10 | 1 |
| Chromium | 0.049 | JB | 0.50 | 0.00055 | mg/L | | 11/13/15 10:23 | 11/16/15 13:10 | 1 |
| Lead | 190 | | 50 | 0.19 | mg/L | | 11/13/15 10:23 | 11/16/15 14:21 | 100 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/13/15 10:23 | 11/16/15 13:10 | 1 |
| Silver | 0.50 | U | 0.50 | 0.00092 | mg/L | | 11/13/15 10:23 | 11/16/15 13:10 | 1 |

| Method: 7470A - Mercury (CVA | AA) - TCLP | | | | | | | | |
|------------------------------|------------|-----------|--------|----------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Mercury | 0.00017 | J | 0.0020 | 0.000090 | mg/L | | 11/13/15 14:00 | 11/16/15 16:24 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 100 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 0.35 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

Client: URS Corporation Project/Site: Closed Loop

Analyte

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Client Sample ID: DS-03-1675 Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-2

Matrix: Solid

Percent Solids: 99.7

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|--------|-----------|------|-----|-------|----------|----------------|----------------|---------|
| Arsenic | 100 | U - | 100 | 28 | mg/Kg | <u>₩</u> | 11/12/15 10:45 | 11/13/15 15:38 | 100 |
| 3arium | 230 | J | 1400 | 28 | mg/Kg | ☆ | 11/12/15 10:45 | 11/13/15 15:38 | 100 |
| Cadmium | 16 | J | 34 | 1.4 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:38 | 100 |
| Chromium | 28 | J | 68 | 5.1 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:38 | 100 |
| _ead | 2900 | В | 68 | 1.5 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:38 | 100 |
| Selenium | 140 | U | 140 | 23 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:38 | 100 |
| Silver | 8.7 | J | 68 | 4.3 | mg/Kg | | 11/12/15 10:45 | 11/13/15 15:38 | 100 |

RL

0.096

MDL Unit

0.013 mg/Kg

Result Qualifier

0.093 J

 D
 Prepared
 Analyzed
 Dil Fac

 ☼
 11/12/15 15:45
 11/13/15 14:33
 1

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Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-3

Matrix: Solid

| Date | Collectea: | 11/09/15 | 00:00 |
|-------------|------------|----------|-------|
| Date | Received: | 11/11/15 | 10:00 |

Client Sample ID: DS-13-1675

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|--------|-----------|------|---------|------|---|----------------|----------------|---------|
| Arsenic | 0.012 | JB | 0.50 | 0.0029 | mg/L | | 11/13/15 10:23 | 11/16/15 13:14 | 1 |
| Barium | 0.35 | JB | 10 | 0.0010 | mg/L | | 11/13/15 10:23 | 11/16/15 13:14 | 1 |
| Cadmium | 0.088 | J | 0.10 | 0.00014 | mg/L | | 11/13/15 10:23 | 11/16/15 13:14 | 1 |
| Chromium | 0.012 | JB | 0.50 | 0.00055 | mg/L | | 11/13/15 10:23 | 11/16/15 13:14 | 1 |
| Lead | 11 | | 0.50 | 0.0019 | mg/L | | 11/13/15 10:23 | 11/16/15 13:14 | 1 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/13/15 10:23 | 11/16/15 13:14 | 1 |
| Silver | 0.0013 | J | 0.50 | 0.00092 | mg/L | | 11/13/15 10:23 | 11/16/15 13:14 | 1 |

| Method: 7470A - Mercury (CV) | AA) - TCLP | | | | | | | | |
|------------------------------|------------|-----------|--------|----------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Mercury | 0.00011 | J | 0.0020 | 0.000090 | mg/L | | 11/13/15 14:00 | 11/16/15 16:27 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 98 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 1.8 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

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Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-13-1675

Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-3

Matrix: Solid

Percent Solids: 98.2

| Method: 6010C - Metals (ICP) | | | | | | | | | |
|-----------------------------------|--------|-----------|------|-------|-------|----------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 66 | U | 66 | 18 | mg/Kg | <u> </u> | 11/12/15 10:45 | 11/13/15 14:33 | 50 |
| Barium | 400 | J | 890 | 18 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:33 | 50 |
| Cadmium | 14 | J | 22 | 0.93 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:33 | 50 |
| Chromium | 60 | | 44 | 3.3 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:33 | 50 |
| Lead | 9100 | В | 44 | 0.97 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:33 | 50 |
| Selenium | 89 | U | 89 | 15 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:33 | 50 |
| Silver | 6.7 | J | 44 | 2.8 | mg/Kg | | 11/12/15 10:45 | 11/13/15 14:33 | 50 |
| - Method: 7471B - Mercury (CV) | AA) | | | | | | | | |
| Analyte | • | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.46 | | 0.12 | 0.017 | mg/Kg | <u> </u> | 11/12/15 15:45 | 11/13/15 14:35 | 1 |

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-4

Matrix: Solid

Client Sample ID: DS-09-1675 Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

| Method: 6010C - Metals (ICI | P) - TCLP | | | | | | | | |
|-----------------------------|-----------|-----------|------|---------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 0.0062 | JB | 0.50 | 0.0029 | mg/L | | 11/13/15 10:23 | 11/16/15 13:19 | 1 |
| Barium | 6.8 | JB | 10 | 0.0010 | mg/L | | 11/13/15 10:23 | 11/16/15 13:19 | 1 |
| Cadmium | 0.056 | J | 0.10 | 0.00014 | mg/L | | 11/13/15 10:23 | 11/16/15 13:19 | 1 |
| Chromium | 0.034 | JB | 0.50 | 0.00055 | mg/L | | 11/13/15 10:23 | 11/16/15 13:19 | 1 |
| Lead | 58 | | 5.0 | 0.019 | mg/L | | 11/13/15 10:23 | 11/16/15 14:25 | 10 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/13/15 10:23 | 11/16/15 13:19 | 1 |
| Silver | 0.50 | U | 0.50 | 0.00092 | mg/L | | 11/13/15 10:23 | 11/16/15 13:19 | 1 |

| Method: 7470A - Mercury (CVA | AA) - TCLP | | | | | | | | |
|------------------------------|------------|-----------|--------|----------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Mercury | 0.0020 | U | 0.0020 | 0.000090 | mg/L | | 11/13/15 14:00 | 11/16/15 15:49 | 1 |

| General Chemistry Analyte | Result (| Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|----------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 98 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 1.6 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

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Client: URS Corporation Project/Site: Closed Loop TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-09-1675

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-4

Matrix: Solid Percent Solids: 98.4

| Method: 6010C - Metals (ICP) Analyte | | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|-----|-----------|------|-----|-------|----------|----------------|----------------|---------|
| Arsenic | 120 | U | 120 | 34 | mg/Kg | <u> </u> | 11/12/15 10:45 | 11/13/15 15:51 | 100 |
| Barium | 520 | J | 1700 | 34 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:51 | 100 |
| Cadmium | 23 | J | 42 | 1.7 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:51 | 100 |
| Chromium | 52 | i | 83 | 6.2 | ma/Ka | | 11/12/15 10:45 | 11/13/15 15:51 | 100 |

6.2 mg/Kg 83 ☼ 11/12/15 10:45 11/13/15 15:51 100 Lead 11000 B 1.8 mg/Kg 170 U 170 * 11/12/15 10:45 11/13/15 15:51 100 Selenium 28 mg/Kg Silver 14 J 83 5.2 mg/Kg * 11/12/15 10:45 11/13/15 15:51 100

| Method: 7471B - Mercury (CVAA Analyte | Result Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|--|------------------|-------|-------|-------|----------|----------------|----------------|---------|
| Ha | 0.17 | 0.092 | 0.013 | mg/Kg | <u> </u> | 11/12/15 15:45 | 11/13/15 14:36 | 1 |

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-10-1655

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00 Lab Sample ID: 240-57769-5

Matrix: Solid

| Method: 6010C - Metal | ls (ICP) - TCLP | | | | | | | | |
|-----------------------|-----------------|-----------|------|---------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 0.0061 | JB | 0.50 | 0.0029 | mg/L | | 11/13/15 10:23 | 11/16/15 13:23 | 1 |
| Barium | 5.1 | JB | 10 | 0.0010 | mg/L | | 11/13/15 10:23 | 11/16/15 13:23 | 1 |
| Cadmium | 0.023 | J | 0.10 | 0.00014 | mg/L | | 11/13/15 10:23 | 11/16/15 13:23 | 1 |
| Chromium | 0.039 | JB | 0.50 | 0.00055 | mg/L | | 11/13/15 10:23 | 11/16/15 13:23 | 1 |
| Lead | 92 | | 10 | 0.038 | mg/L | | 11/13/15 10:23 | 11/16/15 14:37 | 20 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/13/15 10:23 | 11/16/15 13:23 | 1 |
| Silver | 0.50 | U | 0.50 | 0.00092 | mg/L | | 11/13/15 10:23 | 11/16/15 13:23 | 1 |

| Method: 7470A - Mercury (CVA | AA) - TCLP | | | | | | |
|------------------------------|------------------|--------|---------------|---|----------------|----------------|---------|
| Analyte | Result Qualifier | RL | MDL Unit | D | Prepared | Analyzed | Dil Fac |
| Mercury | 0.0020 U | 0.0020 | 0.000090 mg/L | | 11/13/15 14:00 | 11/16/15 15:51 | 1 |

| General Chemistry Analyte | Result (| Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------------------------|----------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 0.99 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

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Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-10-1655

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00 Lab Sample ID: 240-57769-5

Matrix: Solid

| Matrix. Oolia |
|----------------------|
| Percent Solids: 99.0 |
| |

| Method: 6010C - Metals Analyte | (ICP) Result Q | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|-----------------------------------|-------------------|---------------|-----|------|-------|---------|----------------|----------------|---------|
| Arsenic | <u></u> | _ | 22 | 6.1 | mg/Kg | <u></u> | 11/12/15 10:45 | 11/13/15 14:41 | 20 |
| Barium | 180 J | I | 300 | 6.1 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:41 | 20 |
| Cadmium | 4.2 J | I | 7.5 | 0.31 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:41 | 20 |
| Chromium | 43 | | 15 | 1.1 | mg/Kg | | 11/12/15 10:45 | 11/13/15 14:41 | 20 |
| Lead | 2400 B | 3 | 15 | 0.33 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 14:41 | 20 |
| Selenium | 30 U | J | 30 | 5.1 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:41 | 20 |
| Silver | 3.3 J | | 15 | 0.94 | mg/Kg | | 11/12/15 10:45 | 11/13/15 14:41 | 20 |

| Method: 7471B - Mercury (CVA | A) | | | | | | | | |
|------------------------------|------------|-----------|-------|-------|-------|-------------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.098 | | 0.090 | 0.013 | mg/Kg | | 11/12/15 15:45 | 11/13/15 14:38 | 1 |

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Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-12-1655

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00 Lab Sample ID: 240-57769-6

Matrix: Solid

| Method: 6010C - Metal | s (ICP) - TCLP | | | | | | | | |
|-----------------------|----------------|-----------|------|---------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 0.0051 | JB | 0.50 | 0.0029 | mg/L | | 11/13/15 10:23 | 11/16/15 13:27 | 1 |
| Barium | 5.7 | JB | 10 | 0.0010 | mg/L | | 11/13/15 10:23 | 11/16/15 13:27 | 1 |
| Cadmium | 0.019 | J | 0.10 | 0.00014 | mg/L | | 11/13/15 10:23 | 11/16/15 13:27 | 1 |
| Chromium | 0.043 | JB | 0.50 | 0.00055 | mg/L | | 11/13/15 10:23 | 11/16/15 13:27 | 1 |
| Lead | 120 | | 50 | 0.19 | mg/L | | 11/13/15 10:23 | 11/16/15 14:42 | 100 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/13/15 10:23 | 11/16/15 13:27 | 1 |
| Silver | 0.50 | U | 0.50 | 0.00092 | mg/L | | 11/13/15 10:23 | 11/16/15 13:27 | 1 |

| Method: 7470A - Mercury (CVAA) - TCLP | | | | | | | | | | | |
|---------------------------------------|---------|--------|-----------|--------|----------|------|---|---|----------------|----------------|---------|
| | Analyte | Result | Qualifier | RL | MDL | Unit | D |) | Prepared | Analyzed | Dil Fac |
| | Mercury | 0.0020 | U | 0.0020 | 0.000090 | mg/L | | | 11/13/15 14:00 | 11/16/15 15:53 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 0.73 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

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12

Client: URS Corporation Project/Site: Closed Loop

Selenium

Silver

Client Sample ID: DS-12-1655

Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-6

☼ 11/12/15 10:45 11/13/15 14:45

* 11/12/15 10:45 11/13/15 14:45

Matrix: Solid

Percent Solids: 99.3

| Method: 6010C - Metal | Is (ICP) | | | | | | | | |
|-----------------------|----------|-----------|-----|------|-------|----------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 26 | U – | 26 | 7.0 | mg/Kg | <u>₩</u> | 11/12/15 10:45 | 11/13/15 14:45 | 20 |
| Barium | 210 | J | 340 | 7.0 | mg/Kg | ☆ | 11/12/15 10:45 | 11/13/15 14:45 | 20 |
| Cadmium | 2.9 | J | 8.5 | 0.36 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 14:45 | 20 |
| Chromium | 78 | | 17 | 1.3 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:45 | 20 |
| Lead | 2800 | В | 17 | 0.38 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:45 | 20 |

34 U

5.8 J

| Method: 7471B - Mercury (CVAA) Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|--------|-----------|------|-------|-------|-------------|----------------|----------------|---------|
| Ha | 0.092 | J | 0.10 | 0.014 | mg/Kg | | 11/12/15 15:45 | 11/13/15 14:40 | 1 |

17

5.8 mg/Kg

1.1 mg/Kg

20

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11

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-7

Matrix: Solid

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Client Sample ID: DS-08-1655

| Method: 6010C - Metals (| (ICP) - TCLP | | | | | | | | |
|--------------------------|--------------|-----------|------|---------|------|---|----------------|----------------|---------|
| Analyte | • | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 0.0091 | JB | 0.50 | 0.0029 | mg/L | | 11/13/15 10:23 | 11/16/15 13:32 | 1 |
| Barium | 1.8 | JB | 10 | 0.0010 | mg/L | | 11/13/15 10:23 | 11/16/15 13:32 | 1 |
| Cadmium | 0.038 | J | 0.10 | 0.00014 | mg/L | | 11/13/15 10:23 | 11/16/15 13:32 | 1 |
| Chromium | 0.012 | JB | 0.50 | 0.00055 | mg/L | | 11/13/15 10:23 | 11/16/15 13:32 | 1 |
| Lead | 4.7 | | 0.50 | 0.0019 | mg/L | | 11/13/15 10:23 | 11/16/15 13:32 | 1 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/13/15 10:23 | 11/16/15 13:32 | 1 |
| Silver | 0.50 | Ü | 0.50 | 0.00092 | mg/L | | 11/13/15 10:23 | 11/16/15 13:32 | 1 |

| Method: 7470A - Mercury (CVA | AA) - TCLP | | | | | | | | |
|------------------------------|------------|-----------|--------|----------|------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Mercury | 0.0020 | U | 0.0020 | 0.000090 | mg/L | | 11/13/15 14:00 | 11/16/15 15:47 | 1 |

| General Chemistry Analyte | Result Qua | lifier RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------------------------|------------|-----------|------|------|---|----------|----------------|---------|
| Percent Solids | 98 | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 1.6 | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

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Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-08-1655

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00 Lab Sample ID: 240-57769-7

Matrix: Solid

Percent Solids: 98.4

| Method: 6010C - Metal Analyte | • • | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------------------------------|------|-----------|-----|------|-------|---------|----------------|----------------|---------|
| Arsenic | 71 | | 71 | 19 | mg/Kg | <u></u> | 11/12/15 10:45 | 11/13/15 14:49 | 50 |
| Barium | 300 | J | 940 | 19 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:49 | 50 |
| Cadmium | 16 | J | 24 | 0.99 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:49 | 50 |
| Chromium | 38 | J | 47 | 3.5 | mg/Kg | | 11/12/15 10:45 | 11/13/15 14:49 | 50 |
| Lead | 3000 | В | 47 | 1.0 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 14:49 | 50 |
| Selenium | 94 | U | 94 | 16 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 14:49 | 50 |
| Silver | 8.2 | J | 47 | 3.0 | mg/Kg | | 11/12/15 10:45 | 11/13/15 14:49 | 50 |

| Method: 7471B - Mercury (CVA | A) | | | | | | | | |
|------------------------------|------------|-----------|------|-------|-------|--------------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.19 | | 0.11 | 0.015 | mg/Kg | \ | 11/12/15 15:45 | 11/13/15 14:44 | 1 |

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Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-14-1675

Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-8

. Matrix: Solid

Percent Solids: 98.0

| Method: 6010C - Metals (IC | P) | | | | | | | | |
|----------------------------|------------|-----------|------|-----|-------|---|----------------|----------------|---------|
| Analyte | Result (| Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 150 l | U - | 150 | 41 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:59 | 100 |
| Barium | 320 | J | 2000 | 41 | mg/Kg | ≎ | 11/12/15 10:45 | 11/13/15 15:59 | 100 |
| Cadmium | 30 、 | J | 51 | 2.1 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:59 | 100 |
| Chromium | 84 、 | J | 100 | 7.6 | mg/Kg | ☆ | 11/12/15 10:45 | 11/13/15 15:59 | 100 |
| Lead | 2300 | В | 100 | 2.2 | mg/Kg | ≎ | 11/12/15 10:45 | 11/13/15 15:59 | 100 |
| Selenium | 200 l | U | 200 | 34 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:59 | 100 |
| Silver | 15 、 | J | 100 | 6.4 | mg/Kg | ₽ | 11/12/15 10:45 | 11/13/15 15:59 | 100 |

| Method: 7471B - Mercury (CVA | () | | | | | | | | |
|------------------------------|------------|-----------|------|-------|-------|-------------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.25 | | 0.11 | 0.015 | mg/Kg | | 11/12/15 15:45 | 11/13/15 14:46 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 98 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 2.0 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

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11

Client: URS Corporation Project/Site: Closed Loop

Percent Solids

Percent Moisture

TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-12-1675

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-9

| Matrix: Solid |
|----------------------|
| Percent Solids: 98.4 |

11/12/15 15:23

11/12/15 15:23

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|--------------------------------|--------|-----------|-------|-------|-------|----------|----------------|----------------|---------|
| Arsenic | 260 | U | 260 | 71 | mg/Kg | <u></u> | 11/12/15 10:45 | 11/13/15 16:03 | 250 |
| Barium | 390 | J | 3500 | 71 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 16:03 | 250 |
| Cadmium | 33 | J | 86 | 3.6 | mg/Kg | ₽ | 11/12/15 10:45 | 11/13/15 16:03 | 250 |
| Chromium | 37 | J | 170 | 13 | mg/Kg | \$ | 11/12/15 10:45 | 11/13/15 16:03 | 250 |
| Lead | 5200 | В | 170 | 3.8 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 16:03 | 250 |
| Selenium | 350 | U | 350 | 59 | mg/Kg | ₽ | 11/12/15 10:45 | 11/13/15 16:03 | 250 |
| Silver | 15 | J | 170 | 11 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 16:03 | 250 |
| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.30 | | 0.090 | 0.013 | mg/Kg | <u> </u> | 11/12/15 15:45 | 11/13/15 14:47 | 1 |
| General Chemistry | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |

0.10

0.10

98

1.6

0.10 %

0.10 %

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-07-1655 Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-10

Matrix: Solid

Percent Solids: 99.6

| Method: 6010C - Metals (ICP) Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|--------------------------------------|--------|-----------|-----|------|-------|----------|----------------|----------------|---------|
| Arsenic | 26 | U | 26 | 7.2 | mg/Kg | <u> </u> | 11/12/15 10:45 | 11/13/15 15:14 | 20 |
| Barium | 150 | J | 350 | 7.2 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:14 | 20 |
| Cadmium | 7.2 | J | 8.7 | 0.37 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:14 | 20 |
| Chromium | 40 | | 17 | 1.3 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:14 | 20 |
| Lead | 3100 | В | 17 | 0.38 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:14 | 20 |
| Selenium | 35 | U | 35 | 5.9 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:14 | 20 |
| Silver | 1.3 | J | 17 | 1.1 | mg/Kg | | 11/12/15 10:45 | 11/13/15 15:14 | 20 |

| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
|--------------------------------|--------|-----------|------|-------|-------|-------------|--------------|-------------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.081 | J | 0.10 | 0.015 | mg/Kg | | 11/12/15 15: | 45 11/13/15 14:50 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 100 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 0.42 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

Client: URS Corporation Project/Site: Closed Loop TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-04-1675

Date Collected: 11/09/15 00:00 Da

Lab Sample ID: 240-57769-11

Matrix: Solid

| Pate Received: 11/11/15 10:00 | | | | | | Percent Soli | ds: 99.6 |
|-------------------------------|------------------|----|----------|---|----------|--------------|----------|
| Method: 6010C - Metals (ICP) | | | | | | | |
| Analyte | Result Qualifier | RL | MDL Unit | D | Prepared | Analyzed | Dil Fac |

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|--------|-----------|------|-----|-------|----------|----------------|----------------|---------|
| Arsenic | 260 | U | 260 | 71 | mg/Kg | <u> </u> | 11/12/15 10:45 | 11/13/15 16:07 | 250 |
| Barium | 210 | J | 3500 | 71 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 16:07 | 250 |
| Cadmium | 25 | J | 87 | 3.6 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 16:07 | 250 |
| Chromium | 170 | U | 170 | 13 | mg/Kg | ₩. | 11/12/15 10:45 | 11/13/15 16:07 | 250 |
| Lead | 2200 | В | 170 | 3.8 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 16:07 | 250 |
| Selenium | 350 | U | 350 | 59 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 16:07 | 250 |
| Silver | 22 | | 170 | 11 | mg/Kg | ф. | 11/12/15 10:45 | 11/13/15 16:07 | 250 |

| Method: 7471B - Mercury (CVAA) Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|--------|-----------|------|-------|-------|--------------------------|----------------|----------------|---------|
| Hg | 0.042 | J | 0.11 | 0.015 | mg/Kg | ‡ | 11/12/15 15:45 | 11/13/15 14:52 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 100 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 0.44 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

Client: URS Corporation Project/Site: Closed Loop

Percent Moisture

TestAmerica Job ID: 240-57769-1

2

Client Sample ID: DS-09-1655

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00 Lab Sample ID: 240-57769-12

Matrix: Solid

| matrix. C | Ollu |
|------------------------|------|
| Percent Solids: | 99.0 |

11/12/15 15:23

| Method: 6010C - Metals (ICP) | | | | | | | | | |
|--------------------------------|--------|-----------|------|-------|-------|----------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 23 | U | 23 | 6.2 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:22 | 20 |
| Barium | 140 | J | 300 | 6.2 | mg/Kg | ≎ | 11/12/15 10:45 | 11/13/15 15:22 | 20 |
| Cadmium | 3.7 | J | 7.6 | 0.32 | mg/Kg | ☆ | 11/12/15 10:45 | 11/13/15 15:22 | 20 |
| Chromium | 18 | | 15 | 1.1 | mg/Kg | ☆ | 11/12/15 10:45 | 11/13/15 15:22 | 20 |
| Lead | 2500 | В | 15 | 0.33 | mg/Kg | ≎ | 11/12/15 10:45 | 11/13/15 15:22 | 20 |
| Selenium | 30 | U | 30 | 5.2 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 15:22 | 20 |
| Silver | 2.2 | J | 15 | 0.96 | mg/Kg | \$ | 11/12/15 10:45 | 11/13/15 15:22 | 20 |
| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.052 | J | 0.10 | 0.014 | mg/Kg | <u> </u> | 11/12/15 15:45 | 11/13/15 14:53 | 1 |
| General Chemistry | | | | | | | | | |
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

0.10

0.96

0.10 %

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DUP A
Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-13

Matrix: Solid

Percent Solids: 99.0

| Method: 6010C - Metals (ICP) Analyte | Result (| Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|--------------------------------------|----------|-----------|------|-----|-------|---------|----------------|----------------|---------|
| Arsenic | 140 | U - | 140 | 38 | mg/Kg | <u></u> | 11/12/15 10:45 | 11/13/15 16:28 | 100 |
| Barium | 350 . | J | 1900 | 38 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 16:28 | 100 |
| Cadmium | 23 . | J | 46 | 1.9 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 16:28 | 100 |
| Chromium | 35 . | J | 93 | 7.0 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 16:28 | 100 |
| Lead | 2700 I | В | 93 | 2.0 | mg/Kg | ☼ | 11/12/15 10:45 | 11/13/15 16:28 | 100 |
| Selenium | 190 (| U | 190 | 32 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 16:28 | 100 |
| Silver | 14 , | | 93 | 5.8 | mg/Kg | | 11/12/15 10:45 | 11/13/15 16:28 | 100 |

| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
|--------------------------------|--------|-----------|-------|-------|-------|----------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.17 | | 0.096 | 0.013 | mg/Kg | <u> </u> | 11/12/15 15:45 | 11/13/15 14:56 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 1.0 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

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12

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-08-1675 Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-14

Matrix: Solid

Percent Solids: 99.2

| Method: 6010C - Metals (ICP) | | 0 | D. | MDI | 1114 | _ | B | A l | D!! E |
|------------------------------|--------|-----------|-----|------|-------|----------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 64 | U | 64 | 18 | mg/Kg | <u> </u> | 11/12/15 10:45 | 11/13/15 15:30 | 50 |
| Barium | 410 | J | 850 | 18 | mg/Kg | ≎ | 11/12/15 10:45 | 11/13/15 15:30 | 50 |
| Cadmium | 15 . | J | 21 | 0.90 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:30 | 50 |
| Chromium | 35 . | J | 43 | 3.2 | mg/Kg | ₽ | 11/12/15 10:45 | 11/13/15 15:30 | 50 |
| Lead | 8000 | В | 43 | 0.94 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:30 | 50 |
| Selenium | 85 | U | 85 | 15 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:30 | 50 |
| Silver | 9.7 | J | 43 | 2.7 | mg/Kg | | 11/12/15 10:45 | 11/13/15 15:30 | 50 |

| Method: 7471B - Mercury (CVAA) | | | | | | | | | | |
|--------------------------------|--------|-----------|------|-------|-------|-------------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D |) | Prepared | Analyzed | Dil Fac |
| Hg | 0.10 | J | 0.11 | 0.015 | mg/Kg | | Ę | 11/12/15 15:45 | 11/13/15 14:57 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 0.84 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

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12

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-11-1655 Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-15

Matrix: Solid

Percent Solids: 99.1

| Analyte | Result Qualifie | er RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|-----------------|-------|------|-------|----------|----------------|----------------|---------|
| Arsenic | 28 U | 28 | 7.7 | mg/Kg | <u> </u> | 11/12/15 10:45 | 11/13/15 15:34 | 20 |
| Barium | 210 J | 380 | 7.7 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:34 | 20 |
| Cadmium | 4.4 J | 9.4 | 0.40 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:34 | 20 |
| Chromium | 98 | 19 | 1.4 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:34 | 20 |
| Lead | 2300 B | 19 | 0.41 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:34 | 20 |
| Selenium | 38 U | 38 | 6.4 | mg/Kg | ₩ | 11/12/15 10:45 | 11/13/15 15:34 | 20 |
| Silver | 5.7 J | 19 | 1.2 | mg/Kg | | 11/12/15 10:45 | 11/13/15 15:34 | 20 |

| Method: 7471B - Mercury (CVAA) | | | | | | | | | |
|--------------------------------|--------|-----------|-------|-------|-------|-------------------------|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Hg | 0.14 | | 0.096 | 0.013 | mg/Kg | | 11/12/15 15:45 | 11/13/15 14:59 | 1 |

| General Chemistry Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Percent Solids | 99 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |
| Percent Moisture | 0.89 | | 0.10 | 0.10 | % | | | 11/12/15 15:23 | 1 |

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TestAmerica Job ID: 240-57769-1

Client: URS Corporation Project/Site: Closed Loop

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-206494/1-A

Matrix: Solid

Analysis Batch: 206868

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 206494

Prep Batch: 206678

| | МВ | MB | | | | | | | |
|----------|--------|-----------|------|-------|-------|---|----------------|----------------|---------|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 1.5 | U | 1.5 | 0.41 | mg/Kg | | 11/12/15 10:45 | 11/13/15 13:35 | 1 |
| Barium | 20 | U | 20 | 0.41 | mg/Kg | | 11/12/15 10:45 | 11/13/15 13:35 | 1 |
| Cadmium | 0.50 | U | 0.50 | 0.021 | mg/Kg | | 11/12/15 10:45 | 11/13/15 13:35 | 1 |
| Chromium | 1.0 | U | 1.0 | 0.075 | mg/Kg | | 11/12/15 10:45 | 11/13/15 13:35 | 1 |
| Lead | 0.183 | J | 1.0 | 0.022 | mg/Kg | | 11/12/15 10:45 | 11/13/15 13:35 | 1 |
| Selenium | 2.0 | U | 2.0 | 0.34 | mg/Kg | | 11/12/15 10:45 | 11/13/15 13:35 | 1 |
| Silver | 1.0 | U | 1.0 | 0.063 | mg/Kg | | 11/12/15 10:45 | 11/13/15 13:35 | 1 |
| | | | | | | | | | |

Lab Sample ID: LCS 240-206494/2-A **Client Sample ID: Lab Control Sample**

Matrix: Solid

Analysis Batch: 206868

Prep Type: Total/NA **Prep Batch: 206494**

LCS LCS %Rec. Spike Added Limits Analyte Result Qualifier Unit D %Rec 200 Arsenic 186 mg/Kg 93 80 - 120 mg/Kg Barium 200 185 93 80 - 120 Cadmium 5.00 4.67 mg/Kg 93 80 - 120 Chromium 20.0 18.8 mg/Kg 94 80 - 120 50.0 Lead 45.6 mg/Kg 91 80 - 120 Selenium 200 185 mg/Kg 92 80 - 120 Silver 5.00 4.83 80 - 120 mg/Kg

Lab Sample ID: MB 240-206678/2-A **Client Sample ID: Method Blank Matrix: Solid** Prep Type: Total/NA

Analysis Batch: 206959

| | MB | MB | | | | | | | |
|----------|---|--|---|---|---|--|--|---|---|
| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
| Arsenic | 0.50 | U | 0.50 | 0.0029 | mg/L | | 11/13/15 10:23 | 11/16/15 11:30 | 1 |
| Barium | 10 | U | 10 | 0.0010 | mg/L | | 11/13/15 10:23 | 11/16/15 11:30 | 1 |
| Cadmium | 0.10 | U | 0.10 | 0.00014 | mg/L | | 11/13/15 10:23 | 11/16/15 11:30 | 1 |
| Chromium | 0.50 | U | 0.50 | 0.00055 | mg/L | | 11/13/15 10:23 | 11/16/15 11:30 | 1 |
| Lead | 0.50 | U | 0.50 | 0.0019 | mg/L | | 11/13/15 10:23 | 11/16/15 11:30 | 1 |
| Selenium | 0.25 | U | 0.25 | 0.0040 | mg/L | | 11/13/15 10:23 | 11/16/15 11:30 | 1 |
| Silver | 0.50 | U | 0.50 | 0.00092 | mg/L | | 11/13/15 10:23 | 11/16/15 11:30 | 1 |
| | Arsenic Barium Cadmium Chromium Lead Selenium | Analyte Result Arsenic 0.50 Barium 10 Cadmium 0.10 Chromium 0.50 Lead 0.50 Selenium 0.25 | Arsenic 0.50 U Barium 10 U Cadmium 0.10 U Chromium 0.50 U Lead 0.50 U Selenium 0.25 U | Analyte Result Qualifier RL Arsenic 0.50 U 0.50 Barium 10 U 10 Cadmium 0.10 U 0.10 Chromium 0.50 U 0.50 Lead 0.50 U 0.50 Selenium 0.25 U 0.25 | Analyte Result Qualifier RL Qualifier MDL Qualifier Arsenic 0.50 U 0.50 0.0029 Barium 10 U 10 0.0010 Cadmium 0.10 U 0.10 0.00014 Chromium 0.50 U 0.50 0.00055 Lead 0.50 U 0.50 0.0019 Selenium 0.25 U 0.25 0.0040 | Analyte Result Qualifier RL MDL Unit Arsenic 0.50 U 0.50 0.0029 mg/L Barium 10 U 10 0.0010 mg/L Cadmium 0.10 U 0.10 0.00014 mg/L Chromium 0.50 U 0.50 0.00055 mg/L Lead 0.50 U 0.50 0.0019 mg/L Selenium 0.25 U 0.25 0.0040 mg/L | Analyte Result Arsenic Qualifier RL MDL Vnit MDL Vnit MDL MML D Barium 0.50 U 0.50 0.0029 mg/L mg/L Cadmium 10 U 10 0.0010 mg/L mg/L Chromium 0.50 U 0.50 0.00055 mg/L mg/L Lead 0.50 U 0.50 0.0019 mg/L mg/L Selenium 0.25 U 0.25 0.0040 mg/L | Analyte Result Arsenic Qualifier RL Out | Analyte Result Arsenic Qualifier RL O.50 MDL O.0029 Mg/L Unit MDL O.0029 Mg/L D Prepared Int/13/15 10:23 Analyzed Int/16/15 11:30 Barium 10 U 10 0.0010 Mg/L 11/13/15 10:23 11/16/15 11:30 Cadmium 0.10 U 0.10 0.00014 Mg/L 11/13/15 10:23 11/16/15 11:30 Chromium 0.50 U 0.50 0.00055 Mg/L 11/13/15 10:23 11/16/15 11:30 Lead 0.50 U 0.50 0.0019 Mg/L 11/13/15 10:23 11/16/15 11:30 Selenium 0.25 U 0.25 0.0040 Mg/L 11/13/15 10:23 11/16/15 11:30 |

Lab Sample ID: LCS 240-206678/3-A

Matrix: Solid

Analysis Batch: 206959

| Client Sample ID: Lab Control Sample | |
|--------------------------------------|--|
| Prep Type: Total/NA | |
| Prep Batch: 206678 | |

| | Spike | LCS | LCS | | | | %Rec. | |
|----------|--------|--------|-----------|------|---|------|----------|--|
| Analyte | Added | Result | Qualifier | Unit | D | %Rec | Limits | |
| Arsenic | 2.00 | 1.99 | | mg/L | | 100 | 50 - 150 | |
| Barium | 2.00 | 1.85 | J | mg/L | | 93 | 50 - 150 | |
| Cadmium | 0.0500 | 0.0483 | J | mg/L | | 97 | 50 - 150 | |
| Chromium | 0.200 | 0.189 | J | mg/L | | 94 | 50 - 150 | |
| Lead | 0.500 | 0.432 | J | mg/L | | 86 | 50 - 150 | |
| Selenium | 2.00 | 2.01 | | mg/L | | 101 | 50 - 150 | |
| Silver | 0.0500 | 0.0535 | J | mg/L | | 107 | 50 - 150 | |

TestAmerica Canton

Client: URS Corporation Project/Site: Closed Loop TestAmerica Job ID: 240-57769-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LB 240-206575/1-B

Matrix: Solid

Analysis Batch: 206959

Client Sample ID: Method Blank

Prep Type: TCLP

Prep Batch: 206678

| Dil Fac |
|---------|
| 1 |
| 1 |
| 1 |
| 1 |
| 1 |
| 1 |
| 1 |
| _ |

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-206680/2-A **Client Sample ID: Method Blank**

Matrix: Solid

Analysis Batch: 207017

MB MB

LB LB

Result Qualifier RL **MDL** Unit Analyzed Analyte Prepared Dil Fac 0.0020 11/13/15 14:00 11/16/15 15:26 Mercury 0.0020 U 0.000090 mg/L

Lab Sample ID: LCS 240-206680/3-A **Client Sample ID: Lab Control Sample Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 207017** Prep Batch: 206680

LCS LCS Spike %Rec. Analyte Added Result Qualifier Limits Unit D %Rec Mercury 0.00500 0.00507 mg/L 101 80 - 120

Lab Sample ID: LB 240-206575/1-C

Matrix: Solid

Analysis Batch: 207017

Prep Type: TCLP

mg/Kg

Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Mercury 0.0020 U 0.0020 0.000090 mg/L 11/13/15 14:00 11/16/15 15:24

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 240-206511/1-A Client Sample ID: Method Blank **Matrix: Solid Prep Type: Total/NA**

Hg

Analysis Batch: 206814

MB MB

Result Qualifier RL **MDL** Unit Analyte **Prepared** Analyzed 0.10 0 10 U 0.014 mg/Kg 11/12/15 15:45 11/13/15 11:23 Hg

Lab Sample ID: LCS 240-206511/2-A

Matrix: Solid

Analysis Batch: 206814 **Prep Batch: 206511** Spike LCS LCS %Rec. Added Result Qualifier Unit D %Rec Limits Analyte

0.850

0.833

TestAmerica Canton

Client Sample ID: Method Blank

Prep Batch: 206680

Prep Type: Total/NA

Prep Batch: 206680

Prep Batch: 206511

Prep Type: Total/NA

Client Sample ID: Lab Control Sample

80 - 120

QC Sample Results

Client: URS Corporation TestAmerica Job ID: 240-57769-1
Project/Site: Closed Loop

Method: Moisture - Percent Moisture

Lab Sample ID: 240-57769-5 DU Client Sample ID: DS-10-1655
Matrix: Solid Prep Type: Total/NA

Analysis Batch: 206558

| | Sample | Sample | DU | DU | | | | RPD | |
|------------------|--------|-----------|--------|-----------|------|---|---------|-------|--|
| Analyte | Result | Qualifier | Result | Qualifier | Unit | D | RPD | Limit | |
| Percent Solids | 99 | | 99 | | % | | 0.1 | 20 | |
| Percent Moisture | 0.99 | | 1.1 | | % | | 13 | 20 | |

Lab Sample ID: 240-57769-14 DU

Client Sample ID: DS-08-1675

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 206558

| 7 many one Datem 200000 | | | | | | | | | |
|-------------------------|------------------------|--|--|--|---|---|---|--|---|
| _ | Sample | Sample | DU | DU | | | | | RPD |
| Analyte | Result | Qualifier | Result | Qualifier | Unit | D | | RPD | Limit |
| Percent Solids | 99 | | 99 | | % | | | 0.08 | 20 |
| Percent Moisture | 0.84 | | 0.76 | | % | | | 10 | 20 |
| | Analyte Percent Solids | Analyte Result Percent Solids 99 | Analyte Result Qualifier Percent Solids 99 | Sample Analyte Sample Result Percent Solids Sample Qualifier Qualifier DU Result Qualifier | Sample AnalyteSample ResultDU QualifierDU ResultQualifierPercent Solids9999 | Sample AnalyteSample ResultDU Qualifier QualifierDU QualifierPercent Solids99QualifierResult QualifierUnit | Sample AnalyteDU DUPercent SolidsResult 99Qualifier Qualifier 99Result Result 99Qualifier 99 | Sample AnalyteDU DUPercent SolidsResult QualifierQualifier QualifierQualifier Qualifier Qualifier WintUnit WintD Wint | Sample Analyte Sample Qualifier DU Result DU Qualifier DU Qualifier DU Qualifier Unit Qualifier D Qualifier RPD % Percent Solids 99 99 % 0.08 |

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QC Association Summary

Client: URS Corporation TestAmerica Job ID: 240-57769-1 Project/Site: Closed Loop

Metals

Prep Batch: 206494

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57769-1 | DS-11-1675 | Total/NA | Solid | 3050B | _ |
| 240-57769-2 | DS-03-1675 | Total/NA | Solid | 3050B | |
| 240-57769-3 | DS-13-1675 | Total/NA | Solid | 3050B | |
| 240-57769-4 | DS-09-1675 | Total/NA | Solid | 3050B | |
| 240-57769-5 | DS-10-1655 | Total/NA | Solid | 3050B | |
| 240-57769-6 | DS-12-1655 | Total/NA | Solid | 3050B | |
| 240-57769-7 | DS-08-1655 | Total/NA | Solid | 3050B | |
| 240-57769-8 | DS-14-1675 | Total/NA | Solid | 3050B | |
| 240-57769-9 | DS-12-1675 | Total/NA | Solid | 3050B | |
| 240-57769-10 | DS-07-1655 | Total/NA | Solid | 3050B | |
| 240-57769-11 | DS-04-1675 | Total/NA | Solid | 3050B | |
| 240-57769-12 | DS-09-1655 | Total/NA | Solid | 3050B | |
| 240-57769-13 | DUP A | Total/NA | Solid | 3050B | |
| 240-57769-14 | DS-08-1675 | Total/NA | Solid | 3050B | |
| 240-57769-15 | DS-11-1655 | Total/NA | Solid | 3050B | |
| LCS 240-206494/2-A | Lab Control Sample | Total/NA | Solid | 3050B | |
| MB 240-206494/1-A | Method Blank | Total/NA | Solid | 3050B | |

Prep Batch: 206511

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57769-1 | DS-11-1675 | Total/NA | Solid | 7471B | |
| 240-57769-2 | DS-03-1675 | Total/NA | Solid | 7471B | |
| 240-57769-3 | DS-13-1675 | Total/NA | Solid | 7471B | |
| 240-57769-4 | DS-09-1675 | Total/NA | Solid | 7471B | |
| 240-57769-5 | DS-10-1655 | Total/NA | Solid | 7471B | |
| 240-57769-6 | DS-12-1655 | Total/NA | Solid | 7471B | |
| 240-57769-7 | DS-08-1655 | Total/NA | Solid | 7471B | |
| 240-57769-8 | DS-14-1675 | Total/NA | Solid | 7471B | |
| 240-57769-9 | DS-12-1675 | Total/NA | Solid | 7471B | |
| 240-57769-10 | DS-07-1655 | Total/NA | Solid | 7471B | |
| 240-57769-11 | DS-04-1675 | Total/NA | Solid | 7471B | |
| 240-57769-12 | DS-09-1655 | Total/NA | Solid | 7471B | |
| 240-57769-13 | DUP A | Total/NA | Solid | 7471B | |
| 240-57769-14 | DS-08-1675 | Total/NA | Solid | 7471B | |
| 240-57769-15 | DS-11-1655 | Total/NA | Solid | 7471B | |
| LCS 240-206511/2-A | Lab Control Sample | Total/NA | Solid | 7471B | |
| MB 240-206511/1-A | Method Blank | Total/NA | Solid | 7471B | |

Leach Batch: 206575

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-------------------|------------------|-----------|--------|--------|------------|
| 240-57769-1 | DS-11-1675 | TCLP | Solid | 1311 | |
| 240-57769-2 | DS-03-1675 | TCLP | Solid | 1311 | |
| 240-57769-3 | DS-13-1675 | TCLP | Solid | 1311 | |
| 240-57769-4 | DS-09-1675 | TCLP | Solid | 1311 | |
| 240-57769-5 | DS-10-1655 | TCLP | Solid | 1311 | |
| 240-57769-6 | DS-12-1655 | TCLP | Solid | 1311 | |
| 240-57769-7 | DS-08-1655 | TCLP | Solid | 1311 | |
| LB 240-206575/1-B | Method Blank | TCLP | Solid | 1311 | |
| LB 240-206575/1-C | Method Blank | TCLP | Solid | 1311 | |

TestAmerica Job ID: 240-57769-1

Client: URS Corporation Project/Site: Closed Loop

Metals (Continued)

Prep Batch: 206678

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57769-1 | DS-11-1675 | TCLP | Solid | 3010A | 206575 |
| 240-57769-2 | DS-03-1675 | TCLP | Solid | 3010A | 206575 |
| 240-57769-3 | DS-13-1675 | TCLP | Solid | 3010A | 206575 |
| 240-57769-4 | DS-09-1675 | TCLP | Solid | 3010A | 206575 |
| 240-57769-5 | DS-10-1655 | TCLP | Solid | 3010A | 206575 |
| 240-57769-6 | DS-12-1655 | TCLP | Solid | 3010A | 206575 |
| 240-57769-7 | DS-08-1655 | TCLP | Solid | 3010A | 206575 |
| LB 240-206575/1-B | Method Blank | TCLP | Solid | 3010A | 206575 |
| LCS 240-206678/3-A | Lab Control Sample | Total/NA | Solid | 3010A | |
| MB 240-206678/2-A | Method Blank | Total/NA | Solid | 3010A | |

Prep Batch: 206680

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch | |
|--------------------|--------------------|-----------|--------|--------|------------|--|
| 240-57769-1 | DS-11-1675 | TCLP | Solid | 7470A | 206575 | |
| 240-57769-2 | DS-03-1675 | TCLP | Solid | 7470A | 206575 | |
| 240-57769-3 | DS-13-1675 | TCLP | Solid | 7470A | 206575 | |
| 240-57769-4 | DS-09-1675 | TCLP | Solid | 7470A | 206575 | |
| 240-57769-5 | DS-10-1655 | TCLP | Solid | 7470A | 206575 | |
| 240-57769-6 | DS-12-1655 | TCLP | Solid | 7470A | 206575 | |
| 240-57769-7 | DS-08-1655 | TCLP | Solid | 7470A | 206575 | |
| LB 240-206575/1-C | Method Blank | TCLP | Solid | 7470A | 206575 | |
| LCS 240-206680/3-A | Lab Control Sample | Total/NA | Solid | 7470A | | |
| MB 240-206680/2-A | Method Blank | Total/NA | Solid | 7470A | | |

Analysis Batch: 206814

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57769-1 | DS-11-1675 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-2 | DS-03-1675 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-3 | DS-13-1675 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-4 | DS-09-1675 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-5 | DS-10-1655 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-6 | DS-12-1655 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-7 | DS-08-1655 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-8 | DS-14-1675 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-9 | DS-12-1675 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-10 | DS-07-1655 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-11 | DS-04-1675 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-12 | DS-09-1655 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-13 | DUP A | Total/NA | Solid | 7471B | 206511 |
| 240-57769-14 | DS-08-1675 | Total/NA | Solid | 7471B | 206511 |
| 240-57769-15 | DS-11-1655 | Total/NA | Solid | 7471B | 206511 |
| LCS 240-206511/2-A | Lab Control Sample | Total/NA | Solid | 7471B | 206511 |
| MB 240-206511/1-A | Method Blank | Total/NA | Solid | 7471B | 206511 |

Analysis Batch: 206868

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------|------------------|-----------|--------|--------|------------|
| 240-57769-1 | DS-11-1675 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-2 | DS-03-1675 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-3 | DS-13-1675 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-4 | DS-09-1675 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-5 | DS-10-1655 | Total/NA | Solid | 6010C | 206494 |

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TestAmerica Job ID: 240-57769-1

Client: URS Corporation Project/Site: Closed Loop

Metals (Continued)

Analysis Batch: 206868 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57769-6 | DS-12-1655 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-7 | DS-08-1655 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-8 | DS-14-1675 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-9 | DS-12-1675 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-10 | DS-07-1655 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-11 | DS-04-1675 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-12 | DS-09-1655 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-13 | DUP A | Total/NA | Solid | 6010C | 206494 |
| 240-57769-14 | DS-08-1675 | Total/NA | Solid | 6010C | 206494 |
| 240-57769-15 | DS-11-1655 | Total/NA | Solid | 6010C | 206494 |
| LCS 240-206494/2-A | Lab Control Sample | Total/NA | Solid | 6010C | 206494 |
| MB 240-206494/1-A | Method Blank | Total/NA | Solid | 6010C | 206494 |

Analysis Batch: 206959

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| 240-57769-1 | DS-11-1675 | TCLP | Solid | 6010C | 206678 |
| 240-57769-1 | DS-11-1675 | TCLP | Solid | 6010C | 206678 |
| 240-57769-2 | DS-03-1675 | TCLP | Solid | 6010C | 206678 |
| 240-57769-2 | DS-03-1675 | TCLP | Solid | 6010C | 206678 |
| 240-57769-3 | DS-13-1675 | TCLP | Solid | 6010C | 206678 |
| 240-57769-4 | DS-09-1675 | TCLP | Solid | 6010C | 206678 |
| 240-57769-4 | DS-09-1675 | TCLP | Solid | 6010C | 206678 |
| 240-57769-5 | DS-10-1655 | TCLP | Solid | 6010C | 206678 |
| 240-57769-5 | DS-10-1655 | TCLP | Solid | 6010C | 206678 |
| 240-57769-6 | DS-12-1655 | TCLP | Solid | 6010C | 206678 |
| 240-57769-6 | DS-12-1655 | TCLP | Solid | 6010C | 206678 |
| 240-57769-7 | DS-08-1655 | TCLP | Solid | 6010C | 206678 |
| LB 240-206575/1-B | Method Blank | TCLP | Solid | 6010C | 206678 |
| LCS 240-206678/3-A | Lab Control Sample | Total/NA | Solid | 6010C | 206678 |
| MB 240-206678/2-A | Method Blank | Total/NA | Solid | 6010C | 206678 |

Analysis Batch: 207017

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch | |
|--------------------|--------------------|-----------|--------|--------|------------|--|
| 240-57769-1 | DS-11-1675 | TCLP | Solid | 7470A | 206680 | |
| 240-57769-2 | DS-03-1675 | TCLP | Solid | 7470A | 206680 | |
| 240-57769-3 | DS-13-1675 | TCLP | Solid | 7470A | 206680 | |
| 240-57769-4 | DS-09-1675 | TCLP | Solid | 7470A | 206680 | |
| 240-57769-5 | DS-10-1655 | TCLP | Solid | 7470A | 206680 | |
| 240-57769-6 | DS-12-1655 | TCLP | Solid | 7470A | 206680 | |
| 240-57769-7 | DS-08-1655 | TCLP | Solid | 7470A | 206680 | |
| LB 240-206575/1-C | Method Blank | TCLP | Solid | 7470A | 206680 | |
| LCS 240-206680/3-A | Lab Control Sample | Total/NA | Solid | 7470A | 206680 | |
| MB 240-206680/2-A | Method Blank | Total/NA | Solid | 7470A | 206680 | |

General Chemistry

Analysis Batch: 206558

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------|------------------|-----------|--------|----------|------------|
| 240-57769-1 | DS-11-1675 | Total/NA | Solid | Moisture | |
| 240-57769-2 | DS-03-1675 | Total/NA | Solid | Moisture | |

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QC Association Summary

Client: URS Corporation TestAmerica Job ID: 240-57769-1
Project/Site: Closed Loop

General Chemistry (Continued)

Analysis Batch: 206558 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|------------------|-----------|--------|----------|------------|
| 240-57769-3 | DS-13-1675 | Total/NA | Solid | Moisture | |
| 240-57769-4 | DS-09-1675 | Total/NA | Solid | Moisture | |
| 240-57769-5 | DS-10-1655 | Total/NA | Solid | Moisture | |
| 240-57769-5 DU | DS-10-1655 | Total/NA | Solid | Moisture | |
| 240-57769-6 | DS-12-1655 | Total/NA | Solid | Moisture | |
| 240-57769-7 | DS-08-1655 | Total/NA | Solid | Moisture | |
| 240-57769-8 | DS-14-1675 | Total/NA | Solid | Moisture | |
| 240-57769-9 | DS-12-1675 | Total/NA | Solid | Moisture | |
| 240-57769-10 | DS-07-1655 | Total/NA | Solid | Moisture | |
| 240-57769-11 | DS-04-1675 | Total/NA | Solid | Moisture | |
| 240-57769-12 | DS-09-1655 | Total/NA | Solid | Moisture | |
| 240-57769-13 | DUP A | Total/NA | Solid | Moisture | |
| 240-57769-14 | DS-08-1675 | Total/NA | Solid | Moisture | |
| 240-57769-14 DU | DS-08-1675 | Total/NA | Solid | Moisture | |
| 240-57769-15 | DS-11-1655 | Total/NA | Solid | Moisture | |

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Client: URS Corporation Project/Site: Closed Loop TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-11-1675

Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-1 Date Collected: 11/09/15 00:00

Matrix: Solid

Batch Batch Dilution **Batch** Prepared Method Factor **Prep Type** Type Run Number or Analyzed Analyst Lab **TCLP** 1311 206575 11/12/15 17:00 DRJ **TAL CAN** Leach Prep **TCLP** 3010A 206678 11/13/15 10:23 WKD TAL CAN **TCLP** Analysis 6010C 206959 11/16/15 13:06 KLC TAL CAN TAL CAN **TCLP** Leach 1311 206575 11/12/15 17:00 DRJ **TCLP** Prep 3010A 206678 11/13/15 10:23 WKD TAL CAN 100 TAL CAN **TCLP** 6010C 206959 11/16/15 14:17 KLC Analysis **TCLP** Leach 1311 206575 11/12/15 17:00 DRJ TAL CAN **TCLP** Prep 7470A 206680 11/13/15 14:00 WKD TAL CAN **TCLP** 7470A 1 207017 11/16/15 16:22 WAL TAL CAN Analysis TAL CAN Analysis 1 206558 11/12/15 15:23 GNR Total/NA Moisture

Client Sample ID: DS-11-1675 Lab Sample ID: 240-57769-1

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00 Percent Solids: 97.5

Batch Dilution Batch Batch **Prepared Prep Type** Type Method Run **Factor** Number or Analyzed Analyst Lab Total/NA Prep 3050B 206494 11/12/15 10:45 DEE TAL CAN Total/NA Analysis 6010C 20 206868 11/13/15 14:25 KLC TAL CAN Total/NA Prep 7471B 206511 11/12/15 15:45 DEE TAL CAN 206814 11/13/15 14:32 DSH TAL CAN Total/NA Analysis 7471B 1

Client Sample ID: DS-03-1675 Lab Sample ID: 240-57769-2 Date Collected: 11/09/15 00:00 **Matrix: Solid**

Date Received: 11/11/15 10:00

| _ | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 3010A | | | 206678 | 11/13/15 10:23 | WKD | TAL CAN |
| TCLP | Analysis | 6010C | | 1 | 206959 | 11/16/15 13:10 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 3010A | | | 206678 | 11/13/15 10:23 | WKD | TAL CAN |
| TCLP | Analysis | 6010C | | 100 | 206959 | 11/16/15 14:21 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 7470A | | | 206680 | 11/13/15 14:00 | WKD | TAL CAN |
| TCLP | Analysis | 7470A | | 1 | 207017 | 11/16/15 16:24 | WAL | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 206558 | 11/12/15 15:23 | GNR | TAL CAN |

Client Sample ID: DS-03-1675 Lab Sample ID: 240-57769-2

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00 Percent Solids: 99.7

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|-------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | | | 206494 | 11/12/15 10:45 | DEE | TAL CAN |

TestAmerica Job ID: 240-57769-1

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-03-1675

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00 Lab Sample ID: 240-57769-2

Matrix: Solid
Percent Solids: 99.7

Batch Batch Dilution Batch **Prepared** Method **Prep Type** Type Run **Factor** Number or Analyzed Analyst Lab Total/NA Analysis 6010C 100 206868 11/13/15 15:38 KLC TAL CAN Total/NA Prep 7471B 206511 11/12/15 15:45 DEE TAL CAN Total/NA Analysis 7471B 1 206814 11/13/15 14:33 DSH TAL CAN

Client Sample ID: DS-13-1675 Lab Sample ID: 240-57769-3

Date Collected: 11/09/15 00:00 Matrix: Solid

Date Received: 11/11/15 10:00

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 3010A | | | 206678 | 11/13/15 10:23 | WKD | TAL CAN |
| TCLP | Analysis | 6010C | | 1 | 206959 | 11/16/15 13:14 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 7470A | | | 206680 | 11/13/15 14:00 | WKD | TAL CAN |
| TCLP | Analysis | 7470A | | 1 | 207017 | 11/16/15 16:27 | WAL | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 206558 | 11/12/15 15:23 | GNR | TAL CAN |

Client Sample ID: DS-13-1675 Lab Sample ID: 240-57769-3

Date Collected: 11/09/15 00:00 Matrix: Solid
Date Received: 11/11/15 10:00 Percent Solids: 98.2

Batch Batch Dilution Batch Prepared **Prep Type** Type Method Run **Factor** Number or Analyzed Analyst Total/NA Prep 3050B 206494 11/12/15 10:45 DEE TAL CAN Total/NA Analysis 6010C 50 206868 11/13/15 14:33 KLC TAL CAN Total/NA Prep 7471B 206511 11/12/15 15:45 DEE TAL CAN TAL CAN Total/NA Analysis 7471B 1 206814 11/13/15 14:35 DSH

Client Sample ID: DS-09-1675 Lab Sample ID: 240-57769-4

Date Collected: 11/09/15 00:00 Matrix: Solid
Date Received: 11/11/15 10:00

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 3010A | | | 206678 | 11/13/15 10:23 | WKD | TAL CAN |
| TCLP | Analysis | 6010C | | 1 | 206959 | 11/16/15 13:19 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 3010A | | | 206678 | 11/13/15 10:23 | WKD | TAL CAN |
| TCLP | Analysis | 6010C | | 10 | 206959 | 11/16/15 14:25 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 7470A | | | 206680 | 11/13/15 14:00 | WKD | TAL CAN |
| TCLP | Analysis | 7470A | | 1 | 207017 | 11/16/15 15:49 | WAL | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 206558 | 11/12/15 15:23 | GNR | TAL CAN |

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Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-09-1675

Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-4

Matrix: Solid

Percent Solids: 98.4

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | _ | | 206494 | 11/12/15 10:45 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 100 | 206868 | 11/13/15 15:51 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 206511 | 11/12/15 15:45 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 206814 | 11/13/15 14:36 | DSH | TAL CAN |

Client Sample ID: DS-10-1655 Lab Sample ID: 240-57769-5

Date Collected: 11/09/15 00:00 **Matrix: Solid**

Date Received: 11/11/15 10:00

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 3010A | | | 206678 | 11/13/15 10:23 | WKD | TAL CAN |
| TCLP | Analysis | 6010C | | 1 | 206959 | 11/16/15 13:23 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 3010A | | | 206678 | 11/13/15 10:23 | WKD | TAL CAN |
| TCLP | Analysis | 6010C | | 20 | 206959 | 11/16/15 14:37 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 7470A | | | 206680 | 11/13/15 14:00 | WKD | TAL CAN |
| TCLP | Analysis | 7470A | | 1 | 207017 | 11/16/15 15:51 | WAL | TAL CAN |
| Total/NA | Analysis | Moisture | | 1 | 206558 | 11/12/15 15:23 | GNR | TAL CAN |

Client Sample ID: DS-10-1655 Lab Sample ID: 240-57769-5

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00 Percent Solids: 99.0

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | - | | 206494 | 11/12/15 10:45 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 20 | 206868 | 11/13/15 14:41 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 206511 | 11/12/15 15:45 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 206814 | 11/13/15 14:38 | DSH | TAL CAN |

Client Sample ID: DS-12-1655 Lab Sample ID: 240-57769-6 Date Collected: 11/09/15 00:00 **Matrix: Solid**

Date Received: 11/11/15 10:00

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 3010A | | | 206678 | 11/13/15 10:23 | WKD | TAL CAN |
| TCLP | Analysis | 6010C | | 1 | 206959 | 11/16/15 13:27 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 3010A | | | 206678 | 11/13/15 10:23 | WKD | TAL CAN |
| TCLP | Analysis | 6010C | | 100 | 206959 | 11/16/15 14:42 | KLC | TAL CAN |
| TCLP | Leach | 1311 | | | 206575 | 11/12/15 17:00 | DRJ | TAL CAN |
| TCLP | Prep | 7470A | | | 206680 | 11/13/15 14:00 | WKD | TAL CAN |

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TestAmerica Job ID: 240-57769-1

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-12-1655

Client Sample ID: DS-12-1655

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-6

Matrix: Solid

Batch Dilution Batch Batch **Prepared** Method **Prep Type** Type Run **Factor** Number or Analyzed Analyst Lab TCLP Analysis 7470A 207017 11/16/15 15:53 WAL TAL CAN Total/NA Analysis Moisture 1 206558 11/12/15 15:23 GNR TAL CAN

Lab Sample ID: 240-57769-6

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00 Percent Solids: 99.3

Batch Batch Dilution Batch Prepared Method or Analyzed **Prep Type** Type Run **Factor** Number Analyst Lab Total/NA 3050B 11/12/15 10:45 DEE TAL CAN Prep 206494 Total/NA Analysis 6010C 20 206868 11/13/15 14:45 KLC TAL CAN Total/NA Prep 7471B 206511 11/12/15 15:45 DEE TAL CAN Total/NA Analysis 7471B 1 206814 11/13/15 14:40 DSH TAL CAN

Client Sample ID: DS-08-1655 Lab Sample ID: 240-57769-7

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Dilution Batch Batch Batch Prepared **Prep Type** Type Method Run Factor Number or Analyzed Analyst Lab TCLP Leach 1311 206575 11/12/15 17:00 DRJ TAL CAN **TCLP** 206678 11/13/15 10:23 WKD TAL CAN Prep 3010A **TCLP** Analysis 6010C 1 206959 11/16/15 13:32 KLC TAL CAN **TCLP** Leach 1311 206575 11/12/15 17:00 DRJ TAL CAN **TCLP** Prep 7470A 206680 11/13/15 14:00 WKD TAL CAN **TCLP** 7470A 207017 11/16/15 15:47 WAL TAL CAN Analysis 1 Total/NA 206558 11/12/15 15:23 GNR TAL CAN Analysis Moisture

Client Sample ID: DS-08-1655 Lab Sample ID: 240-57769-7

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00 Percent Solids: 98.4

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | | | 206494 | 11/12/15 10:45 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 50 | 206868 | 11/13/15 14:49 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 206511 | 11/12/15 15:45 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 206814 | 11/13/15 14:44 | DSH | TAL CAN |

Client Sample ID: DS-14-1675 Lab Sample ID: 240-57769-8

Date Collected: 11/09/15 00:00 Matrix: Solid Date Received: 11/11/15 10:00

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | Moisture | | | 206558 | 11/12/15 15:23 | GNR | TAL CAN |

TestAmerica Canton

Page 44 of 52

Matrix: Solid

11/17/2015

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-14-1675 Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-8

Matrix: Solid

Percent Solids: 98.0

| Γ | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-------------|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | | | 206494 | 11/12/15 10:45 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 100 | 206868 | 11/13/15 15:59 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 206511 | 11/12/15 15:45 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 206814 | 11/13/15 14:46 | DSH | TAL CAN |

Client Sample ID: DS-12-1675 Lab Sample ID: 240-57769-9

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | Moisture | | 1 | 206558 | 11/12/15 15:23 | GNR | TAL CAN |

Client Sample ID: DS-12-1675 Lab Sample ID: 240-57769-9 Date Collected: 11/09/15 00:00 **Matrix: Solid**

Date Received: 11/11/15 10:00 Percent Solids: 98.4

| _ | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | | | 206494 | 11/12/15 10:45 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 250 | 206868 | 11/13/15 16:03 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 206511 | 11/12/15 15:45 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 206814 | 11/13/15 14:47 | DSH | TAL CAN |

Client Sample ID: DS-07-1655 Lab Sample ID: 240-57769-10

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | Moisture | | | 206558 | 11/12/15 15:23 | GNR | TAL CAN |

Lab Sample ID: 240-57769-10 Client Sample ID: DS-07-1655

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00 Percent Solids: 99.6

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Туре | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | | | 206494 | 11/12/15 10:45 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 20 | 206868 | 11/13/15 15:14 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 206511 | 11/12/15 15:45 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 206814 | 11/13/15 14:50 | DSH | TAL CAN |

Client: URS Corporation

Project/Site: Closed Loop

Client Sample ID: DS-04-1675

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-11

Matrix: Solid

Dilution Batch Batch Batch Prepared **Prep Type** Type Method Run **Factor** Number or Analyzed Analyst Lab Total/NA Analysis Moisture 206558 11/12/15 15:23 GNR TAL CAN

Client Sample ID: DS-04-1675 Lab Sample ID: 240-57769-11

Date Collected: 11/09/15 00:00 Matrix: Solid Date Received: 11/11/15 10:00 Percent Solids: 99.6

Batch Batch Dilution **Batch Prepared** Prep Type Type Method Run Factor Number or Analyzed Analyst Lab 3050B TAL CAN Total/NA Prep 206494 11/12/15 10:45 DEE Total/NA Analysis 6010C 250 206868 11/13/15 16:07 TAL CAN Total/NA Prep 7471B 206511 11/12/15 15:45 DEE TAL CAN Total/NA Analysis 7471B 1 206814 11/13/15 14:52 DSH TAL CAN

Client Sample ID: DS-09-1655 Lab Sample ID: 240-57769-12

Date Collected: 11/09/15 00:00 Matrix: Solid

Date Received: 11/11/15 10:00

Batch Batch Dilution Batch Prepared Method Number or Analyzed **Prep Type** Run **Factor** Analyst Type Lab Total/NA 206558 11/12/15 15:23 **GNR** TAL CAN Analysis Moisture

Client Sample ID: DS-09-1655 Lab Sample ID: 240-57769-12

Date Collected: 11/09/15 00:00 Matrix: Solid Date Received: 11/11/15 10:00 Percent Solids: 99.0

Batch Batch Dilution Batch Prepared Method Run Number or Analyzed Prep Type Type **Factor** Analyst Lab Total/NA Prep 3050B 206494 11/12/15 10:45 DEE TAL CAN Total/NA Analysis 6010C 20 206868 11/13/15 15:22 KLC TAL CAN Total/NA 7471B 206511 11/12/15 15:45 DEE TAL CAN Prep Total/NA Analysis 7471B 1 206814 11/13/15 14:53 DSH TAL CAN

Client Sample ID: DUP A Lab Sample ID: 240-57769-13

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00

Batch Dilution Batch Prepared **Batch Prep Type** Method Number or Analyzed Analyst Type Run Factor Total/NA Moisture 206558 11/12/15 15:23 GNR TAL CAN Analysis

Client Sample ID: DUP A Lab Sample ID: 240-57769-13

Date Collected: 11/09/15 00:00 Matrix: Solid Date Received: 11/11/15 10:00 Percent Solids: 99.0

Batch Batch Dilution Batch Prepared Method Run Number or Analyzed **Prep Type** Type Factor Analyst Lab

Total/NA 3050B 206494 11/12/15 10:45 DEE TAL CAN Prep

TestAmerica Job ID: 240-57769-1

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DUP A

Lab Sample ID: 240-57769-13 Date Collected: 11/09/15 00:00

Matrix: Solid

Date Received: 11/11/15 10:00 Percent Solids: 99.0

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Analysis | 6010C | | 100 | 206868 | 11/13/15 16:28 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 206511 | 11/12/15 15:45 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 206814 | 11/13/15 14:56 | DSH | TAL CAN |

Client Sample ID: DS-08-1675 Lab Sample ID: 240-57769-14

Date Collected: 11/09/15 00:00 **Matrix: Solid**

Date Received: 11/11/15 10:00

Batch **Batch** Dilution **Batch** Prepared Method Analyst **Prep Type** Туре Run **Factor** Number or Analyzed Lab 206558 11/12/15 15:23 GNR TAL CAN Total/NA Analysis Moisture

Client Sample ID: DS-08-1675 Lab Sample ID: 240-57769-14

Date Collected: 11/09/15 00:00 **Matrix: Solid** Date Received: 11/11/15 10:00 Percent Solids: 99.2

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | | | 206494 | 11/12/15 10:45 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 50 | 206868 | 11/13/15 15:30 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 206511 | 11/12/15 15:45 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 206814 | 11/13/15 14:57 | DSH | TAL CAN |

Client Sample ID: DS-11-1655 Lab Sample ID: 240-57769-15

Date Collected: 11/09/15 00:00 **Matrix: Solid**

Date Received: 11/11/15 10:00

| | Batch | Batch | | Dilution | Batch | Prepared | | | |
|-----------|----------|----------|-----|----------|--------|----------------|---------|---------|--|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab | |
| Total/NA | Analysis | Moisture | | | 206558 | 11/12/15 15:23 | GNR | TAL CAN | |

Lab Sample ID: 240-57769-15 Client Sample ID: DS-11-1655

Date Collected: 11/09/15 00:00 Matrix: Solid

Date Received: 11/11/15 10:00 Percent Solids: 99.1

| | Batch | Batch | | Dilution | Batch | Prepared | | |
|-----------|----------|--------|-----|----------|--------|----------------|---------|---------|
| Prep Type | Type | Method | Run | Factor | Number | or Analyzed | Analyst | Lab |
| Total/NA | Prep | 3050B | | | 206494 | 11/12/15 10:45 | DEE | TAL CAN |
| Total/NA | Analysis | 6010C | | 20 | 206868 | 11/13/15 15:34 | KLC | TAL CAN |
| Total/NA | Prep | 7471B | | | 206511 | 11/12/15 15:45 | DEE | TAL CAN |
| Total/NA | Analysis | 7471B | | 1 | 206814 | 11/13/15 14:59 | DSH | TAL CAN |

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Certification Summary

Client: URS Corporation TestAmerica Job ID: 240-57769-1 Project/Site: Closed Loop

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|-------------------|---------------|------------|------------------|------------------------|
| California | NELAP | 9 | 01144CA | 06-30-14 * |
| California | State Program | 9 | 2927 | 04-30-17 |
| Connecticut | State Program | 1 | PH-0590 | 12-31-15 |
| Illinois | NELAP | 5 | 200004 | 07-31-16 |
| Kansas | NELAP | 7 | E-10336 | 01-31-16 * |
| Kentucky (UST) | State Program | 4 | 58 | 02-26-16 |
| Kentucky (WW) | State Program | 4 | 98016 | 12-31-15 |
| L-A-B | DoD ELAP | | L2315 | 07-18-16 |
| Minnesota | NELAP | 5 | 039-999-348 | 12-31-15 |
| Nevada | State Program | 9 | OH-000482008A | 07-31-16 |
| New Jersey | NELAP | 2 | OH001 | 11-30-15 * |
| New York | NELAP | 2 | 10975 | 03-31-16 |
| Ohio VAP | State Program | 5 | CL0024 | 09-14-17 |
| Oregon | NELAP | 10 | 4062 | 02-23-16 |
| Pennsylvania | NELAP | 3 | 68-00340 | 08-31-16 |
| Texas | NELAP | 6 | T104704517-15-5 | 08-31-16 |
| USDA | Federal | | P330-13-00319 | 11-26-16 |
| Virginia | NELAP | 3 | 460175 | 09-14-16 |
| Washington | State Program | 10 | C971 | 01-12-16 |
| West Virginia DEP | State Program | 3 | 210 | 12-31-15 |
| Wisconsin | State Program | 5 | 999518190 | 08-31-16 |

^{*} Certification renewal pending - certification considered valid.



TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



240-57769 Chain of Custody

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1/17/2015

TestAmerica Canton 4101 Shuffel Street, H. W.

Horth Canton, DH 44720

4.61(4.7

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Phone: 330.497.9396 Fax: 330.497.0772 TestAmerica Laboratories, Inc. Regulatory Program: DW NPDES RCRA Other: Form No. CA-C-WI-002, Rev. 4.2, dated 04/02/2013 **Client Contact** Project Manager: ട്രാഹിവ Site Contact: Ergun Date: COC No: Tel/Fax: Company Name: AECOM Lab Contact: Mark Loeb Carrier: COCs 1375 EUCLID AVE **Analysis Turnaround Time** Address: Sampler: City/State/Zip: CLEVELAND OH 44115 CALENDAR DAYS ☐ WORKING DAYS For Lab Use Only: g 216-622-2400 0 hone: TAT if different from Below Walk-in Client: Õ Fax: Lab Sampling: 2 weeks Project Name: Closed Loop 1 week 2 days Job / SDG No.: 0# 1 day Sample Type Sample Sample # of (C=Comp, Sample Identification Date Time G=Grab) Matrix Cont. Sample Specific Notes: DS-11-1675 11/9 C DS-03-1675 DS-13-1675 DS -09-1675 1)5-10-1655 DS -12-1655 115-08-1655 DS-14-1675 DS-12-1675 DS-07-1655 DS-04-1675 DS - 09-1655 Preservation Used: 1= lce, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other Possible Hazard Identification: Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. Non-Hazard Skin Irritant Flammable Poison B Unknown Return to Client Disposal by Lab Archive for Special Instructions/QC Requirements & Comments: glass. We expect high lead and cadmium, possibly mercury. samples contoun Custody Seals Intact: Custody Seal No .: Cooler Temp. (°C): Obs'd: Therm ID No .: Relinguished by:// Company: Date/Time: Received by: Company: Date/Time: AECOM TA 11-11-15 1000 Company: Received by: Company: Date/Time: Relinquished by: Company: Date/Time: Received in Laboratory by: Company: Date/Time:











TestAmerica Canton

4101 Shuffel Street, H. H.

Relinguished by:

4.6/647

Company:

Chain of Custody Record

THE LEADER IN ENVIRONMENTAL TESTING

Horth Canton, DH 44720 Phone: 330.497.9396 Fax: 330.497.0772 TestAmerica Laboratories, Inc. Regulatory Program: DW NPDES RCRA Other: Form No. CA-C-WI-002, Rev. 4.2, dated 04/02/2013 Ergua Client Contact Project Manager: Site Contact: COC No: Date: Company Name: AFCOM Tel/Fax: Lab Contact: Mark Loeb 2 COCs Carrier: Address: 1375 EUCLID AVE **Analysis Turnaround Time** Sampler: City/State/Zip: CLEVELAND OH 44/15 CALENDAR DAYS WORKING DAYS For Lab Use Only: Phone: 216-622-2460 TAT if different from Below Walk-in Client: Fax: Lab Sampling: 2 weeks Project Name: Closed Loop 1 week Site: 2 days Job / SDG No.: PO# 1 day metal Sample Type Sample Sample # of (C=Comp, Date Time Sample Identification G=Grab) Matrix Cont. Sample Specific Notes: DUP A 11/9 sold C DS-08-1675 DS-11-1855 Preservation Used: 1= Ice, 2= HCI; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other Possible Hazard Identification: Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. Non-Hazard Flammable Skin Irritant Poison B 🛣 Unknown Disposal by Lab Return to Client Special Instructions/QC Requirements & Comments: Custody Seals Intact: Custody Seal No .: Cooler Temp. (°C): Obs'd: Therm ID No.: Relinguished by: Date/Time: Received by: Company: Date/Time: AEcom 11-11-15 1900 Relinquished by: Date/Time: Received by: Company: Date/Time:

Date/Time:

Received in Laboratory by:









Company:

Date/Time:

| 5 |
|--------|
| -6 |
| 7 |
| 8 |
| |

| TestAmerica Canton Sample Receipt Form/Narrative | Login # : |
|--|---|
| Canton Facility | Cooler unpacked by: |
| Client AFCOM Site Name | |
| Cooler Received on 11-11-15 Opened on 11-11-1 | |
| | America Courier Other |
| | Storage Location |
| | ox Other |
| Packing material used: Public Wrap Foam Plastic Bag N | |
| · · · · · · · · · · · · · · · · · · · | None |
| 1. Cooler temperature upon receipt IR GUN# 53 (CF +0.1 °C) Observed Cooler Temp. 4.6 °C (| Commented Cooler Town 4.7 °C |
| IR GUN# 48 (CF -0.3 °C) Observed Cooler Temp °C (| Corrected Cooler Temp. C |
| IR GUN# 46 (CF +0.4 °C) Observed Cooler Temp °C | Corrected Cooler Temp. |
| IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C (| Corrected Cooler Temp. °C |
| 2. Were custody seals on the outside of the cooler(s)? If Yes Quan | |
| -Were custody seals on the outside of the cooler(s) signed & dated? | Yes No NA |
| -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? | Yes 🖎 |
| 3. Shippers' packing slip attached to the cooler(s)? | Yes No |
| 4. Did custody papers accompany the sample(s)? | Ves No |
| 5. Were the custody papers relinquished & signed in the appropriate plants. | |
| 6. Was/were the person(s) who collected the samples clearly identified of | |
| 7. Did all bottles arrive in good condition (Unbroken)? | (Yes No |
| 8. Could all bottle labels be reconciled with the COC? | res No |
| 9. Were correct bottle(s) used for the test(s) indicated? | (Yes No |
| 10. Sufficient quantity received to perform indicated analyses? | Yes No |
| 11. Were sample(s) at the correct pH upon-receipt? | Yes No (NA pH Strip Lot# HC554612 |
| 12. Were VOAs on the COC? | Yes (No) |
| 13. Were air bubbles >6 mm in any VOA vials? | Yes No (NA |
| 14. Was a trip blank present in the cooler(s)? Trip Blank Lot # | Yes (N) |
| | |
| Contacted PM Date by | via Verbal Voice Mail Other |
| Concerning | |
| 44 CYLINI OR CHORODY A GAMPI P DICORPANICIES | Samples processed by: |
| 14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES | |
| | |
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| | |
| | |
| 15. SAMPLE CONDITION | |
| Sample(s)were received after the | recommended holding time had expired. |
| Sample(s) | were received in a broken container. |
| Sample(s) were received w | ith bubble >6 mm in diameter. (Notify PM) |
| 16. SAMPLE PRESERVATION | |
| | South an among a state of the laboratory |
| Sample(s) Time preserved: Preservative(s) added/Lot number(s): | were further preserved in the laboratory. |
| Time preserved:Preservative(s) added/Lot number(s): | |

Ref: SOP NC-SC-0005, Sample Receiving X:\X-Drive Document Control\SOPs\Work Instructions\Word Version Work Instructions\W1-NC-099V-102115 Cooler Receipt Form.doc djl



John R. Kasich, Governor Mary Taylor, Lt. Governor Craig W. Butler, Director

April 11, 2016

Mr. Brent Benham Closed Loop Refining and Recovery, Inc. c/o Dennis L. Hall, Attorney, pllc 3033 North Central, Suite 810 Phoenix, Arizona 85012 Re: Closed Loop Refining and Recovery, Inc.

Notice of Violation

NOV

RCRA C - Hazardous Waste

Franklin County OHR000167718

Re: Closed Loop Glass Solutions, LLC

Notice of Violation

NOV

RCRA C - Hazardous Waste

Franklin County OHR000201145

Dear Mr. Benham:

Thank you for providing information via your attorney, Mr. Dennis L. Hall, to Ohio EPA on February 26, 2016, regarding the Closed Loop Refining and Recovery, Inc. (Closed Loop) operations at 1675 Watkins Road (Watkins Road Facility) and Closed Loop Glass Solutions, LLC (Glass Solutions) operations at 2200 Fairwood Avenue (Fairwood Avenue Facility), Columbus, Ohio. In a January 25, 2016 e-mail and follow-up letter dated February 26, 2016, we requested Closed Loop's and Glass Solutions' 2015 mass balance numbers for intact cathode ray tubes (CRTs) and processed CRT glass for review to determine if Closed Loop's and Glass Solutions' operations are complying with the speculative accumulation provisions as set forth in Ohio Administrative Code (OAC) rule 3745-51-01 and as required by the conditional exclusion for CRTs and processed CRT glass provided in OAC rule 3745-51-39.

On March 3, 2016 Ohio EPA received information regarding Closed Loop's tenancy at the 1675 and 1655 Watkins Road, Columbus, Ohio, locations and performed a site assessment on March 4, 2016.

As a result of the information provided on February 26, 2016 and gathered during the March 4, 2016 inspection, Ohio EPA has concluded that Glass Solutions is speculatively accumulating CRTs or CRT processed glass at the 2200 Fairwood Avenue Facility.

Information provided by Mr. Robert Cruz (Plant Manager) and Matt Strangle (Manager) on March 4, 2016 indicated that processed glass was being shipped from the Watkins Road Facility to Fairwood Avenue Facility for further recycling. According to Mr. Cruz, the recycling operations stopped in the summer of 2015 when the recycling operations broke. Since the recycling operations at the Fairwood Facility have ceased, Glass Solutions' Fairwood Avenue Facility is not a legitimate recycling facility because there is no feasible means of recycling there. Shipping records provided on March 4, 2016 indicate 28 shipments of leaded funnel glass have been sent from Closed Loop's Watkins Road Facility to Glass Solution's Fairwood Avenue Facility since October of 2015.

Based upon this information Closed Loop and Glass Solutions are in violation of the following Ohio hazardous waste laws and rules. In order to correct these violations you must do the following and send me the required information within 14 days of your receipt of this letter.

Closed Loop's Watkins Road Facility

Hazardous Waste Treatment, Storage, and Disposal, Ohio Revised Code 3734.02(E)&(F): No
person shall store, treat or dispose of hazardous waste without a permit. A generator of hazardous
waste cannot store hazardous waste without a permit or an exemption from the director.

Since approximately mid-2015, Closed Loop failed to demonstrate that processed CRT glass stored at Closed Loop's Watkins Road Facility was not speculatively accumulated because the receiving facility for processed CRT glass Closed Loop shipped to, Glass Solutions, did not have a feasible means of recycling. Therefore, the processed CRT glass is no longer excluded from Ohio's hazardous waste rules pursuant to the conditional exclusion for CRTs. Based upon this information, Ohio EPA has determined that Closed Loop has been storing, at a minimum, hazardous waste processed CRT glass, which is characteristically hazardous for toxicity (lead) as described in OAC rule 3745-51-24, in violation of ORC §3734.02(E) and (F).

Since Closed Loop violated ORC §3734.02(E) and (F), Closed Loop is subject to all applicable general facility standards found in OAC chapters 3745-54 and 55. Additionally, at any time Ohio EPA may assert its right to have Closed Loop begin facility-wide cleanup pursuant to the Corrective Action process under Ohio law.

Although no further action is being required by Ohio EPA at this time, be advised that due to the nature of the violation Ohio EPA may require closure pursuant to OAC rules 3745-55-11 through 3745-55-20 and OAC rules 3745-55-42 through 3745-55-47 at this site.

2. Hazardous Waste Treatment, Storage, and Disposal, Ohio Revised Code 3734.02(F): No person shall store, treat, or dispose of hazardous waste, or transport or cause to be transported any hazardous waste except at or to a hazardous waste facility operating under a permit.

Glass Solutions Fairwood Avenue Facility is not a legitimate recycling facility. Since Closed Loop has been sending processed glass to Glass Solutions' Fairwood Avenue Facility since mid-2015 and the processed glass can no longer take advantage of the conditional exclusion for CRTs, you have illegally transported a hazardous waste under Ohio's hazardous waste laws to an unpermitted facility.

Closed Loop must immediately cease the transportation of hazardous waste CRTs and processed glass from the Watkins Road facility to the Fairwood Avenue Facility unless Glass Solutions obtains a hazardous waste permit for that location.

3. Satellite Accumulation Area Requirements, OAC Rule 3745-52-34(C)(1)(b): Satellite containers must be marked with the words "hazardous waste" or other words identifying the contents.

At the time of the March 4, 2016 inspection neither drum of hazardous waste from the dust collectors was labeled.

In order to demonstrate compliance with this rule, Closed Loop needs to appropriately label the drums of hazardous waste and submit a photograph to Ohio EPA demonstrating that this has been done.

4. Use and Management of Containers, OAC Rule 3745-52-34(D)(2): The date upon which each period of accumulation begins must be clearly marked and visible for inspection on each container.

Brent Benham Closed Loop Refining and Recovery, Inc. Page 3

Two of the totes of hazardous waste being stored in the breaker accumulation area were not dated at the time of the March 4, 2016 inspection.

Closed Loop needs to determine the generation date of these totes, date them appropriately, and submit a photograph to Ohio EPA demonstrating that this has been done.

5. Use and Management of Containers, OAC Rule 3745-66-71: Hazardous waste must be stored in containers that are in good condition.

At the time of the inspection, several gaylords of hazardous waste in the breaker room were crushed and deteriorating.

Closed Loop needs to replace or repair the containers used to store hazardous waste and submit a photograph to Ohio EPA demonstrating that this has been done.

Comment: Please note that Closed Loop is operating as a small quantity generator (SQG) of hazardous waste at the Watkins Road location. However, it is unclear based on manifests and material shipping logs if the facility has generated more than 2,200 pounds of hazardous waste in any given calendar month. If Closed Loop generates more than 2,200 pounds of hazardous waste in any given calendar month, you would be a large quantity generator (LQG) of hazardous waste and subject to all applicable LQG standards. In addition, please note that SQGs cannot accumulate more than 6,000 kilograms (13,200 pounds) of hazardous waste on site at any one time without obtaining a hazardous waste permit.

Glass Solutions' Fairwood Avenue Facility

Hazardous Waste Treatment, Storage, and Disposal, Ohio Revised Code 3734.02(E)&(F): No person shall store, treat or dispose of hazardous waste without a permit. A generator of hazardous waste cannot receive a hazardous waste from offsite without a permit or an exemption from the director.

Since Glass Solutions is no longer recycling processed glass before it is shipped to a recycler which uses the processed glass as an ingredient in a product, Glass Solutions is not a legitimate recycling facility and the glass is no longer excluded under the conditional exclusion for CRTs. As such, Glass Solutions has received 28 shipments of hazardous waste from Closed Loop since mid-2015, thus unlawfully receiving and storing hazardous waste without a permit.

Since Glass Solutions violated ORC §3734.02(E) and (F), Glass Solutions is subject to all applicable general facility standards found in OAC chapters 3745-54 and 55. Additionally, at any time Ohio EPA may assert its right to have Glass Solutions begin facility-wide cleanup pursuant to the Corrective Action process under Ohio law.

Although no further action is being required by Ohio EPA at this time, be advised that due to the nature of the violation Ohio EPA may require closure pursuant to OAC rules 3745-55-11 through 3745-55-20 and OAC rules 3745-55-42 through 3745-55-47 at this site.

In addition, Closed Loop and Glass Solutions have been referred to Ohio EPA's Division of Materials and Waste Management's hazardous waste enforcement coordinator for enforcement consideration.

You can find Ohio's hazardous waste rules and other information on the division's web page at: http://www.epa.ohio.gov/dmwm/

Brent Benham Closed Loop Refining and Recovery, Inc. Page 4

Enclosed please find copies of the completed checklists. Should you have any further questions, please feel free to contact me at (614) 728-3884.

Sincerely,

Peter Maneff

Central District Office

Division of Materials and Waste Management

c: Dennis L. Hall, Attorney, pllc

Garrison Southfield Park LLC

Olymbec USA LLC, c/o CT Corporation System

e: Jeff Mayhugh, DMWM/CO Mitch Mathews, DMWM/CO

Melissa Storch, DMWM/CDO

Todd Anderson, Legal

PM/cf Closed Loop April 2019



Photo 1. Closed Loop Refining and Recovery, 03-04-2016.

CRT storage at 1655 Watkins Rd.

Photo 2. Closed Loop Refining and Recovery, 03-04-2016.

CRT delivery at 1655 Watkins Rd.

Photo 3. Closed Loop Refining and Recovery, 03-04-2016.



Photo 4. Closed Loop Refining and Recovery, 03-04-2016.

CRT storage at 1655 Watkins Rd.

Photo 5. Closed Loop Refining and Recovery, 03-04-2016.

CRT storage at 1655 Watkins Rd.

Photo 6. Closed Loop Refining and Recovery, 03-04-2016.



Photo 7. Closed Loop Refining and Recovery, 03-04-2016.

CRT storage at 1655 Watkins Rd.

Photo 8. Closed Loop Refining and Recovery, 03-04-2016.



Photo 9. Closed Loop Refining and Recovery, 03-04-2016.



Photo 10. Closed Loop Refining and Recovery, 03-04-2016.

Cross through from 1655 Watkins Rd. to 1675 Watkins Rd.

Photo 11. Closed Loop Refining and Recovery, 03-04-2016.



Photo 12. Closed Loop Refining and Recovery, 03-04-2016.

Processed CRT storage at 1675 Watkins Rd.

Photo 13. Closed Loop Refining and Recovery, 03-04-2016.

Processed CRT storage at 1675 Watkins Rd.

Photo 14. Closed Loop Refining and Recovery, 03-04-2016.

<180 day storage area at 1675 Watkins Rd. (empty)



Photo 15. Closed Loop Refining and Recovery, 03-04-2016.

<180 day storage area at 1675 Watkins Rd. (empty)

Photo 16. Closed Loop Refining and Recovery, 03-04-2016.

<180 day storage area at 1675 Watkins Rd. Dated 12-30-15 (empty)

Photo 17. Closed Loop Refining and Recovery, 03-04-2016.

<180 day storage area at 1675 Watkins Rd. Dated 12-30-15 (empty)



Photo 18. Closed Loop Refining and Recovery, 03-04-2016.

Debris

Photo 19. Closed Loop Refining and Recovery, 03-04-2016.

Unlabeled hazardous (D008) phosphor powder drum in breaker room.

Photo 20. Closed Loop Refining and Recovery, 03-04-2016.

Phosphor powder in breaker room.



Photo 21. Closed Loop Refining and Recovery, 03-04-2016.

Process CRT glass.

Photo 22. Closed Loop Refining and Recovery, 03-04-2016.

Unlabeled hazardous (D008) phosphor powder drum in breaker room.



Photo 23. Closed Loop Refining and Recovery, 03-04-2016.

Undated (D008) phosphor powder tote in breaker room. Note hazardous debris hanging from inside tote.

Photo 24. Closed Loop Refining and Recovery, 03-04-2016.

Inside tote.



Photo 25. Closed Loop Refining and Recovery, 03-04-2016.

Unlabeled hazardous (D008) phosphor powder tote in breaker room.

Photo 26. Closed Loop Refining and Recovery, 03-04-2016.

Undated hazardous (D008) phosphor powder tote in breaker room.



Photo 27. Closed Loop Refining and Recovery, 03-04-2016.

<180 day accumulation area in breaker room. Note the gaylords of hazardous waste are crushed and breaking down.

Photo 28. Closed Loop Refining and Recovery, 03-04-2016.

Inside of hazardous waste tote in breaker room.

Photo 29. Closed Loop Refining and Recovery, 03-04-2016.

Undated hazardous (D008) phosphor powder tote in breaker room.



Photo 30. Closed Loop Refining and Recovery, 03-04-2016.

Debris in breaker room.



Photo 31. Closed Loop Refining and Recovery, 03-04-2016.

Labeled hazardous (D008) floor sweepings in 1675 Watkins rd.



Photo 32. Closed Loop Refining and Recovery, 03-04-2016.

Inside of floor sweepings tote in 1675 Watkins rd.

Photo 33. Closed Loop Refining and Recovery, 03-04-2016.

Tote of rework in 1675 Watkins Rd.

FIELD ACTIVITY REPORT

Date: 03/04/16

Time: 11:00 AM-1:00 PM

County: Franklin

Facility: Closed Loop Refining and Recovery

Location: 1655 and 1675 Watkins Rd., Columbus OH, 43207

Personnel: Robert Cruz (Plant Manager, on phone), Matt Strangle (Manager, on

phone), Michelle Bruffy (Accounts Receivable), Angie (floor employee)

OhioEPA: Andy Maneff

Purpose of Visit: Complaint / Compliance Inspection

Background:

Closed Loop Refining and Recovery, 1675 Watkins Rd. Columbus 43207, is a glass recycling facility that accepts Cathode Ray Tubes (CRT, TV glass) which contain lead. This facility is a storage, and breaking plant for Closed Loop Glass Solutions located at 2200 Fairwood Avenue Columbus, Ohio. The storage facility is currently bringing in approximately 2 truckloads a day of CRTs. Closed Loop also runs a breaker for the CRTs which allow them to consolidate and store more feed stock onsite. They have been processing / breaking up to 350,000 pounds per week for continued storage. As part of this breaking process they are currently generating small quantity generator amounts of a phosphor powder (D008) from a wash process, baghouse dust (D008) from the air filtration system and lead dust / floorsweepings (D008) which are sent to Petro-Chem in Detroit, Michigan for hazardous waste disposal.

Findings:

On March 4, 2016 I arrived at Closed Loop Refining and Recovery to assess the company's compliance with Ohio's hazardous waste laws. Upon arrival I met with Michelle Bruffy who put me in contact with Robert Cruz (Plant Manager) and Matt Strangle (Manager) by phone. I first explained to Matt and then Robert separately that Ohio EPA had received notice from the property owner that Closed Loop was being served an eviction notice and that I was there to assess the current site conditions. Mr. Cruz informed me that Closed Loop was in a dispute with the property owner over delinquent rent and current lease negotiations. He claimed that Closed Loop was withholding rent because they were not paid for a job that they did for the landlord. I stated that that was not my concern and that I just needed to walk the facility to determine compliance with the CRT rules.

Mr. Strangle then granted me access and I was escorted around the facility by Angie. We first walked to the <180 accumulation area, which was empty, but lined with processed CRT glass stacked 3 high in gaylords. Next we headed to the breaker room

which was down for repairs. In here I observed 3 partially full gaylords of labeled hazardous waste (these were loosely covered with thin piece of cardboard and not all were dated) and numerous gaylords of phosphor powder covered debris. Angie stated that some of the material was rework but she was unsure of the other material. We then proceeded to walk through the remainder of 1675 Watkins Rd. observing the TV breakdown areas and several "satellite" gaylords of hazardous floor sweepings. Upon completing the walkthrough of 1675 we headed to the adjacent 1655 Watkins Rd. building.

As we arrived at 1655 Watkins Road the facility was actively receiving a truckload of CRTs. Angie stated that Closed Loop was receiving approximately 2 truckloads a day of CRTs. I asked about the space issue and she told me (and both Robert and Matt confirmed) that processed and unprocessed CRTs are also being shipped to Closed Loop Glass Solutions (2200 Fairwood Ave.) for additional storage. She also stated that Fairwood is no longer washing processed glass or being staffed (which was also confirmed by both Robert and Matt). Matt and Robert later explained that the tumbler (which aids in the washing) at Fairwood broke in the summer of 2015 and had not been repaired yet but that they were still shipping glass to a recycler via the Watkins Road facility.

I thanked Angie for the tour and headed back to the main office to review paperwork and speak with Robert Cruz before I left.

Shipping records show that Closed Loop Recycling (Watkins) has had 15 shipments of processed glass to a downstream recycler since 10/20/15 (after the tumbler broke on the wash line at Fairwood). Closed Loop Recycling also had one Gaylord packaged and scheduled for shipment from the Watkins Rd. facility on 3/04/16.

I also noted that they have had 28 shipments of leaded funnel glass to Closed Loop Glass Solutions (Fairwood) in that time.

I then reviewed the hazardous waste manifests and hazardous waste material logs that contain the start date for each container of hazardous waste. While Closed Loop is operating as a Small Quantity Generator of hazardous waste it appears based on the amount shipped and amount still on-site at the facility that they may be a large quantity generator of hazardous waste during some calendar months.

| Start date 10-31-14 | Ship date 12-18-14 | D008 | 629 lbs |
|---------------------|--------------------|------|----------|
| Start date 11-20-14 | Ship date 12-18-14 | D008 | 2020 lbs |
| Start date 11-21-14 | Ship date 12-18-14 | D008 | 907 lbs |
| Start date 12-19-14 | Ship date 8-10-15 | D008 | 1998 lbs |

| Start date 1-2-15 | Ship date 8-10-15 | D008 | 2064 lbs |
|--------------------|--------------------|------|----------|
| Start date 2-7-15 | Ship date 8-10-15 | D008 | 2010 lbs |
| Start date 3-1-15 | Ship date 8-10-15 | D008 | 2127 lbs |
| Start date 4-6-15 | Ship date 8-10-15 | D008 | 2110 lbs |
| Start date 5-10-15 | Ship date 8-10-15 | D008 | 2052 lbs |
| Start date ? | Ship date 11-23-15 | D008 | 4600 lbs |

I informed Mr. Cruz of my findings and discussed setting up a time to inspect Fairwood and said that I would be in touch.

CONDITIONAL EXCLUSIONS FOR USED CATHODE RAY TUBES

NOTE: This inspection checklist applies to CRT collectors and processors of used intact and used broken cathode ray tubes (CRTs) that are destined for recycling. It does not apply to companies who generate and store CRTs. Used, intact "CRTs" as defined in rule 3745-50-10 of the Administrative Code (and below) are not wastes within the United States unless they are disposed, or unless they are speculatively "accumulated speculatively" as defined in paragraph (C)(8) of rule 3745-51-01 of the Administrative Code by CRT collectors or glass processors.

| | | RS RECEIVING BROKEN USED CRTS AND PROCESSED CRT GLAS | S UND | ERG | OINO | RE | CYCL | ING | |
|----|-------|---|-------|-------------|------|----|------|-----|---|
| 1. | | to processing,. | | | | | | | |
| | a. | Are used broken CRTs stored properly by: [3745-51-39(A)(1)] as follows: (A used, broken CRT means glass removed from its housing or casing whose vacuum has been released) | Yes | | No | | N/A | | |
| | | i. Stored in a building with a roof, floor and walls? Or | Yes | | No | 1 | N/A | | |
| | | ii. Placed in a container such as a package or a vehicle constructed, filled, and closed to minimize releases to the environment of CRT glass? | Yes | | No | | N/A | | Ī |
| | b. | Is each container containing CRTs labeled or marked clearly with one of the following phrases "Used cathode ray tube(s) – containing leaded glass" or "Leaded glass from televisions or computers" and is each container also labeled "Do not mix with other glass materials"? [3745-51-39(A)(2)] | Yes | | No | | N/A | | |
| | C. | Are CRTs transported in a container: [3745-51-39(A)(3)] | Yes | \boxtimes | No | | N/A | | |
| | | Constructed, filled, and closed to minimize releases to the environment of CRT glass? And | Yes | | No | | N/A | | |
| | | ii. Labeled or marked clearly with one of the following phrases "Used cathode ray tube(s) – containing leaded glass" or "Leaded glass from televisions or computers" and is each container also labeled "Do not mix with other glass materials"? | Yes | | No | | N/A | | |
| | d. | If CRTs are accumulated speculatively or used in a manner constituting land disposal, does the owner or operator (o/o) of the recycling facility comply with the applicable requirements in 3745-266-20 to 3745-266-23? [3745-51-39(A)(4)] | Yes | | No | | N/A | | |
| | e. | If the facility is an exporter of CRTs, does the o/o notify U.S. EPA of an intended exports before the CRTs are scheduled to leave the United States, based on the requirements in 40 CFR 261.39(a)(5)(i) to (a)(5)(ix)? [3745-51-39(A)(5)] | Yes | | No | | N/A | | |
| 2. | Are u | used, broken CRTs undergoing "CRT processing": | Yes | \boxtimes | No | | N/A | | |
| | a. | Storage [3745-51-39(B)(1)] The processor is speculatively accumulating the CRTs undergoing processing or have been processed if either of the following questions is answered "No". If the processor is speculatively accumulating CRTs or processed CRT glass that is a hazardous waste they are storing a hazardous waste in violation of ORC § 3734.02(E) and (F). | Yes | | No | | N/A | | |
| | | Can the processor demonstrate that the CRTs have a feasible means of being recycled; and | Yes | | No | | N/A | | |
| | | During the calendar year, commencing January first, is the amount of material that is recycled, or transferred to a different site for recycling, equals at least seventy-five per cent by weight or volume of the amount of that material accumulated at the beginning of the calendar year. | Yes | | No | | N/A | | |
| | b. | Processing | | | | | | | |

| | | i. | Based on all activities specified in 3745-50-10(A)(25)(b) and (c) and the activities are performed in a building with a roof, floor, and walls? [3745-51-39(B)(2)] | Yes | | No | | N/A | |
|---------------------------|------------------------------|--|--|----------------------|-----------------|-----------------|-------|--------------|-------------|
| | | ii. | With no activities that use temperatures high enough to volatilize lead from CRTs? [3745-51-39(B)(2)] | Yes | | No | | N/A | |
| NOTE or furt monite | her brea | proces aking o | sing activities defined in 3745-50-10(A)(25)(b) and (c) include "ir r separating broken CRTs" and "sorting or otherwise managing (| ntentior glass re | nally i emov | break ed fro | ing i | ntact :RT | CRTs |
| 3. | Is glass manufa [3745- | acturer | used, broken CRTs destined for recycling at a CRT glass or a lead smelter after processing accumulated speculatively? C)] | Yes | | No | | N/A | |
| 4. | If glass o/o cor | from in the street of the stre | used CRTs is used in a manner constituting disposal, does the ith 3745-266-20 to 3745-266-23? [3745-5139(D)] | Yes | | No | | N/A | \boxtimes |
| EXPO | RTS OF | USE | D, INTACT CRTs | | | | | | |
| NOTE CFR 2 | : Used, 261.39(a | intact a)(5) an | CRTs exported for recycling are not wastes if they meet the noting if they are not accumulated speculatively. [3745-51-40] | ce and | cons | sent c | ondi | tions | of 40 |
| NOTE 5 beca | : Violat | ions re federa | garding exporting used, intact CETs foreign destinations should al counterpart provisions are not delegable to states. | be refe | erred | to U. | S. El | PA R | egion |

DEFINITIONS:

"CRT" or "cathode ray tube" means a vacuum tube, composed primarily of glass, which is the visual or video display component of an electronic device. A used, intact CRT means a CRT whose vacuum has not been released. A used, broken CRT means glass removed from its housing or casing whose vacuum has been released. Used CRTs are "spent materials" as defined in rule 3745-51-01 of the Administrative Code.

"CRT collector" means a person who receives used, intact CRTs for recycling, repair, resale, or donation

"CRT processing" means conducting all of the following activities:

- (a) Receiving broken or intact CRTs; and
- (b) Intentionally breaking intact CRTs or further breaking or separating broken CRTs; and
- (c) Sorting or otherwise managing glass removed from CRT monitors.

A material is "accumulated speculatively" if it is accumulated before being recycled. A material is not accumulated speculatively if the person accumulating the material can show that the material is potentially recyclable and has a feasible means of being recycled; and that during the calendar year, commencing January first, the amount of material that is recycled, or transferred to a different site for recycling, equals at least seventy-five per cent by weight or volume of the amount of that material accumulated at the beginning of the calendar year. In calculating the percentage of turnover, the seventy-five per cent requirement is to be applied to materials of the same type (e.g., slags from a single smelting process) that is recycled in the same way (i.e., from which the same material is recovered or that is used in the same way). Materials accumulated in units that would be exempt from regulation under paragraph (C) of rule 3745-51-04 of the Administrative Code shall not be included in the calculation. (Materials that are already defined as "wastes" also shall not be included in making the calculation.) Materials are no longer in this category once they are removed from accumulation for recycling.

| | | SMALL QUANTITY GENERATOR REQUIREMENTS COMPLETE AND ATTACH A PROCESS, WASTE, P2 SUMMA | | HEET | | | | |
|------------------|----------------------|---|---------|--------------|--------|-------------|-------|-------------|
| SQG: B LQG: ≥ | etween | Kg. (Approximately 25-30 gallons) of waste in a calendar month or < 1 Kg. 100 and 1,000 Kg. (About 25 to under 300 gallons) of waste in a calend Kg. (~300 gallons) of waste in a calendar month or ≥1 Kg. of acutely hazavert from gallons to pounds: Amount in gallons x Specific Gravity x 8.345 | ar mor | nth. wast | e in a | cale | endar | |
| Safety I | Equipm | ent Used: | | | | | | |
| GENER | AL RE | QUIREMENTS | | | | | | |
| 1. | A. CASSES | e all wastes generated at the facility been adequately evaluated? 5-52-11] | Yes | \boxtimes | No | | N/A | |
| 2. | Has | the generator obtained a U.S. EPA I.D. number? [3745-52-12] | Yes | | No | | N/A | |
| 3. | wast [ORG excl | the generator transported or caused to be transported hazardous e to other than a facility authorized to manage the hazardous waste? 2 3734.02 (F)] Processed CRTs not meeting the conditional usion for used CRTs were transported to Closed Loop Glass tions | Yes | | No | | N/A | |
| 4. | or at | the generator disposed of hazardous waste on-site without a permit another facility other than a facility authorized to dispose of hazardous e? [ORC 3734.02 (E) & (F)] | Yes | | No | \boxtimes | N/A | |
| 5. | Does | the generator accumulate hazardous waste? | Yes | | No | \boxtimes | N/A | |
| | | SQG does not accumulate or treat hazardous waste, it is not subject to 52 night still apply, e.g. manifest, marking, LDR, etc. | 2-34 st | anda | rds. / | All of | her | |
| 6. | days | the generator accumulated hazardous wastes in excess of (180/270) without a permit or an extension from the Director? [3745-52-34; ORC 4-02(E)&(F)] | Yes | | No | | N/A | |
| NOTE: (E)] | SQG's | shipping waste to a facility greater than 200 miles away can accumulate | on-sit | e for | 270 a | lays. | [3745 | 5-52-34 |
| 7. | Ship | e generator accumulating more than 6,000 kg on site? [3745-52-34(D)] ping manifest indicate that the facility was near the 6,000kg limit not at the time of the inspection. | Yes | | No | \boxtimes | N/A | |
| without | an exte | kg = approximately 27, 55-gallon drums. If the facility is accumulating wansion/permit or is accumulating greater than 6,000 kg on-site, it is classing. Complete applicable TSD checklists. | | | | | | |
| 8. | Does | the generator treat hazardous waste in a: | | | | | | |
| | a. | Container that meets 3745-66-70 to 3745-66-77? | Yes | | No | | N/A | |
| | b. | Tank that meets 3745-66-101? | Yes | | No | | N/A | \boxtimes |
| | C. | Drip pads that meet 3745-69-40 to 3745-69-45? | Yes | | No | | N/A | × |
| | d. | Containment building that meets 3745-256-100 to 3745-256-102? | Yes | | No | | N/A | × |
| NOTE: | Compl | ete appropriate checklist for each unit. | - | | | | | |
| | | e is treated to meet LDRs, use LDR checklist. | | | | | | |
| | | QUIREMENTS | | | | | | |
| 9. | Are a | all hazardous wastes either reclaimed under a contractual agreement efined in OAC rule 3745-52-20(E), or shipped off-site accompanied by | Yes | | No | | N/A | |

| | a mar | nifest (U.S. EPA Form 8700-22)? [3745-52-20(A)(1)] | | | | | | |
|------------------------------------|---------------------------------|---|--------------------|-----------------|------------------|--------------|-----------------|----------------------|
| 10. | Are w | astes reclaimed under a contractual agreement? If so: [3745-52-0(E)] | Yes | | No | \boxtimes | N/A | |
| | a. | Does the contractual agreement specify the type of waste and frequency of shipment? | Yes | | No | | N/A | \boxtimes |
| | b. | Is the transport vehicle owned and operated by the reclaimer? | Yes | | No | | N/A | × |
| | C. | Is a copy of the reclamation agreement kept on-site for at least three years after termination/expiration of the agreement? | Yes | | No | | N/A | |
| generate | or is in v | s are reclaimed under a contractual agreement and an answer to questi riolation of 3745-52-20 (A) (B) & (D), 3745-52-22 and 3745-52-23. Even nt, LDRs still apply. Complete LDR checklist. | | | | | | |
| 11. | Have | items 1 through 20 of each manifest been completed? -52-20(A)(1)] & [3745-52-27(A)] | Yes | | No | | N/A | |
| | s, items | PA Form 8700-22(A) (the continuation form) may be needed in addition to (21) through (35) must also be complete. [3745-52-20(A)(1)] | o Form | 870 | 0-22. | In t | hese | |
| 12. | 1,000 | each manifest designate at least one facility which is permitted to e the waste? [3745-52-20(B)] | Yes | | No | | N/A | |
| emerger | ncy whic | nerator may designate on the manifest one alternative facility to handle to the prevents the delivery of waste to the primary designated facility. [374] | | | the e | vent | of an | |
| 13. | the de | transporter was unable to deliver a shipment of hazardous waste to esignated facility did the generator designate an alternative TSD or give the transporter instructions to return the waste? [3745-52-] | Yes | | No | | N/A | |
| 14. | | the manifests been signed by the generator and initial transporter? -52-23 (A) (1) and (2)] | Yes | \boxtimes | No | | N/A | |
| | | the generator that the certification statement they signed indicates: 1) to resportation and 2) they have made a good faith effort to minimize their v | | | | | parec | the |
| 15. | If the | generator received a rejected load or residue, did the generator: | | | | | | |
| | a. | Sign item 20 of the new manifest or item 18c of the original manifest? [3745-52-23(F)(1) | Yes | | No | | N/A | |
| | b. | Provide the transporter a copy of the manifest? [3745-52-23(F)(2)] | Yes | | No | | N/A | |
| | C. | Send a copy of the manifest to the designated facility that returned the shipment with 30 days after delivery of the rejected shipment? [3745-52-23(F)(3)] | Yes | \boxtimes | No | | N/A | |
| 16. | within submi | generator did not receive a return copy of each completed manifest 60 days of being accepted by the transporter did the generator t to Ohio EPA, a copy of the manifest with some indication that the ator has not received confirmation of delivery? [3745-52-42(B)] | Yes | | No | | N/A | |
| 17. | The second of the second | gned copies of all manifests being retained for at least three years? -52-40] | Yes | | No | | N/A | |
| facility ca accumul calendar | an acce late the r month. | ator who sends a shipment of hazardous waste to a TSD facility with the pt and manage the waste and later receives that shipment back as a rej waste on-site for <90 days or <180 days depending on the amount of his [3745-52-34(M)] | iected i azardo | load us wa | or res aste o | idue n-si | may te in th | nat |
| storage and tran | or treatr sporter | penerated at one location and transported along a publicly accessible ro- ment on a contiguous property also owned by the same person is not co requirements must be met. To transport "along" a public right-of-way th or have a permit because this is considered to be "off-site." For addition | nsider e desti | ed "o inatio | n-site n faci | " and | d man as to | ifesting act as a |

| "on-site | in OA | C rule 3745-50-10. | | | | | |
|----------|---------|---|-----|-------------|----|-----|-------------|
| | - | SS AND PREVENTION | | | | | |
| 18. | | emergency coordinator available at all times (on-site or on-call)? 5-52-34(D)(5)(a)] | Yes | \boxtimes | No | N/A | |
| 19. | Has t | the following been posted by the telephone: [3745-52-34(D)(5)(b)] | | | | | |
| | a. | Name and telephone number of emergency coordinator? | Yes | | No | N/A | |
| | b. | Location of fire and spill control equipment, and, if present, fire alarm(s)? | Yes | × | No | N/A | |
| | C. | Telephone number of local fire department? | Yes | | No | N/A | |
| 20. | | mployees familiar with waste handling and emergency procedures? 5-52-34(D)(5)(c)] | Yes | | No | N/A | |
| 21. | | the facility properly responded to all fires and spills? [3745-52-0)(5)(d)] | Yes | | No | N/A | \boxtimes |
| 22. | | facility operated to minimize the possibility of fire, explosion, or any anned sudden or nonsudden release of hazardous waste? [3745-65- | Yes | | No | N/A | |
| 23. | | the generator have the following equipment at the facility if it is red due to actual hazards associated with the waste: | | | | | |
| | a. | Internal Alarm system? [3745-65-32(A)] | Yes | | No | N/A | |
| | b. | Emergency communication device? [3745-65-32(B)] | Yes | \boxtimes | No | N/A | |
| | C. | Portable fire control, spill control and decon equipment? [3745-65-32(C)]? | Yes | | No | N/A | |
| | d. | Water of adequate volume/pressure per documentation or facility rep? [3745-65-32(D)] | Yes | | No | N/A | |
| 24. | | ergency equipment tested (inspected) as necessary to ensure its er operation in time of emergency? [3745-65-33] | Yes | | No | N/A | × |
| | a. | Are inspections recorded in a log or summary? [3745-65-33] | Yes | | No | N/A | |
| 25. | comn | ersonnel have immediate access to an internal alarm or emergency nunication device when handling hazardous waste (unless the device required under OAC 3745-65-32)? [3745-65-34(A)] | Yes | | No | N/A | |
| 26. | a dev | re is only one employee on the premises is there immediate access to rice (ex. phone, hand-held two-way radio) capable of summoning nal emergency assistance (unless not required under OAC 3745-65-[3745-65-34(B)] | Yes | | No | N/A | ⊠ |
| 27. | | equate aisle space provided for unobstructed movement of emergency ill control equipment? [3745-65-35] | Yes | | No | N/A | |
| 28. | | he generator attempted to familiarize emergency authorities with ble hazards and facility layout? [3745-65-37(A)] | Yes | | No | N/A | \boxtimes |
| 29. | | re authorities have declined to enter into arrangements or agreements, ne generator documented such a refusal? [3745-65-37(B)] | Yes | | No | N/A | |
| SATELI | LITE AC | CCUMULATION AREA REQUIREMENTS | | | | | |
| 30. | Does | the generator ensure that satellite accumulation area(s): | | | | | - |
| | a. | Are at or near a point of generation? [3745-52-34(C)(1)] | Yes | | No | N/A | |

| | b. | Are under the control of the operator of the process generating the waste? [3745-52-34(C)(1)] | Yes | | No | | N/A | | Ī |
|-------|---------------|---|-----|-------------|----|-------------|-----|-------------|---|
| | C. | Do not exceed a total of 55 gallons of hazardous waste per waste stream? [3745-52-34(C)(1)] | Yes | | No | | N/A | | Ī |
| | d. | Do not exceed one quart of acutely hazardous waste at any one time? [3745-52-34(C)(1)] | Yes | | No | | N/A | \boxtimes | Ī |
| | e. | Containers are closed, in good condition and compatible with wastes stored in them? [3745-52-34(C)(1)(a)] | Yes | | No | | N/A | \boxtimes | |
| | f. | Containers are marked with the words "Hazardous Waste" or other words identifying the contents? [3745-52-34(C)(1)(b)] | Yes | | No | \boxtimes | N/A | | |
| 31. | | e generator accumulating hazardous waste(s) in excess of the amounts in the preceding question? If so: | Yes | | No | | N/A | \boxtimes | |
| | a. | Did the generator comply with 3745-52-34(A)(1) through (4) or other applicable generator requirements within three days? [3745-52-34(C)(2)] | Yes | | No | | N/A | × | |
| | b. | Did the generator mark the container(s) holding the excess with the accumulation date when the 55 gallon (one quart) limit was exceeded? [3745-52-34(C)(2)] | Yes | | No | | N/A | | |
| | ND MAN | NAGEMENT OF CONTAINERS the generator marked containers with the words "Hazardous Waste?" | | | | w : . | | | |
| 1000 | [3745 | 5-52-34(D)(4)] | Yes | \boxtimes | No | | N/A | | |
| 33. | Is the | e accumulation date on each container? [3745-52-34(D)(4)] | Yes | | No | \boxtimes | N/A | | |
| 34. | Are h | nazardous wastes stored in containers which are: | | | | | | **** | 7 |
| | a. | Closed (except when adding/removing wastes)? [3745-66-73(A)] | Yes | \boxtimes | No | | N/A | | Ī |
| | b. | In good condition? [3745-66-71] Gaylords of hazardous waste in the Breaker Room were partially crushed. | Yes | | No | \boxtimes | N/A | | Ī |
| | C. | Compatible with wastes stored in them? [3745-66-72] | Yes | | No | | N/A | | Ī |
| | d. | Handled in a manner which prevents rupture/leakage? [3745-66-73(B)] | Yes | | No | | N/A | | |
| NOTE: | Record | l location on process summary sheets and photograph the area. | | | | | | | - |
| 35. | | e container accumulation area(s) inspected at least once during the d from Sunday to Saturday? [3745-66-74] | Yes | | No | | N/A | \boxtimes | Ī |
| | a. | Are inspections recorded in a log or summary? [3745-66-74] | Yes | | No | | N/A | | |
| 36. | | containers of incompatible wastes stored separately from each other by as of a dike, berm, wall or other device? [3745-66-77(C)] | Yes | \boxtimes | No | | N/A | | |
| 37. | mate 17(B) | generator places incompatible wastes, or incompatible wastes and rials in the same container, is it done in accordance with 3745-65-)? [3745-66-77(A)] | Yes | | No | | N/A | | |
| 38. | | generator places hazardous waste in an unwashed container that | Yes | | No | | N/A | | |

| | 65-17(B)? [3745-66-77(B)] | | | | | | |
|------------------|--|-------|-------------|--------|-------------|--------|-------------|
| mixtur | · OAC 3745-65-17(B) requires that the generator treat, store, or dispose of ignita e or commingling of incompatible wastes, or incompatible wastes and materials s rable conditions or threaten human health or the environment. | | | | | | the |
| PRE-T | RANSPORT REQUIREMENTS | | | | | | |
| 39. | Does each generator package/label its hazardous waste in accordance with the applicable DOT regulations? [3745-52-30, 3745-52-31 and 3745-52-32(A)] | Yes | | No | | N/A | |
| 10. | Does each container ≤119 gallons have a completed hazardous waste label? [3745-52-32(B)] | Yes | | No | | N/A | \boxtimes |
| 41. | Before off-site transportation, does the generator placard or offer the appropriate DOT placards to the initial transporter? [3745-52-33] | Yes | | No | | N/A | \boxtimes |
| NOTE | Continue with the generator LDR requirements on the next page. | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | GENERATOR LDR CHECKLIST | | | | | - | |
| | DOES NOT APPLY TO CESQGS | | | | | | |
| GENE | RAL REQUIREMENTS | | | | | | |
| 1. | If LDRs do not apply, does the generator have a statement that lists how the HW was generated, why LDRs don't apply and where the HW went? [3745-270-07(A)(7)] | Yes | | No | | N/A | |
| 2. | Did the generator determine if the HW/soil must be treated to meet the LDR treatment standard prior to disposal? Generator knowledge or testing may be used. [3745-270-07(A)(1)] If not, | Yes | | No | \boxtimes | N/A | |
| | a. Did the generator send the waste to a permitted HW TREATMENT facility? [3745-270-07(A)(1)] | Yes | \boxtimes | No | | N/A | |
| treatm determ | This is done by determining if the HW /soil contains levels of constituents greate ent standard in 3745-270-40. However, if a specific treatment method is given in ination is required [3745-270-07(A)(1)(b)]. If soil, generator can choose to have 170-49 (alternative treatment levels for soils). | 3745- | 270- | 40 for | the | HW, r | 10 |
| 3. | Does the generator have documentation of how he determined whether the HW/soil meets or does not meet the LDR treatment standard in 2, above? [3745-270-07(A)(6)(a) or 3745-270-07(A)(6)(b)] | Yes | | No | | N/A | \boxtimes |
| 4. | Does the generator keep the documentation required in #2, above, on-site for at least three years from the last date the HW/soil was sent on-site/off-site for treatment/disposal? [3745-270-07(A)(8)] | Yes | \boxtimes | No | | N/A | |
| 5. | Does the generator generate a listed HW that exhibits a characteristic? If yes, | Yes | | No | \boxtimes | N/A | |
| | a. Did the generator determine if the listed HW exhibits a characteristic that is not treated under the LDR treatment standard for the listed HW? [3745-270-09(A)] | Yes | | No | | N/A | |
| | XAMPLE: F006 that exhibits the characteristic for silver or K062 that is corrosive | D002 | . Re | view I | LDR | treatr | nent |
| standa | rd in 3745-270-40 to determine what constituents the listed HW is treated for. | | | 130 | | | 11.00 |
| 5. | Did the generator determine if its characteristic HW contains underlying hazardous constituents that need to be treated? [3745-270-09(A)] | Yes | | | | N/A | - |
| univers | This is done by evaluating which underlying hazardous constituents (UHC) are is all treatment standards given in 3745-270-48. This requirement does not apply to 15 > 10% TOC) D001 wastes or listed HWs. | | | | | | |
| | Written documentation of this determination is not required. | | | 00- | | | |
| | Did the generator treat his HW /soil on-site to meet the LDR treatment | Yes | | No | \boxtimes | N/A | |
| 7. | Did the delicition freat his HW /soil on-site to freet the FDK freathlent | THE | | Die | X | N/A | |

| | stand | lard? | | | | | | | |
|--------------------|-----------|----------------|--|---------|-------------|--------|-------------|----------|------|
| NOTE: | | | estion #16. | | | | | | |
| 8. | Did th | ne gene | erator send a one-time LDR notification form to the TSD with the at to that facility? [3745-270-07(A)(2)] | Yes | | No | | N/A | |
| | a. | waste | generator chose not to make the determination of whether his must be treated, did he send a notice to the TSD facility with shipment? [3745-270-07(A)(2)] If so, did the notice include: | Yes | | No | | N/A | |
| | | ì | Applicable HW codes? | Yes | | No | | N/A | |
| | | il | Manifest number of the first shipment to the TSD? | Yes | \boxtimes | No | | N/A | |
| | | iii | A statement that conveys that the HW may or may not be subject to the LDR treatment standards and the TSD must make that determination."? | Yes | | No | | N/A | |
| 9. | | | erator resubmit the LDR notification form to the TSD when the d or the generator used a new TSD? [3745-270-07(A)(2)] | Yes | \boxtimes | No | | N/A | |
| 10. | | | nerator have a copy of the LDR notification form/notice on file? 7(A)(2)] | Yes | \boxtimes | No | | N/A | |
| | a. | | form/notice kept on file for three years after last HW shipped? 5-270-07(A)(8)] | Yes | \boxtimes | No | | N/A | |
| NOTIFIC | ATION | FORM | | | | | | | |
| 11. | Does | the LD | R Notification form contain the following information: | | | | | | |
| | a. | Manif 07(A) | fest number of the first waste shipment to the TSD? [3745-270-(2)] | Yes | \boxtimes | No | | N/A | |
| | b. | | cable waste codes (includes characteristic codes for a listed fapplicable)? [3745-270-07(A)(2)] | Yes | \boxtimes | No | | N/A | |
| | C. | | tement that conveys that the HW is subject to LDRs and must eated to meet LDR treatment requirements? [3745-270-(2)] | Yes | | No | | N/A | |
| | d. | | signation whether the HW is a wastewater or non-wastewater? i-270-07(A)(2)] | Yes | \boxtimes | No | | N/A | |
| | ater or n | on-was | contains <1% by wt. total suspended solids(TSS) and <1% by wt stewater, the HW can be tested using for example, Standard Met. c. | | | | | | |
| | e. | | nation of the waste subcategory when applicable? i-270-07(A)(2)] | Yes | \boxtimes | No | | N/A | |
| NOTE: have sur | Subcate | egories | are found on the LDR treatment standards table under the applic | cable v | /aste | code | . No | ot all F | HWs |
| | f. | | ng of the underlying hazardous constituents for which a acteristic waste must be treated? [3745-270-07(A)(2)] | Yes | | No | | N/A | |
| NOTE: constitue | | uired if | the waste is high TOC D001 or the TSD tests its treatment reside | ues for | all u | nderly | /ing | hazar | dous |
| | g. | form | HW is F001-F005 or F039, did the generator note on the LDR what solvents or constituents, respectively, the waste contains nust be treated for? [3745-270-07(A)(2)] | Yes | | No | | N/A | |
| | | | the TSD tests its treatment residues for all underlying hazardous | consti | tuent | ts. | | | |
| PROHIE | - | | | | | | | | |
| 12. | 1000 | | eated by burning? | Yes | | No | \boxtimes | N/A | |
| | It "No | go to | #15. | | | | | | |

| 13. | Is the | HW a | metal-bearing HW? | Yes | \boxtimes | No | | N/A | |
|-------|-----------|---------------|--|---------|-------------|--------|-------------|-------|-------------|
| | | | al-bearing HWs contain heavy metals above TCLP levels or were stricted metal-bearing HWs are given in the Appendix to 3745-27 | | due | to the | pre | sence | of |
| 14. | a. | Meta and b | l-bearing HWs cannot be incinerated, combusted or, blended ourned for fuel unless one of the following conditions apply. 5-270-03(c)] | | | | | | |
| | | i. | Contains > 1% TOC? | Yes | | No | | N/A | \boxtimes |
| | | II. | Contains organic constituents or cyanide at levels greater than the UTS levels? | Yes | | No | | N/A | |
| | | iii. | Is made up of combustible material e.g., paper, wood, plastic? | Yes | | No | | N/A | \boxtimes |
| | | iv. | Has a reasonable heating value (e.g., > 5000 Btu)? | Yes | | No | | N/A | \boxtimes |
| | | V. | Co-generated with a HW that must be combusted? | Yes | | No | | N/A | \boxtimes |
| | b. | impro | responses to 14 a.i. through 14 a.v. are "No", HW is being operly treated by dilution, violation of 3745-270-03(C). Is HW treated by dilution? | Yes | | No | | N/A | |
| 15. | Was | | treated by wastewater treatment? | Yes | | No | \boxtimes | N/A | |
| | a. | | DR treatment method, other than DEACT or a numerical value, fied for the waste? [3745-270-03(B) and 3745-270-40(A)(3)] | Yes | | No | | N/A | \boxtimes |
| NOTE: | If "Yes" | , HW is | improperly being treated by dilution. | | | | | | |
| | b. | Does | the waste carry the D001 code <u>and</u> contain ≥10% TOC? | Yes | | No | | N/A | |
| | C. | | the wastewater treatment process include a process to rate/recover the organic phase of the waste? | Yes | | No | | N/A | |
| | | | to b & c are "yes" and "no", respectively, waste is improperly bein 270-03(B)] and 3745-270-40(A)(3)]. | ng trea | ted b | y dilu | tion | and g | enerator |
| | | | ation/recovery processes are given in 3745-270-42 under RORG. | | | - | | | |
| GENER | ATOR | TREAT | MENT | | | | | | |
| 16. | Does | the ger | nerator treat to meet LDRs on-site? | Yes | | No | \boxtimes | N/A | |
| | | | erator treat his hazardous waste/soil on-site in a tank, container, ontainment building to meet the LDR treatment standard? | Yes | | No | | N/A | |
| | If "Ye | s"cor | mplete the rest of the checklist. If "No"stopyou are done. | | | | | | |
| | a. | descr | the generator have a written waste analysis plan (WAP) that ibes the procedures he will follow to treat the HW/soil to the treatment standard? [3745-270-07(A)(5)] | Yes | | No | | N/A | |
| | b. | Did th | ne generator use a detailed chemical and physical analysis of W/soil in order to develop the WAP? [3745-270-07(A)(5)(a)] | Yes | | No | | N/A | \boxtimes |
| NOTE: | This is a | labora | tory analysis but it does not have to be kept by the generator. | 1, | | | | | |
| | C. | | the WAP contain all information necessary to treat the HW/soil LDR treatment standard? [3745-270-07(A)(5)(a)] | Yes | | No | | N/A | |
| | d. | to der | the WAP include the testing frequency of the treated HW/soil monstrate that the LDR treatment standard is being met? -270-07(A)(5)(a)] | Yes | | No | | N/A | |

| | e. | Does | the g | enerator keep the WAP on-site? [3745-270-07(A)(5)(b)] | Yes | П | No | | N/A | \square |
|-----|--------|--|--|--|-----|---|-----|---|-----|-------------|
| | , | 1. 11 | 14/45 | | | | .,, | | 147 | |
| | f. | inspe | ection? | available for the inspector's review during the [3745-270-07(A)(5)(b)] | Yes | | No | | N/A | \boxtimes |
| | ICATIO | N FORI | II FOR | GENERATOR TREATMENT | | | | | | |
| 17. | a. | Cont | ains al | I information in #11 a-g above and | Yes | | No | | N/A | |
| | b. | "I certif "I cer am fa know comp to 37 are s | tify und amiliar dedge blies wi 45-270 ignifica | d HW/soil is listednotification contains the following statement: der penalty of law that I personally have examined and with the waste, through analysis and testing or through of the waste, to support this certification that the waste ith the treatment standards specified in rule 3745-270-40 0-49 of the Administrative Code. I am aware that there ant penalties for submitting a false certification, including ity of fine and imprisonment." | Yes | | No | | N/A | × |
| | C. | | | d HW/soil no longer exhibits a characteristic and is no | | - | | | | |
| | 9. | longe | r a HV | V, did the generator: | | | | | | |
| | | i. | | pare a one-time notification? [3745-270-09 (D)] | Yes | | No | | N/A | |
| | | ii. | Mair | ntain a copy of the notice onsite? [3745-270-09(D)] | Yes | | No | | N/A | \boxtimes |
| | | iii. | Inclu | ide in the notification: [3745-270-09(D)] | | | | - | | |
| | | | 1. | Name & address of receiving landfill? | Yes | | No | | N/A | \boxtimes |
| | | | 2. | Description of HW when generated? | Yes | | No | | N/A | |
| | | | 3. | HW code when generated? | Yes | | No | | N/A | |
| | | | 4. | Treatability group when generated? | Yes | | No | | N/A | |
| | | | 5. | Underlying hazardous constituents present when generated? | Yes | | No | | N/A | \boxtimes |
| | | iv. | | ain the certification statement as required by 6-270-07(B)(4)? | Yes | | No | | N/A | \boxtimes |





0 (1 Not) Const.
Since 0 (1
P 1807-577-5
P 1807-571-1045
T 1007-1007-771

April 21, 2016

Mr Peter Maneff Central District Office Division of Materials and Waste Management 50 West Town Street, Suite 700 P.O. Box 1049 Columbus, Ohio 43216-3898

Re: Alleged Violations of Ohio Hazardous Waste Laws and Rules

Subject: Response

Dear Mr Maneff:

We are in receipt of your letter of April 11, 2016 with regard to Closed Loop Refining and Recovery, Inc. and its operations at 2200 Fairwood Avenue and 1675 Watkins. You assert that you "received information" on March 3 regarding Closed Loop's tenancies at these sites, although you choose not to share what "information" you received. You also assert that you performed a site assessment on March 4 and, as a result of that site assessment, are now asserting that Fairwood is "not a legitimate recycling facility." You are wrong.

Closed Loop opened and operates the Fairwood facility to process separated glass for specific end uses which require further processing than can be accomplished at the Watkins facility. As occurs with almost all material suppliers, the inputs prepared by them as a vendor for another use must meet the specifications required by those users. The Watkins facility prepared CRT glass for one specific use. The Fairwood facility prepared that glass for different uses. Your assertion that the recycling operations at the Fairwood "have ceased" in the summer of 2015 is just plain wrong. It is incorrect. Recycling operation were paused in the Summer of 2015 for repairs, but they did not "cease," except temporarily. This is a normal aspect of all production processes. Machines break. They need repair. Those repairs, and the speed of the repairs, is determined by cost and need. Closed Loop repaired a broken part at the Fairwood facility and continued shipping to its vendors in the Fall and Winter of 2015, as well as the Spring of 2016. You baldly state the "the recycling operations at the Fairwood facility have ceased." The recycling operations at the Fairwood facility were paused for repairs, but did not "cease" in 2015. Your conclusion is the result of a misinterpretation of an off-hand comment by Mr Robert Cruz.

Re: Alleged Vio Subject: Response

Closed Loop has the capacity to process its requirements and needs to ship the end users from the processes at the Fairwood facility without continuous operations. It schedules its processing for efficiency, efficiency. Part of that efficiency is to accommodate equipment repair. It could accomplish that more quickly and less down time, but that would be foolish. Closed Loop processed and shipped all materials it was required to do so to be in compliance with Speculative Accumulation rules and to meet the needs of its endusers during 2015, even with some "down-time" for repairs.

Because Closed Loop has remained in compliance with the Speculation Accumulation Rules by processing and shipping to end-users all required materials from the Fairwood facility during 2015, the predicate to each of the points you make and request a response is incorrect. Because Closed Loop is and was in compliance with the Speculative Accumulation rules, the materials to which you refer, the CRT's and glass at the Watkins and Fairwood facilities, are not "hazardous waste."

We look forward to working with you; but, we request that you withdraw your April 11 letter, which we view as improvident.

Cordially

Dennis L. Hall



EVALUATION OF E-WASTE INVENTORIES AND REMEDIATION/CLOSURE OPTIONS

For

1655 and 1675 Watkins Road Columbus, Ohio

Prepared for

Katten Muchin Rosenman LLP 2900 K Street NW, North Tower - Suite 200 Washington, DC 20007

Prepared by

Atwell, LLC 7100 E. Pleasant Valley Road, Suite 220 Independence, Ohio 44131

May 4, 2017



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1.0 EXECUTIVE SUMMARY

Atwell, LLC (Atwell) was retained by Katten Muchin Rosenman LLP (Client) to provide environmental consulting services associated with abandoned electronic waste (e-waste) in the former Closed Loop Refining and Recovery, Inc. (Closed Loop) tenant space located at 1655 and 1675 Watkins Road, Columbus, Ohio (the Site). The Site is currently owned by Garrison Southfield Park LLC (Southfield). As pertinent, the Client directed Atwell to assess the nature and quantity of e-waste present at the Site; to identify and vet hazardous e-waste recycling and abatement contractors for the removal and remediation of the Site; to provide an estimate of costs for the removal and remediation of the Site in accordance with reasonably foreseeable Resource Conservation and Recovery Act (RCRA) closure standards; and to demonstrate that the costs of responding to the abandonment are necessary costs consistent with the national contingency plan (NCP) in 40 C.F.R. Part 300.

Background

The Site includes two contiguous, commercial warehouses that were leased for the last several years to Closed Loop. Closed Loop held itself out as an e-waste recycler that would accept cathode ray tubes (CRTs). A CRT is a high vacuum tube in which cathode rays produce a luminous image on a fluorescent screen. CRTs can contain lead in amounts that exceed regulatory thresholds for hazardous waste under federal and state environmental laws. Closed Loop has since breached their leases and abandoned the Site, leaving both warehouses ~90% full of e-waste. It also appears that Closed Loop's e-waste recycling operations may not have had appropriate dust control systems in place, which appears to have contributed to hazardous dust residue throughout both warehouses. It is Atwell's understanding that Southfield is currently cooperating with the Ohio Environmental Protection Agency (Ohio EPA) in discussions regarding how best to remediate the Site. In the interim, access to the buildings impacted by the Closed Loop's operations currently requires authorization by Southfield; personal protective equipment, including a respirator; and compliance with a detailed Health and Safety Plan prepared by Atwell in keeping with Occupational Safety and Health Act criteria. Atwell has also taken appropriate interim actions to control and stabilize the Site and structures within the Site, consistent with the NCP.

Nature and Quantity of E-Waste

Based on Atwell's on-site inspection and records review, Closed Loop abandoned approximately 128,200,000 pounds (lbs.) (i.e., 64,100 tons) of e-wastes at the Site (see Table 1 and Table 2). The e-waste includes used, broken CRTs; processed CRT glass; flat-screen displays; projection units; and miscellaneous electronic scrap, e.g., segregated plastic and scrap metal. The predominant e-waste present on the Site consists of stockpiled crushed CRT glass from e-waste received and partially processed by Closed Loop, which must be disposed of as either a hazardous waste for lead in a RCRA Subtitle C landfill or as a non-hazardous waste pursuant to a lead pretreatment process in a RCRA Subtitle D landfill, unless an alternate lead smelting/recycling option exists. Factoring in a 5% margin of error, Atwell is estimating that between 60,100 tons and 67,300 tons of e-waste will require removal, disposal and/or recycling in accordance with applicable federal and state hazardous waste law.

Hazardous Waste Removal and Remediation Contractors

Atwell solicited bids from several hazardous waste recyclers for e-waste removal, disposal and/or recycling. Atwell's contractor pre-selection criteria involved the evaluation of, among other things, location relative to the Site, regulatory compliance history, applicable means and methods, historical e-waste practices, ability to handle a project of this magnitude, preliminary pricing/schedule estimates, and environmentally-sound disposition of the subject material. Atwell identified six all-inclusive contractors willing to present e-waste removal bids, which ranged from \$12.5 million to \$51.2 million. Atwell also identified one contractor that presented a bid of \$290,000 associated only with the packaging and loading phase. Based on the quality of the bids and contractor capabilities, Atwell identified three frontrunners, which included Novotec, Hazardous Waste Experts, and URT, with bids ranging from \$12.5 million to \$18 million, respectively. Of the three frontrunners, Novotec has been selected as the most preferred.

Atwell also solicited bids from several remediation contractors that would provide lead dust remediation services inside the Site following the removal of the e-waste. Atwell's contractor preselection criteria involved the evaluation of, among other things, contractor approach, expertise, and manpower. Atwell identified three contractors willing to present remediation bids, which included Precision Environmental, Hazardous Waste Experts, and Environmental Management Specialists with bids ranging from \$103,000 to \$413,050. Each firm was deemed capable of performing the work, although Precision Environmental has been selected as the most preferred.

Total Projected Removal and Remediation Costs

Based on available information, and as discussed further below, the total project cost is estimated to be \$14.2 million, which includes \$1.2 million in estimated costs for Atwell project administration, environmental consulting, and other advisory services. Costs, however, may be significantly higher and depend upon the material quantities, transportation fuel costs, and the availability of previously-identified landfills, lead smelters, or other disposal/recycling outlets to accept such high volumes of e-waste at the time the removal efforts are launched. Costs may also increase depending upon the extent of Ohio EPA's oversight over RCRA closure of the Site. At this time, it is not possible to project with any reasonable certainty how these and other variables will ultimately impact the bottom line.

2.0 INTRODUCTION

Atwell was retained by the Client to provide environmental consulting services is connection with abandoned e-waste in the former Closed Loop tenant space located at 1655 and 1675 Watkins Road, Columbus, Ohio.

Atwell Professional Qualifications

Atwell has been providing environmental consulting services in Ohio for more than 20 years. Atwell has worked on numerous industrial sites including forge/foundry sites, paper mills, steel mills and/or metal working/machining facilities, bulk petroleum plants, automotive plants, cold storage facilities, numerous types of manufacturing facilities, landfills, and food processing facilities. Our project experience has included various forms of environmental due diligence, foreclosure assessments, site

Atwell, LLC

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assessments, contaminant delineation, remediation design and execution, compliance, permitting, demolition and disposal assessments, waste characterization (i.e., solid, hazardous, universal, and e-waste), regulator coordination and negotiations, e.g., various branches and programs under the United States Environmental Protection Agency and Ohio EPA, waste disposal oversight, and achieving site compliance via the Ohio EPA's Voluntary Action Program (VAP).

Atwell has worked on numerous project sites involving the evaluation and disposal coordination of solid wastes, hazardous wastes, universal wastes, and e-wastes. Our clients for these projects have included international and national manufacturing companies, hospitals, brownfield developers, owners/operators, and lenders that have foreclosed on industrial properties. Recently, Atwell provided professional consulting for a brownfield redevelopment project involving the evaluation of various hazardous and non-hazardous wastes streams, universal wastes, and e-wastes associated with several multi-story buildings encompassing two city blocks in a prominent metropolitan downtown community. Atwell completed all of the necessary site/building evaluation services to characterize the waste streams; arranged for the proper remediation, disposal, and recycling of the materials; properly permit the project; and achieved project site closure through appropriate federal and state programs.

Michael Koenig serves as Atwell's Team Leader for the Southfield project. Mr. Koenig has more than 19 years of experience in environmental consulting and manages Atwell's environmental teams in Independence, Ohio; Pittsburgh, Pennsylvania; and Atlanta, Georgia. He has managed and overseen a variety of remediation projects involving the assessment and remediation of various chemicals of concern, at large-scale commercial and industrial facilities. He has expertise in conducting site assessments, contaminant delineation, waste characterization (solid, hazardous, universal, and e-waste), waste disposal oversight, and achieving site compliance. He has successfully shepherded numerous brownfield projects through compliance with the Ohio EPA's VAP.

Appendix A contains information regarding Atwell's qualifications and professional environmental consulting experience; a curriculum vitae for Michael Koenig; summary letter pertaining to Atwell's project costs incurred to-date; and a proposed scope of work and cost estimate for additional environmental consulting services associated with the remediation and regulatory closure activities for the Site.

Closed Loop Project Summary

The Site is comprised of two commercial warehouse buildings, 1655 and 1675 Watkins Road, each of which were formerly leased by Closed Loop in the operation of a purported e-waste recycling facility. The 1655 Watkins Road building is approximately 218,000 square feet. Closed Loop previously occupied the southern 145,000 square foot portion of this building. The 1675 Watkins Road building is approximately 290,000 square feet and was solely occupied by Closed Loop. The buildings and Closed Loop tenant space are connected by an approximately 20 foot-wide corridor.

Based on available information, Closed Loop held itself out as an e-waste recycler in the two buildings referenced above from approximately 2012 to 2016. Closed Loop accepted e-wastes including CRTs, flat-screen displays, projection units, and other e-waste for disassembly and recycling. Primary operations included mechanical dismantling of televisions and computer monitors (CRT containing devices), which involved manual separation of plastic, precious metals, and CRT. Secondary operations included the mechanical crushing of the CRT glass components. Segregated plastics,

metals, and crushed glass were then re-packaged into open-top, cardboard gaylord containers. Some of the segregated plastics and metals were shipped off-site for recycling. Most of the processed CRT glass, however, was stockpiled on-site for several years, apparently in violation of RCRA's prohibition on the speculative accumulation of processed CRT glass undergoing recycling.

In the spring of 2016, Closed Loop abandoned the Site, leaving their unprocessed or partially processed e-waste left behind. Both buildings are approximately 90% full of e-waste and e-waste containers (cardboard gaylord containers) that are predominately stacked on top of each other two or three high. Additionally, it appears the CRT glass crushing operations conducted by Closed Loop may not have been operating with dust control systems that met Ohio EPA or OSHA standards, resulting in heavy dust residue throughout the Site.

Appendix B includes representative photographs of the abandoned e-waste and associated Site conditions.

The sections below describe Atwell's efforts to complete the following tasks for the Client:

- Review records associated with Closed Loop operations and existing Site conditions to evaluate potential remedies for the Client.
- Inspect the Site and abandoned e-waste to identify the types and condition of the e-waste materials on Site and the overall quantities of each waste stream that will require removal for recycling and/or disposal.
- Identify and vet potential e-waste recycling contractors for the removal of the e-waste from the Site for proper off-site recycling and/or disposal.
- Identify and vet potential environmental remediation contractors to remediate the Site of hazardous dust following the removal of the stockpiled e-waste materials.
- Provide an estimate of costs for the removal and remediation of the Site in accordance with reasonably foreseeable RCRA closure standards.

3.0 SITE INSPECTIONS FOR E-WASTE EVALUATION (QUANTITY, TYPE, CONDITION ASSESSMENTS)

At the Client's direction, Atwell completed field inspections on June 10, 2016, July 12, 2016, and August 1-4, 2016, to evaluate the amount and type of abandoned e-waste at the Site. The August 1-4 inspections included two representatives from URT Solutions (URT), a prominent and seasoned e-waste recycling firm.

Due to the condition in which Closed Loop abandoned the Site, there were limiting factors that affected the inventory due diligence work – namely, that a thorough examination of each individual cardboard gaylord container was not possible. As previously mentioned, both buildings are approximately 90% full of e-waste. The e-waste is mostly containerized in cardboard gaylord containers that are approximately 4-feet wide by 4-feet long and 4-feet tall. Many of these gaylords have deteriorated, which may have been a function of Closed Loop's practice to repurpose the same

boxes used to transport intact CRTs to the Site as opposed to purchasing new and more durable containers. Each gaylord is situated on a standard wood pallet, with the gaylords and accompanying pallets stacked two or three high throughout the majority of the Site. Furthermore, many of the aisles were used to accommodate additional storage, which impeded the ability to access much of the Site. Throughout the nearly 10 acres of building area, only few aisles exist along the east walls of the buildings, in three small processing areas, and in a few locations through the central portions of the stockpiled e-waste. Thus, many of the gaylords were not reasonably accessible.

Based on Atwell's and URT's inspection and inventory assessment, 1675 Watkins Road was predominately used to stockpile crushed CRT glass. This building is nearly full of gaylords stacked two-three high with crushed CRT glass. During the inspection, it became evident that, at some point, Closed Loop had started filling the aisles that previously existed in 1675 Watkins Road to store intact CRT units that were not being processed. The central portion of this building contains gaylords of crushed CRT glass; the aisles along the south, east, and north perimeter walls appear to contain whole unprocessed CRT units (televisions, computer monitors, and/or intact CRT tubes).

The 1655 Watkins Road location appears to have been used to receive intact CRT units (televisions and computer monitors) and store the units for on-site de-manufacturing. The north portion of this building also contains a small de-manufacturing line where Closed Loop would manually separate the CRT tubes from plastic and metal housings associated with whole televisions and/or computer monitors.

As part of the e-waste inventory assessment, Atwell and URT completed a visual assessment of each building to calculate the total number of gaylords and the types of e-waste present in the buildings. Furthermore, Atwell and URT assessed representative samplings of the various material types to establish average weights of each material type container. To accomplish this evaluation, Atwell and URT utilized a forklift and pallet scale to weigh representative unit containers. Atwell and URT broke the materials down into eight basic unit categories:

- 1. CRT whole tubes (tubes only) in cardboard gaylords on wood pallets,
- 2. Complete CRT units on wood pallets (wrapped in plastic, not in cardboard gaylords),
- 3. Complete CRT units in cardboard gaylords on wood pallets,
- 4. Projections lamps in cardboard gaylords on wood pallets (1655 only),
- 5. CRT crushed glass in cardboard gaylords on wood pallets (1675 only).
- 6. Scrap plastic in cardboard gaylords on wood pallets,
- 7. Scrap metal with glass in cardboard gaylords on wood pallets, and
- 8. CRT panel glass with metal bands on wood pallets and in super sacks.

To establish average weights for each unit (e-waste) type, Atwell and URT selected at least ten representative containers of each unit type. Each unit container was weighed on a pallet scale. The individual weights were then used to calculate an average weight for each unit waste type. Once the average weights were determined, Atwell and URT identified the locations of material by type throughout the Site and documented estimated quantities. Once the total number of unit containers was evaluated, Atwell and URT utilized the average weights to calculate the total quantity of each waste stream in the buildings.

Appendix C, Figures 1 and 2, summarize the number of containers and their locations at the Site.

Tables 1 and 2, below, summarize the total amount of estimated e-waste present at the Site.

Table 1: 1655 Watkins Road - Est. Total E-Waste Weight Based on Waste Type Container Averages

| 1655 Watkins Road Building | Estimated Total Number of Containers/Units | Average Weight of Container/Unit (lbs.) | Estimated Total Weight (lbs.) |
|---|--|---|-------------------------------------|
| CRT whole tubes in cardboard gaylords on wood pallets | 5,815 | 1,131 | 6,576,765 |
| Complete CRT units on wood pallets | 658 | 1,279 | 841,582 |
| Complete CRT units in cardboard gaylords on wood pallets | 4,639 | 571 | 2,648,869 |
| Projection lamps in cardboard gaylords on wood pallets | 193 | 959 | 185,087 |
| Scrap plastic in cardboard gaylords on wood pallets | 108 | 180 | 19,440 |
| Scrap metal with glass in cardboard gaylords on wood pallets | 4 | 486 | 1,944 |
| CRT panel with metal bands on wood pallets and in super sacks | 6 | 2401 | 14,406 |
| Estimated Total Weight | 10,2 | 88,093 lbs. (5,144 tor | 18) |

Table 2: 1675 Watkins Road - Est. Total E-Waste Weight Based on Waste Type Container Averages

| 1675 Watkins Road Building | Estimated Total Number of Containers/Units | Average Weight of Container/Unit (lbs.) | Estimated Total Weight (lbs.) |
|---|--|---|-------------------------------------|
| CRT whole tubes in cardboard gaylords on wood pallets | 1913 | 1,131 | 2,163,603 |
| Complete CRT units on wood pallets | 872 | 1,279 | 1,115,288 |
| Complete CRT units in cardboard gaylords on wood pallets | 621 | 571 | 354,591 |
| CRT crushed glass in cardboard gaylords on wood pallets | . 28,233 | 4,029 | 113,750,757 |
| Scrap plastic in cardboard gaylords on wood pallets | 84 | 180 | 15,120 |
| Scrap metal with glass in cardboard gaylords on wood pallets | 668 | 486 | 324,648 |
| CRT panel with metal bands on wood pallets and in super sacks | 73 | 2,401 | 175,273 |
| Estimated Total Weight | 117,8 | 99,280 lbs. (58,949 to | ns) |
| Estimated Total Amount of E-Waste in Both Buildings | 128,1 | 87,373 lbs. (64,093 to | ons) |

4.0 E-WASTE REMOVAL: SCOPE DEVELOPMENT AND COST ESTIMATES

Atwell evaluated various scopes of work for removing the e-waste from the Site. Atwell reached out to numerous e-waste recycling contractors in an effort to obtain competitive cost estimates and schedules in the removal of accumulated e-waste inside the Site buildings. Atwell's due diligence for contractor selection involved the evaluation of, among other things, the contractor's location relative to the Site, regulatory compliance history, applicable means and methods, historical e-waste practices, their ability to handle a project of this magnitude, preliminary pricing/schedule estimates, and the environmentally-sound disposition of the subject material.

Based on discussions with e-waste recycling contractors, the e-waste recycling industry is comprised of a limited number of companies that have the ability to handle significant quantities of e-waste. As such, many of the e-waste recycling contractors approached for this project were determined to be unsuitable or unable to handle a project of this magnitude either due to their size, lack of preferred certifications, or their proposed recycling/disposal practices.

Atwell conducted an "open house/preliminary bid meeting" at the Site on June 10, 2016, to familiarize qualified e-waste recycling, transportation, and remediation contractors with the project. The purpose of the meeting was to allow qualified contractors to evaluate the amount, type, and condition of materials on Site so each firm could formulate a strategic and site-specific proposal for the removal of the e-waste from the buildings, and to account for proper recycling and/or disposing of the materials. The following contractors attended the open house/preliminary bid meeting:

- E-Waste, LLC Potential e-waste loading and transportation contractor
- · Environmental Management Specialists Potential loading contractor
- URT Solutions Potential transportation and recycling contractor

- Hazardous Waste Experts Potential loading, transportation, recycling contractor
- · Electronic Recyclers International Potential recycling contractor
- Nulife Glass Potential transportation and recycling contractor

Certain contractors elected not to submit bids. Following the pre-bid walk-through, E-waste, LLC and American Abatement decided to not provide quotes for the project due to its size and complexity.

Certain contractor options that initially appeared promising proved not to be viable. Nulife Glass initially expressed potential interest in purchasing the Site, its contents, and the property in its current state. Nulife was assessing the viability of installing smelting furnaces on Site to process the significant quantities of crushed CRT glass, thus avoiding off-site transportation for recycling or disposal of the material. However, based on further review, there were too many uncertainties, including, among other things, whether and on what time frame Nulife could secure the appropriate air permitting.

In addition to the contractors referenced above, Atwell also evaluated previous cost estimate proposals provided by Kuusakoski Recycling, BCS, Inc. (BCS), and Novotec Recycling (Novotec). Kuusakoski was eliminated from consideration in light of Closed Loop records that indicated that Kuusakoski or entities affiliated with Kuusakoski had previously shipped approximately 40 million lbs of e-waste to the Site for processing by Closed Loop.

Novotec evaluated several outlets for the crushed CRT glass including one of which that had the Atwell, LLC

potential to represent a large cost savings for the project. Novotec indicated that they had previously visited the Site with a representative of Camacho Recycling from Spain. Camacho has recently been recognized by e-waste recyclers as economical solution for leaded glass recycling. Unfortunately, according to Novotec, Camacho determined that they would not be interested in receiving the crushed CRT glass, as Closed Loop did not properly sort the materials during their initial processing/crushing operations (i.e., clean crushed glass is mixed with leaded glass along with some plastic and metal fragments), thus resulting in a commingled e-waste (i.e., leaded and non-leaded glass).

Table 3 presents summaries of project cost estimates and schedules received from e-waste recycling contractors. In an effort to "compare apples to apples," the contractor estimates evaluated and summarized in the table below are based on unit rates provided by the contractors and Atwell's estimated e-waste material quantities present on Site.

Appendix D includes the removal contractors' cost estimate proposals and information concerning their qualifications.

Table 3: Summary of Contractor Cost Estimates; E-waste Removal, Recycling, and/or Disposal

| Contragen | faslis | Estimated Fac Total | Material & Fracking Unit Rates | Schedule Direction | Canaments |
|--|---------|------------------------|---|-----------------------|--|
| Environmental Management Specialists | ٦ | \$290,000 | NA | 7 Months | For the recycling component of this project, this contractor could provide packaging and loading services only. For proposal purposes, they assumed project duration of 7 months. This contractor will also be including costs for installing dust controls, critical barriers, and/or environmental packaging efforts during loading. However, the cost for such is not yet included as the project/site-specific control neasures or protocols have not yet been fully determined. The additional cost associated with the dust control measures and protocols is not anticipated to exceed \$50,000. |
| BCS/Glassico | L, T, R | \$24,996,537 | Quoted alf-inclusive at \$0.195/1b | 3-6 Months | This contractor is not recommended since their proposal is not considered competitive |
| Electronic Recyclers International | я | \$51,274,949 | \$0.40/lb | 7-8 Months | This confractor is not recommended since their proposal is not considered competitive. |
| Kuusakoski | L, T, R | \$22,554,108 | Device \$0.14 CRT Tube \$0.125 Glass \$0.08 \$700/10ad ton-haz. \$1,125/0od haz. Labor/Handling \$0.014 | 9 Months | This contractor is not recommended since their proposal is not considered competitive. This contractor is also not recommended at this time due to their previous involvement, i.e., shipped approximately 40,000,000 lbs of e-waste to the Site for processing by Closed Loop. Much of the e-waste that Kuusakoski shipped still remains in the brilldings. This contractor also provided project cost estimates for two alternate project schedules/durations, an 18 month project and a 6 month project. The cost estimate for the 18 month project duration was estimated to be \$17,500,000. The 6 month project duration was estimated to be |
| Hazardous Waste Experts | L, T, R | \$17,955.396 | Device 50.24 to 50.28/lb Glass \$.049/lb Trans = Rail and Truck At \$0.27/lb | 8 5 months | This contractor plans to recycle all CRT monitors, tubes, and infact device at a R2 certified recycling facility in Mexico. This contractor would be shipping CRT devices, tubes, and infact devices to a rail yard approximately 15 miles from the Site. These recyclable materials would travel to Calexico, CA where they would be processed for export and off-loaded into trucks and prepared for transportation into Mexico for final recycling by Technology Displays. Processed leaded glass from this Mexico recycler would then transported to Videocon in India to be re-introduced in the CRT manufacturing process. Residual wastes generated by Technology Displays would be disposed of in unidentified Mexican landfills. All cuiled glass at the Site would be transported and landfilled as a Subidic C hazardous waste landfill (Envirosite) in Oregon, Otto using a cenent incro-encapsulation process to prevent leaching. Clean scrap metal and plastic would be transported to local secycles. |
| URT Solutions | T, R | \$15,034,087 | Device \$0.14/lb Device \$710/lbad Glass \$0.11/lb Glass Inteking included in price/lb | 6-9 Months | URT is an E-Stewards certified recycler. All CRT monitors, lubes, and intact devices would be recycled by URT in their Janesville, WI recycling facility using an automated dry process to remove lead from the CRT funnel glass. Processed leaded glass would be transported to Camacho in Spain for recycling in the ceramic tile industry. Clean scrap metal and plastic would be transported to local recyclers. URT's proposal includes transporting all broken glass to U.S. Ecology in Detroit, MI for pre-treatment and disposal in a Subtitle D solid waste landfill using a 20 year old accepted process that has been approved for similar projects by the Michigan Department of Environmental Quality |
| Device So. Novotec L, T, R \$12,476,6111 Estimate loading to co. | L, T, R | \$12,476,611 | Device \$0.16 to \$0.181h Glass \$0.09/lb Fistmates include loading & trucking costs | 9 Months | This is a preferred contractor. Novotec is an R2 certified e-waste recycler that is located approximately 6 miles from the Site. All CRT monitors, tubes, and infact devices will be recycled by Novotec at their local recycling facility. The contractor's proposal includes transporting all crushed glass to three separate landfills for disposal. (1) US Ecology in Detroit. MI (hazardous transport, pretreatment and off-site transport for disposal in a US Ecology affiliated non-hazardous Subtife D landfill, (2) Environsale Landfill in Oregon, OH (hazardous transport, pretreatment (i.e., encapsulation) and disposal within an onsite Favironsafe hazardous Subtife C landfill), and (3) Max Environmental Landfill in Vukon, PA (hazardous transport, pretreatment and disposal within an onsite Max Environmental non-hazardous Subtife D landfill). Additionally, this contractor is also evaluating a fourth option for crushed glass consisting of a CRT smelting facility in Canada. The contractor will be utilizing his local stall for managing the daily packaging and loading operations. |

- Loading, T - Transpartation, R - Recycling/Disposal

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5.0 SITE REMEDIATION: SCOPE DEVELOPMENT & COST ESTIMATES

As previously discussed, based on Atwell's inspection activities it appears that the CRT glass crushing operations conducted by Closed Loop was not operating with sufficient dust control systems, resulting in heavy dust residue throughout the Site. The most severe dust contamination is near the former CRT crushing equipment. Heavy dust residues were observed on the floors of the buildings, on stockpiled containers of e-waste, on the walls of the buildings, and on virtually all flat surfaces.

Based on laboratory analytical testing results, the dust residues tested hazardous for lead. Based on these findings, the hazardous leaded dust will require remediation. The current project plan involves the remediation of lead dust following the removal of e-waste from the Site. During the removal of e-waste from the Site, workers inside the buildings will be required to wear proper personal protective equipment. Additionally, engineering controls and critical barriers are being established in an effort to prevent dust migration beyond the Site's footprint.

To develop Site remediation scopes of work and remediation cost estimates, Atwell solicited qualified remediation contractors to attend the June 10, 2016 "open house/preliminary bid meeting." The purpose of the meeting was to allow qualified remediation contractors to evaluate the severity of the lead dust impacts on the Site, to formulate a strategic lead dust removal work plan, and develop a site-specific proposal for the proper remediation of lead dust within all Site internal space. The following remediation contractors attended the open house/preliminary bid meeting:

- Precision Environmental
- American Abatement
- Environmental Management Specialists
- Hazardous Waste Experts

Following the inspection activities by the contractors, American Abatement elected to not provide a cost proposal due to the size and complexity of the project.

Table 4, below, summarizes the cost estimates provided by Precision Environmental, and Environmental Management Specialists, and Hazardous Wastes Experts, respectively.

Appendix E includes the remediation contractors' cost estimate proposals and information concerning their qualifications.

Table 4: Summary of Contractor Cost Estimates: Site Remediation (Lead Contaminated Dust)

| Contractor | Fee | Schedule | Comments |
|--|------------------------|-------------|--|
| Precision Environmental | \$413,050 | 3.25 Months | Cleaning all dust impacted surfaces (floors, walls, columns, framing), removing carpeting and ceiling tiles from office. Bulk dust vacuum of impacted surfaces and then steam clean rinse. |
| Environmental Management Specialists | \$170.000 ² | 1 Month | Cleaning all dust impacted surfaces (floors, walls, columns, and framing) with high pressure vac, removing carpeting and ceiling tiles from office. No water/steam cleaning or rinsing proposed. |
| Hazardous Waste Experts | \$103.000 | 16-days | Cleaning all dust impacted surfaces (floors, walls, columns, framing) with high volume vacuum. Wipe down of all hard surface and ceiling tiles from office. No water/steam cleaning proposed. |

The overall c-waste removal and Site remediation will likely require compliance with applicable RCRA closure requirements. In general, closure under RCRA will include the following tasks: 1) an evaluation in the defined on-Site Solid Waste Management Units, 2) an internal/external lead dust confirmatory sampling post remediation, 3) a groundwater evaluation, 4) a soil evaluation, and 5) an applicable standards evaluation, post impact delineation, data collection and data evaluation.

6.0 RECOMMENDATIONS FOR SELECT CONTRACTORS

Based on the project due diligence, contractor qualifications, and estimating services completed todate, Atwell recommends the following:

- Atwell currently recommends Novotec Recycling as the preferred contractor for the e-waste removal, recycling, and disposal activities. This recommendation is based on their industry knowledge, cost estimate, proposed schedule, and close proximity to the Site.
- Atwell currently recommends Precision Environmental as the preferred remediation contractor.
 This recommendation is based on their site-specific scope work and the remediation methods
 they plan to execute.

The Environmental Management Specialists proposal in Appendix F reflects a bid for \$97,820. This bid was adjusted apwards for purposes of this cost summary to account for hazardous waste disposal costs, as other bids accounted for these costs.

Based on these recommendations, Atwell anticipates the overall project costs to be as follows:

| Novotec Recycling | E-waste Removal, Recycling, Disposal | \$12.476,611 |
|----------------------------|--|--------------|
| Precision Environmental | Site Remediation | \$413,050 |
| Atwell | E-waste Ownership Research and Reporting, Remediation Design, Contractor Procurement, Bid Processing | \$94,9223 |
| | E-waste Removal Remediation Oversight, Project Management, Environmental Compliance | \$1,179,700 |
| | Estimated Project Total: | 514,164.283 |

7.0 DISCLAIMER

Atwell has provided the services described above in a manner consistent with the level of care and skill ordinarily exercised by members of the profession who perform similar environmental services under similar conditions. Atwell shall not be responsible for conditions or consequences arising from relevant information that was concealed or not fully disclosed. Atwell's opinions and recommendations are based solely on information derived from the field observations and contractor evaluations completed to-date.

We are excited about the opportunity to work with you on this project, and we appreciate the opportunity to present this Summary Report. If you have any questions or comments, or if we can be of further assistance during your review process, please contact us at (440) 349-2000.

This report submitted by:

Thomas Leigh

Project Manager

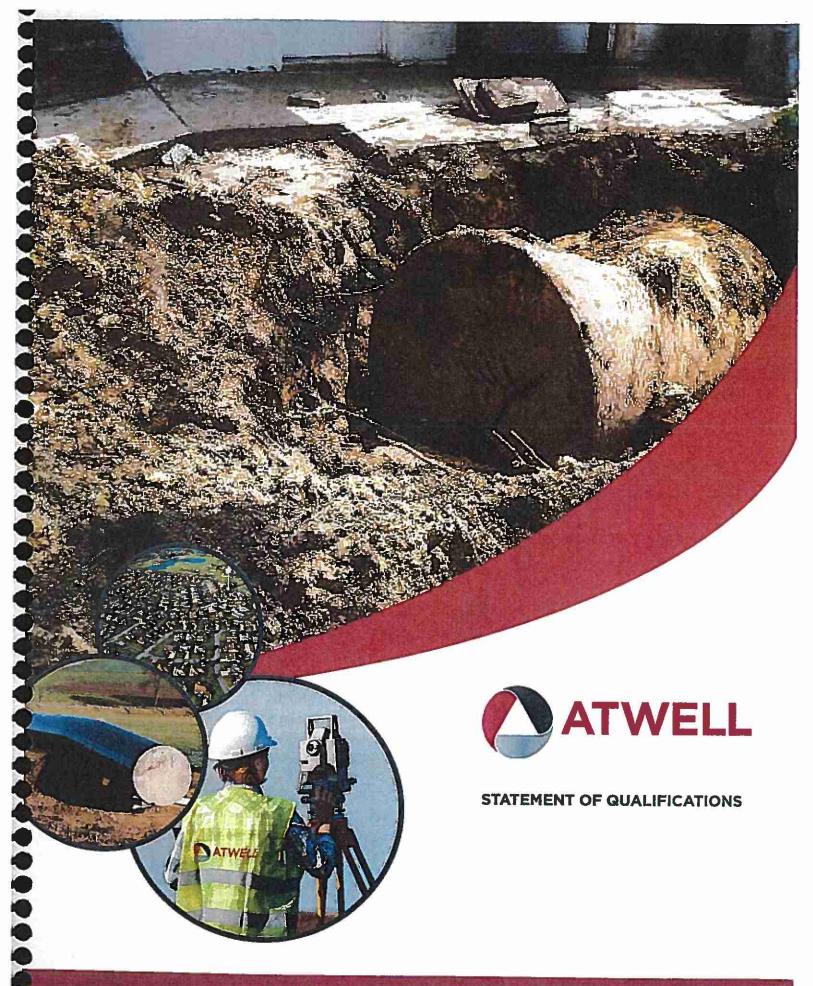
Michael J. Koenig

Team Leader

³ Atwell costs accroed to date in the research, development of removal remediation cost, project management and project tasks implementation 4 Project costs will vary significantly based on, among other things, material quantities, the availability of previously-identified disposal/recycling outlets, fuel costs, the extent of Ohio LPA's oversight over RCRA closure of the site, and other commendes.

APPENDIX A

Atwell Qualifications, Michael Koenig Curriculum Vitae, Atwell Project to Date Costs, and Atwell Scope of Work/Cost Estimate



FIRM OVERVIEW

WHY ATWELL?

- · Local knowledge with national reach
- Specialized teams by market, region and service
- Passionate, energetic professionals driven by project success
- Engaged senior management
- Adaptive structure built for clients' changing needs
- Single project manager with access to full-service solutions

Atwell is a bold leader in the consulting, engineering, and construction industry. We serve five core markets, offer ten main services, and deliver countless solutions to our clients.

Our teams combine to offer efficient, creative, and profitable solutions for your projects and operations. We are organized for your success, working seamlessly across departments and locations to deliver what you need to where you need it, all from one trusted source.

We are a business of passionate people. For every project, we instinctively manage critical issues like quality, safety, and technical results. But it may surprise you to know how well we get to know you and your vision – and how we boldly advocate for your success.

When our teams work together on your behalf, remarkable things begin to happen. No matter what the project, Atwell delivers complete service with complete confidence.

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Residential - Commercial - Community

OIL & GAS

Exploration & Production · Pipelines & Facilities · Logistics & Storage

POWER & ENERGY

Power Generation - Power Delivery

MINING & METALS

Greenfield & Restarts \cdot Processing Facilities \cdot Maintenance Programs

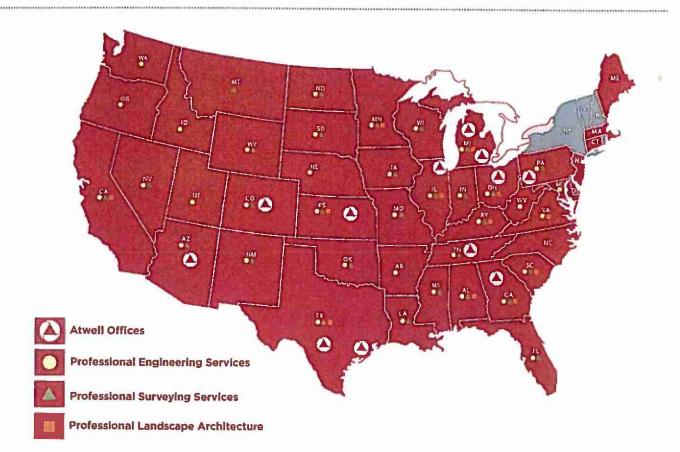
INDUSTRIAL & MANUFACTURING

Processing Facilities · Warehouse & Logistics · Automotive





OFFICES, LICENSING & REGISTRATION



MESA, ARIZONA 4700 East Southern Avenue Mesa, Arizona 85206

DENVER, COLORADO 143 Union Boulevard, Suite 700 Lakewood, Colorado 80228

ATLANTA, GEORGIA 1800 Parkway Place, Suite 700 Marietta, Georgia 30067

NAPERVILLE, ILLINOIS 1245 East Diehl Road, Suite 100 Naperville, Illinois 60563

LENEXA, KANSAS 15500 College Boulevard Lenexa, Kansas 66219

SOUTHFIELD, MICHIGAN (HQ) Two Towne Square, Suite 700 Southfield, Michigan 48076

ANN ARBOR, MICHIGAN 311 North Main Street Ann Arbor, Michigan 48104 CADILLAC, MICHIGAN 7192 East 34 Road, Suite 4 Cadillac, Michigan 49601

CLEVELAND, OHIO 7100 East Pleasant Valley Road, Suite 220 Independence, Ohio 44131

PITTSBURGH, PENNSYLVANIA 6000 Town Center Way, Suite 165 Canonsburg, Pennsylvania 15317

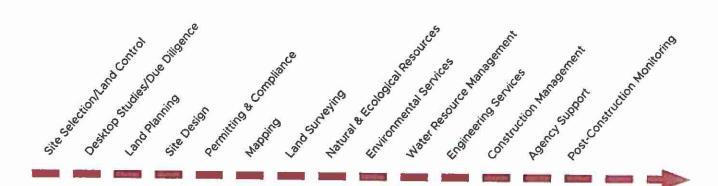
CLEVELAND, TENNESSEE 4160 North Ocoee Street, Suite 8 Cleveland, TN 37312

HOUSTON, TEXAS 820 Gessner Drive, Suite 1140 Houston, Texas 77024

SAN ANTONIO, TEXAS 10101 Reunion Place, Suite 350 San Antonio, Texas 78216



THE ATWELL DIFFERENCE



TURNKEY APPROACH

Atwell offers specialty planning capabilities combined with aggressive land development and entitlement services to provide clients a seamless transition from concept to construction. This turnkey approach and collaborative effort allows Atwell to maximize project value and minimize development timelines via customized design solutions that are technically sound and financially feasible to construct.

FULL-SERVICE CONSULTING

Atwell offers due diligence, land planning and design, engineering, land surveying, environmental consulting, ecological and cultural resource services, water resource solutions, construction management, and other niche services through a single project manager – shortening timelines, minimizing coordination effort, and maximizing your return on investment.

TOTAL QUALITY MANAGEMENT

Atwell's Quality Assurance Program provides maximized returns through the development process and a consistent, scalable design approach and philosophy. A thorough project review by Atwell's team of experts proactively addresses areas that add project value and minimize costs to maximize your return on investment.

MARKET SECTOR APPROACH

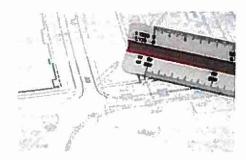
Atwell organizes its design teams into market sectors as opposed to service groups by technical discipline. As such, Atwell can divide and conquer your most complex projects with staff fully educated on your specific industry, relevant market trends, and product type.

NATIONAL REACH COUPLED WITH PROGRAM MANAGEMENT SERVICES

Atwell offers access to a national Power & Energy development consulting platform via 16 offices throughout the United States. Atwell dedicates teams of specialists to the evolving needs of the Renewable Energy, Electric Transmission, and Oil & Gas Pipeline markets. Comprised of engineers, planners, land surveyors, environmental specialists and other niche professionals, these teams are fully educated on the energy market and its service needs. Via a single point-of-contact, clients receive the benefits of numerous teams throughout the organization providing local knowledge and support, as well as program-level consistency and standards.



CIVIL ENGINEERING SERVICES

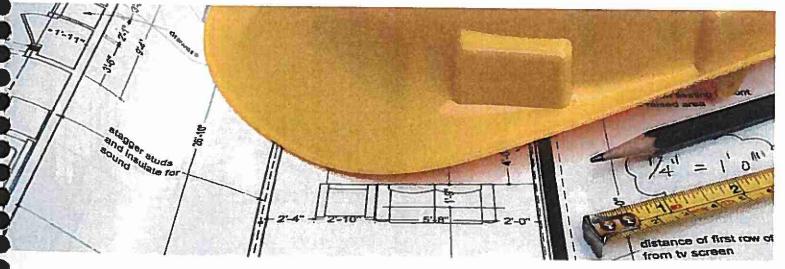




FROM PLANNING TO PERMITS

Atwell's civil engineering services are the technical foundation of successful construction projects. In addition to the traditional engineering activities, today's projects demand professionals who can successfully navigate critical regulatory constraints, functional demands, and environmental concerns. Our specialized teams strive to balance these forces through sound design, aggressive project management, and continual stakeholder engagement.

- · Due Diligence & Site Research
- Site Layout & Preliminary Engineering Design
- Annexation & Zoning Strategies
- Easement Acquisition
- Cost Estimating
- Site Construction Plans
- Drainage & Stormwater Management System, Design & Permitting
- Roadway & Pavement Design
- Wastewater Collection System Design
- Floodplain Analysis, Permitting & Mitigation
- FEMA Map Amendments
- Subdivision & Site Condominium Documents
- Hydrology Design
- Utility Design
- Earthwork Analysis
- Value Engineering
- Permitting Strategy





CONSTRUCTION SERVICES





WORLD-CLASS INDUSTRIAL CONTRACTORS

Primarily focused on building industrial projects, Atwell's construction division, Strategic Construction Solutions (SCS), supports the development, construction, management and maintenance of ferrous and non-ferrous mineral pursuits; processing and manufacturing facilities; and infrastructure supporting the power generation, transmission, and oil and gas markets.

Knowing the challenges that can accompany these often complex and fast-paced projects, we are committed to three basic principles: safety, quality, and results. Our leadership team focuses on the constructability, efficiency and functionality of each project it builds, protecting our clients' investments, commitments and reputations.

CAPABILITIES

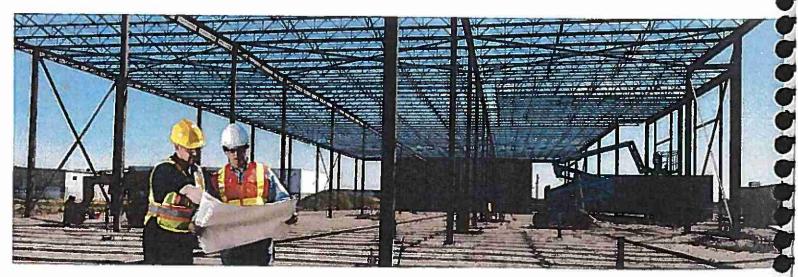
Delivery Methods

- General Contracting
- Design/Build
- Construction Management
- Engineer, Procure, Construct (EPC)
- Project Contractor

Self-Perform

- Structural Steel Erection & Fabrication
- Pipe Fitting & Welding
- Equipment & Conveyor Assembly
 Site Logistics
- HDPE Pipelines
- TIG, MIG & ARC Welding
- Mechanical
- Concrete

- Electrical, Instrumentation & Automation
- Metal Buildings
- Post-Construction Support
- General Contracting
- Design/Build





CULTURAL RESOURCE SERVICES



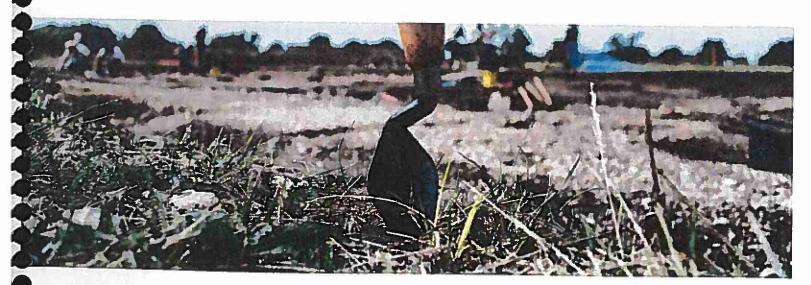


PROACTIVE KNOWLEDGE PROTECTS HERITAGE

Even the greenest of fields can hold historical significance. Atwelf encourages clients to conduct basic cultural resource audits on development projects to ensure there are no unforeseen impacts or surprises during construction. For sites known or speculated to contain cultural or historical features, our team of archaeologists, cultural resource management specialists and field staff employ GIS services, ground-penetrating radar and mapping technology to anticipate and inventory site features of concern.

Our team regularly coordinates with State Historic Prevention Offices (SHPO), local stakeholders and community groups to protect regional and national artifacts – and your business interests.

- Archaeological, Architectural & Historic Landscape Surveys & Evaluations
 - Class I Literature, Site Files & Desktop Reviews
 - Class II & III Cultural Resource Surveys
 - Excavations
 - · Prehistoric Artifact Analysis
- Artifact Analysis
- Historic Preservation
- Management Plans
- Research Design & Work Plans
- Data Recovery & Excavation of Archaeological Sites
- Conditions & Historic Property Assessments
- Permitting & Compliance (Federal, State, Local & Tribal Stakeholders)
- Mitigation Plans
- Archaeological Construction Monitoring





NATURAL RESOURCES SERVICES







AGGRESSIVE STRATEGIES FOR COLLECTIVE SUCCESS

From site selection through post-construction compliance, Atwell's ecologists and biologists pursue your project objectives. They work alongside engineers and contractors to alert you to potential environmental disturbances and their impact on project feasibility, scope, and schedule. Aggressive design, permitting, and mitigation strategies are employed to maximize land use and minimize threats to regional species, watersheds, and ecosystems.

- Wetland & Water Quality Services
 - Wetland Delineation and Assessments
 - · Pond, Lake, and Stream Assessments
 - Mitigation, Design, and Monitoring
- Wildlife Assessments and Management
 - Threatened and Endangered Species Surveys
 - Comprehensive Avian and Bat Services
 - Migration and Use Surveys
 - Mist Net and Acoustic Surveys
 - Post Construction Mortality Monitoring
 - Aquatic Surveys
 - Mitigation, Design, and Monitoring
 - Management Documents:
 - * BBCS, ECP, HCP, Eagle Management Plans
- Vegetation Sampling and Surveys
 - Tree and Forest Surveys
 - FQI, VIBI, Qualities, and Quantities Assessments
 - Mitigation, Design, and Monitoring
 - Management Documents
- GIS and Mapping
- Regulatory Coordination, Compliance, and Permitting
 - Federal Compliance and Permitting
 - NEPA, FERC, USFWS, USACE, EPA
 - · State and Local Consultation and Permitting
 - · CEQA, EPA, DNR, DEQ



ECOLOGICAL SERVICES



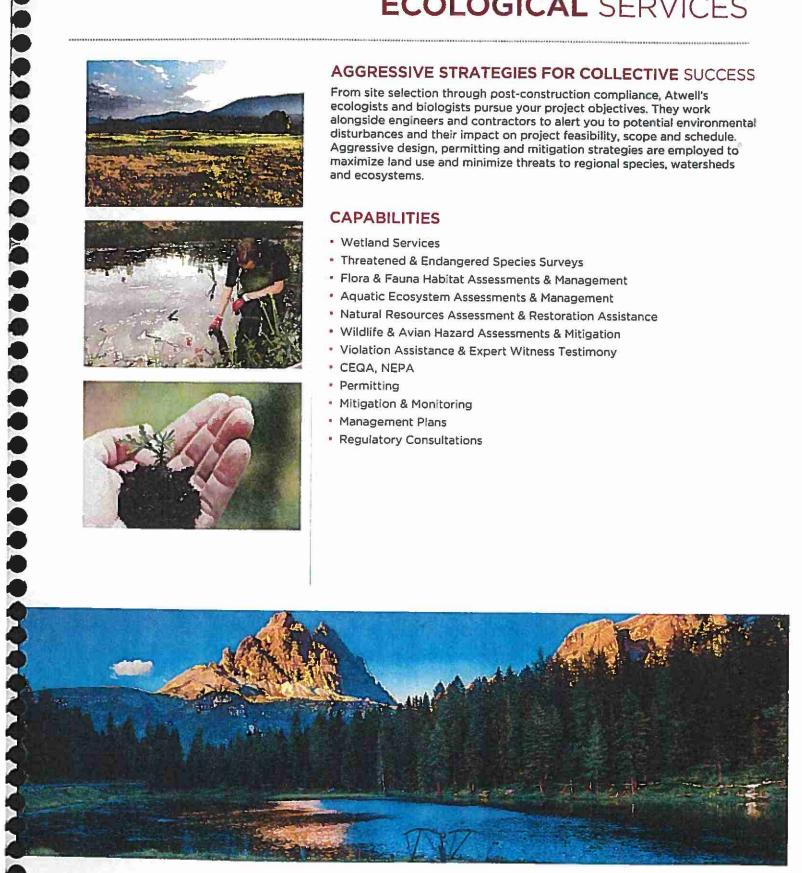
AGGRESSIVE STRATEGIES FOR COLLECTIVE SUCCESS

From site selection through post-construction compliance, Atwell's ecologists and biologists pursue your project objectives. They work alongside engineers and contractors to alert you to potential environmental disturbances and their impact on project feasibility, scope and schedule. Aggressive design, permitting and mitigation strategies are employed to maximize land use and minimize threats to regional species, watersheds and ecosystems.



- Wetland Services
- Threatened & Endangered Species Surveys
- Flora & Fauna Habitat Assessments & Management
- Aquatic Ecosystem Assessments & Management
- Natural Resources Assessment & Restoration Assistance
- Wildlife & Avian Hazard Assessments & Mitigation
- Violation Assistance & Expert Witness Testimony
- CEQA, NEPA
- Permitting
- Mitigation & Monitoring
- Management Plans
- Regulatory Consultations







ENVIRONMENTAL SERVICES







ELEVATING ENVIRONMENTAL EXPERTISE

To help you successfully comply with local, state, and federal regulations that affect your real estate interests, our environmental engineers, geologists, hydrogeologists, and regulatory specialists offer a diverse range of services and technical expertise to meet any environmental challenge. Our teams provide a variety of soil, water, and air assessments for transactional real estate requirements, as well as environmentally challenged properties and facilities. Whether your interests involve real estate transaction support, facility compliance audits, environmental cleanup, site remediation, or brownfield revitalization and redevelopment, we have the tools and environmental expertise to get the job done.

- Environmental Site Assessments (Phase I & Phase II)
- Risk-based No Further Remediation (NFR) Determinations
- Brownfield Redevelopment/Financial Incentives Assessment
- Underground Storage Tanks (UST) Removal and Closure
- Property Condition Assessments
- Hydrogeological Studies
- Soil Management Plans
- Asbestos, Lead-based Paint, Indoor Air Quality, and Mold Programs
- Soil and Hazardous Waste Identification/Management
- Sub-surface Geophysical Investigations
- Potentially Responsible Party Assistance
- Third-Party Review & Evaluation
- Soil & Groundwater Remediation
- Permitting & Compliance Assistance
- Strategic Project Planning & Device
- Health & Safety Plans
- Expert Witness Testimony
- Storm Water Management
- Remedial Investigation/Feasibility Studies
- Transaction Screens
- Remedial System Construction and System Operation and Maintenance
- SPCC Plans
- Waste Minimization
- RCRA Permitting and Facility Investigations
- Risk Management/Risk Assessments
- Facility Compliance Audits
- Air Permitting and Title V
- Air Quality Monitoring



SITE REMEDIATION & DEVELOPMENT SERVICES



DATA TO DRIVE DECISIONS

Environmental modeling and analysis are necessary to help clients understand remediation risk and cost for new developments, as well as how to avoid and manage contamination risk during construction or operation. Atwell's geologists and specialists provide complete remediation solutions, as well as financial and technical models for infill and redevelopment opportunities.



- Risk-based No Further Remediation (NFR) Determinations
- Underground Storage Tanks (UST) Removal & Closure
- Hydrogeological Studies
- Soil Management Plans
- Soil & Groundwater Remediation Services
- Geophysical Investigations
- Remedial Investigation/Feasibility Studies
- Remedial System Design & Construction
- Remedial System Operation & Maintenance
- Risk Assessments
- Vadose Zone & Groundwater Modeling
- Brownfield & Infill Redevelopment
- Financial Incentives Assessment







LAND SURVEYING SERVICES





WHERE SCIENCE MEETS STRATEGY

The tools and technology continue to evolve, but the science of land surveying remains a consistent feature of development, construction and maintenance. And the equipment is only as effective and reliable as the professionals operating it. That's why Atwell is proud to provide clients with experienced, proven land surveyors, project managers and technical teams that take a practical, functional approach to solving client needs through accurate and timely research, data and documentation.

- Land Boundary Survey
- ALTA/NSPS Land Title Survey
- 3D Machine Countrol
- Control Survey, Control Networks
- Planimetric Surveys
- Land Division/Final Subdivision Plats
- Maps/Exhibit & Condominium Documentation
- Easement Exhibits for Acquisition or Dedication
- High-Resolution Laser Scanning
- Topographic & Hydrographic Survey
- Underground Utility Layout
- Monitoring Well Survey, Landfill Capping, Volumetric Surveying & Closure As-Builts
- Lot-Fit Studies
- FEMA Elevations/Flood Plain Certificates
- Corridor Surveys
- Industrial Plant Surveying, Control, Baseline Establishment
- Rail Surveying
- Easement Acquisitions
- Construction Staking/Proposed Improvements Layout





LAND PLANNING SERVICES



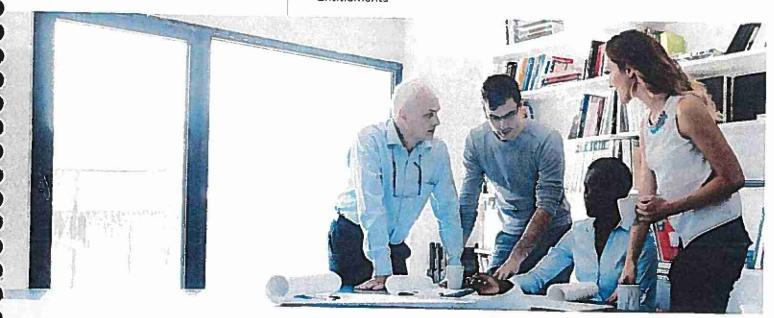
COLLABORATIVE SOLUTIONS

Atwell's approach to achieving project development goals relies on a collaborative, creative, and constructive planning process. Land planning professionals thoughtfully develop strategy to approach site or project objectives, accomplish maximum property yields, and create value for future project phases. Through this process, we pursue consensus between developers, communities, and key stakeholders, reducing friction and obstacles during project permitting and entitlement activities.



- Site Planning
- Ordinance Review & Project Entitlement Strategies
- Purchase Agreement (PA) Negotiation
- Comprehensive Land Use Planning & Analysis & Amendments
- Area Land Planning
- Property Due Diligence Investigations
- Site Investigation Reports (SIR)
- Natural Features/Site Analysis
- Feasibility Studies & Analysis
- Conceptual Land Planning & Design
- Yield Planning/Calculation
- Economic Viability Analysis
- ProForma Development & Analysis
- Site Design & Use Planning
- Charrette Services
- Graphic Design/Renderings
- Land Policy/Ordinance Creation Research and/or Analysis
- Entitlements







LANDSCAPE ARCHITECTURE SERVICES





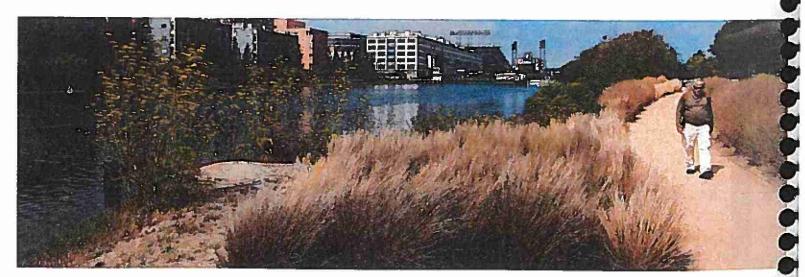


BUILDING BEYOND THE BRICKS

Innovative and creative landscape architecture enhances the appeal and marketability of commercial and residential development. Atwell's landscape architects employ an interactive approach to landscape architecture through a four-step design process – visualization, customization, integration and implementation.

This process is essential to developing strong designs that address sociobehavioral, environmental and aesthetic preferences and provide an attractive, functional, and sustainable product. Our professionals capture your vision in their designs by combining concept drawings, sketches, images and materials in a collaborative environment.

- Site Analysis
- Natural Features Analysis & Site Planning
- Tree Survey/Condition Assessments
- Design Idea Generation/Conceptual Plant Missing Plans
- Preliminary & Final Landscape Designs
- Landscape Maintenance Planning
- Specification Standards
- Ordinance Compliance Calculations
- Hardscape Design & Detailing
- Streetscape Design
- Recreation Facilities Planning & Design
- Irrigation Design
- · Sustainable/Low-Impact Design
- Presentation Graphics & Renderings





LAND & RIGHT-OF-WAY SERVICES



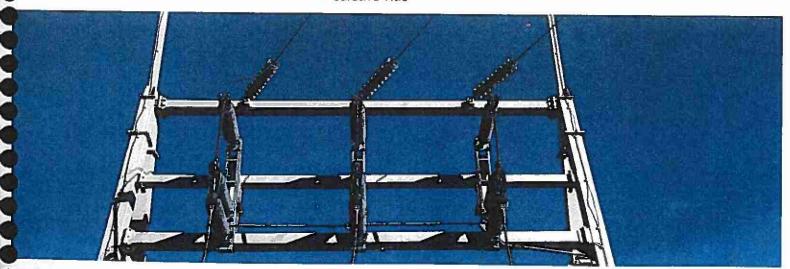


IT ALL STARTS HERE

Even the most preliminary project surveys and studies often require access to potentially involved or impacted property. As a project evolves, permanent right-of-way or acquisition negotiations with land owners become a critical activity. Professionals from Atwell support the selection, negotiation and acquisition process for clients through a network of national land agents, specialized in-house project managers and legal professionals focused on quality data delivery, land owner engagement and timely project execution.

The combination of proprietary GIS mapping technology services and experience throughout North America makes Atwell the ideal partner for clients seeking energetic, experienced representation on their next project.

- Site Selection
- FEED Studies
- Title Services
- Field Representation
- Project Management
- Prospecting/Desktop Studies
- GIS Mapping
- Landowner Database Creation & Management
- Community & Stakeholder Presentations/Education
- Land Leasing
- Mineral Right Acquisition
- Right-of-Way Acquisition
- Right-of-Entry Acquisition
- Fee Simple Acquisition
- Abstracting & Lease Take-Offs
- 40-Year Chains of Title
- Document Preparation
- Curative Title





GIS & MAPPING SERVICES







VISUALIZING VALUE

Today, more than ever, real estate and development professionals need timely and targeted information to formulate and evolve their development and management strategies.

The use of Geospatial Information Systems (GIS) compiles data so it can be viewed and interpreted to reveal relationships and trends. It can also combine traditionally fragmented data into an integrated asset management solution.

Atwell offers a dedicated GIS consulting, analysis and mapping team that supports our clients involved in the development of large land parcels, multiple locations or the ongoing management of property portfolios.

CAPABILITIES

Data Modeling & Analysis

- Site Suitability & Constraint Modeling
- Market Analysis

- Site Selection
- Developable Land Analysis
- Land Use Analysis/Planning

Asset Management

- Site & Property Management
- Utility Location & Management
- Real Estate Portfolios
- Infrastructure & Energy Systems
- Custom Asset Management Systems
- Land Acquisition & Right-of-Way Process Management

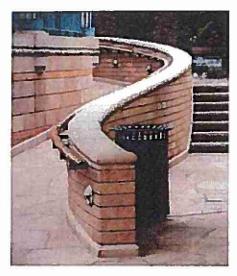
Project Management Services

- GIS Consulting & Support
- Presentation Materials for Agency Reviews & Permits
- · GIS Data Integration
- GIS Application Development
- Data Conversion & Migration
- Data Management & Mapping Solution (PIVIT ™)





PROJECT MANAGEMENT SERVICES





Property Condition Assessments (PCAs) are classified as engineering due diligence projects associated with commercial real estate, though engineering work is not part of the assessment and is excluded in the scope of the assessment. Often, they are completed as part of a property transfer, along with a Phase I Environmental Site Assessment. They are done in both equity and debt markets.

In equity markets, these reports primarily have value to the purchaser in that they can understand the issues and the potential costs associated with owning a property. The Property Condition Report (PCR) would be used in these cases to negotiate the purchase price as it reveals all physical repairs that a property may require—routing maintenance, normal operational maintenance, miscellaneous minor repairs, etc. These reports tend to be very detailed and may require a number of specialists to evaluate the various building systems (e.g. HVAC, elevators).

In debt markets, the reports have the value of letting the lender know that the borrower will likely have sufficient cash flow to operate, maintain, and update the property over the course of the loan. This provides some assurance to the lender that the loan will be repaid or, in the worst case, the property will not decline in value in the situation they have to sell it to recoup their loan amount.

SCOPE

- Site Assessment
- Interviews

BUILDING SYSTEMS EVALUATION

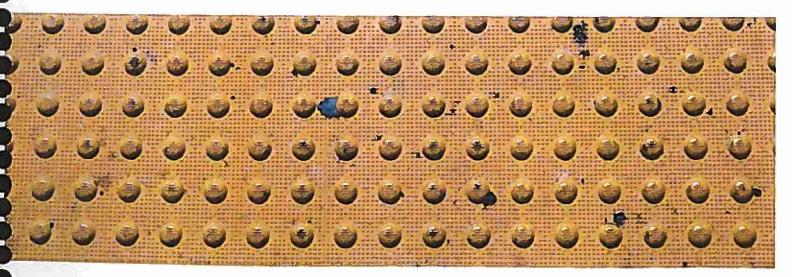
- HVAC Systems
- Elevators
- Plumbing
- Boilers
- Electrical
- Fire Suppression Systems

BUILDING EVALUATION

- Foundations
- Structure
- Roof
- Interior Finishes
- Building Envelope

SITE IMPROVEMENTS EVALUATION

- Pavement
- Drainage
- Signage
- Lighting





INDUSTRIAL COMPLIANCE SERVICES





DATA TO DRIVE DECISIONS

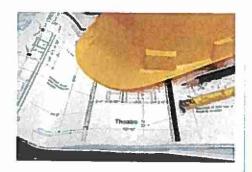
Atwell's compliance specialists advise clients in the manufacturing, heavy industrial and power markets on proactive solutions to manage environmental compliance, permitting and health and safety programs.

- Soil & Hazardous Waste Identification/Management
- · Environmental Permitting, Compliance & Auditing Programs
- Environmental Health & Safety Consulting Services
- Industrial Storm Water Management
- SPCC Plans
- Waste Minimization
- RCRA Permitting & Facility Investigations
- Facility Compliance Audits



PROGRAM & CONSTRUCTION MANAGEMENT SERVICES





MORE VALUE, LESS LAYERS

Gain a more comprehensive understanding of project options and potential through the engagement of a construction manager. Atwell delivers continuity and efficiency to complex projects and programs by facilitating design, permitting and construction activities, while reducing time spent coordinating vendors, tasks and schedules.

Our construction managers become experts on your goals and preferences, acting as an extension of your in-house team and are able to add flexible resources on a per-project basis. For multi-site, large-scale or complex projects, this project delivery method efficiently increases consistency and communication for a superior and consistent product.

- Project Scope Development
- Budget/Cost Control
- Feasibility & Due Diligence Services
- Design Professional (Architect/ Engineer) Selection
- Constructability Review
- Value Engineering Review
- Construction Phasing & Scheduling
- Client Representation
- Permitting Strategy & Guidance
- Bid Scopes for Individual Trade Disciplines
- Contract Negotiation & Execution Coordination
- Procurement & Material Sourcing
- Vendor & Subconsultant Management

- Site Logistics & Strategy
- Construction Monitoring & Evaluation
- QA/QC All Trades
- Onsite Construction Management
- Commissioning
- Permanent Relocation/ Occupancy Assistance
- As-Built Surveys
- Closeout Procedures & Financial Surety Releases
- Project & Document Controls
- EPCM Delivery Method





PROJECT MANAGEMENT SERVICES



EXCEEDING EXPECTATIONS

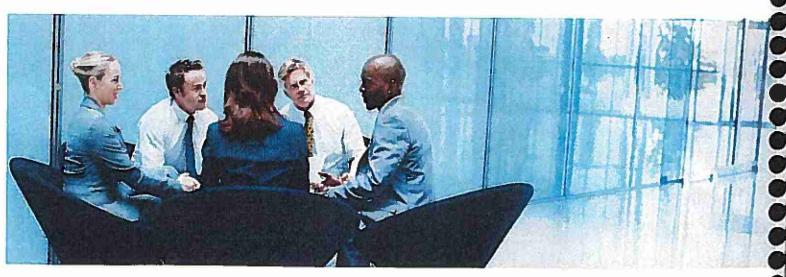
Project management is an expected service, but how that management is defined and delivered can vary significantly. Clients of Atwell rely on our aggressive, proactive project management style, and our spirit of client advocacy and constant communication.

The singular job of our project managers is to deliver client solutions that address organization and individual needs. Managers have the freedom to leverage technical and corporate resources from across the organization to ensure timely, productive results.



- Project Planning & Scope Development
- Project-Specific Execution Planning
- Communication Strategy
- Scheduling & Budgets
- Permit Strategy & Execution
- Cost Controls & Resource Allocation
- Quality Assurance Management
- Contract Administration
- Document Management
- Service & Subconsultant Coordination
- · Project Delivery & Close-Out
- Client & Stakeholder Representation







Michael J. Koenig | Team Leader, Environmental Services

EDUCATION
Bachelor of Science
Geology
Kent State University
1996

WORK EXPERIENCE EDP Consultants Environmental Geologist 1997-2004

Atwell, LLC Environmental Team Leader 2004 - Present

CERTIFICATIONS
Asbestos Building Inspector
Ohio (2001-2013)
Pennsylvania (2008-2013)

Asbestos Management Planner Ohio (2001-2013) Pennsylvania (2008-2013)

OSHA Hazwoper Training 29 CFR 1910.120(e) 1998 - Present

AFFILIATIONS
Building Environment Council of Ohio, Inc.

EXPERTISE

- Hazardous Substances & Environmental Site
 Assessments
- Remediation Design and Estimating
- Universal and E-Waste
 Evaluations and Remediation
- Air Quality Monitoring & Permitting
- Asbestos & Lead-Based Paint
- Brownfield Redevelopment
- Due Diligence/Feasibility
- Environmental Management Systems Development & Reporting
- Geophysical Investigations
- Groundwater Monitoring
- Health & Safety Plans
- Human Health Risk Assessments
- Hydrogeolic Studies
- Indoor Air Quality
- Landfill Assessments & Monitoring
- NEPA Reviews & Compliance
- Oversight of Remediation Activities
- Permitting & Compliance
 Assistance
- Phase I, Phase II & Phase III ESAs
- Public Outreach

Mr. Koenig has more than 19 years of experience in environmental consulting and currently manages daily operations with respect to project and client initiatives within the Atwell's environmental and natural resources groups. Mr. Koenig is responsible for managing environmental staff and operations in Atwell's Ohio, Pennsylvania, and Georgia offices. In addition to staff and project management, he is responsible for assisting clients in project definition, preparing work plan proposals and cost estimates, directing subcontractors, performing environmental investigations, performing remediation projects, interfacing with regulators and other project professionals, and the preparing/reviewing of project reports.

RECENT RELEVANT EXPERIENCE

Project Management & Team Leadership

Mr. Koenig's project/client management and team leadership experience includes all aspects of a project life cycle including: managing and directing a staff of environmental professionals, initial coordination and work scope development with the client to ensure all the client's needs are fulfilled in the most timely and cost effective manner, contract preparation and estimating, negotiations with regulators on behalf of the client, oversight of project execution, quality control, and financial management.

Environmental Assessment and Remediation Projects

Mr. Koenig manages projects ranging from environmental site assessments of small residential properties to large-scale industrial facilities including identification, evaluation, and remediation of various chemicals of concern such as petroleum hydrocarbons, pesticides and herbicides, PCBs, chlorinated solvents, metals, universal hazardous wastes, E-wastes, asbestos, lead-based paint, etc.

Subsurface Investigation Projects

Mr. Koenig manages surface and subsurface evaluations involving soil, surface water, and groundwater investigations and remediation. Investigative activities including site inspections, the design and implementation of drilling programs, sampling plans, identification of chemicals of concern, appropriate analytical testing methods, and data interpretation. Also designs, manages and directs remediation projects involving excavation and disposal of contaminated soil and groundwater and the in-place treatment of subsurface COCs.

Commercial Retail

Mr. Koenig has provided and managed environmental services for numerous commercial retail clients including, but not limited to the following: Walmart, Target, Menards, Dollar General, Rite Aid, Aldi, Walgreens, Lowes, Giant Eagle, Sears/Kmart, JC Penny, Tim Horton's, and Goodwill. Mr. Koenig has coordinated the execution of Master Service Agreements with commercial retail clients, established protocols for work to be completed as part of roll-out programs, and managed the execution of work associated with large-scale roll-out programs.

Industrial Facilities

Mr. Koenig has provided and managed environmental services for numerous industrial clients and properties including, but not limited to the following: Nestle food processing facilities, Metaldyne automotive part manufacturing facilities/foundries, Vesco Oil and Ullman Oil bulk petroleum storage and distribution facilities, Bridgestone/Firestone facilities, Parker Hannifan, various landfill sites, machining and/or metal working facilities, trucking terminal/distribution facilities, and numerous manufacturing facilities. Services have included the management of site assessments, remediation activities, compliance, permitting, and/or reporting.



Michael J. Koenig | Team Leader, Environmental Services

- Regulatory
 Compliance/Permitting
- Remediation System Design
- Risk-Based Compliance Determinations
- Soil & Groundwater Remediation
- Soil, Vapor & Groundwater Sampling
- Solid & Hazardous Waste Identification/Management
- Stormwater Evaluation
- Technical Reporting
- UST Removal & Closure
- Vapor Encroachment Assessment
- Vapor & Groundwater Modeling
- Voluntary Cleanup Regulations & Policies

Power and Energy

Mr. Koenig has provided and managed environmental services for numerous power and energy clients (oil/gas, solar, wind) including, but not limited to the following: Consol, BP of North America, Tracker Resources, NextEra, Atlas Energy, Element Power, and National Renewable Energy Corp. Services have included the management of site assessments, remediation activities, compliance, permitting, and/or reporting.

Banking and Financial Institutions

Mr. Koenig has provided and managed environmental services for numerous banking and financial institution clients including, but not limited to the following: Key Bank, National City Bank, PNC Bank, Fifth Third Bank, First Place Bank, Huntingdon Bank, Northern Trust, First Federal Lakewood, Cooperative Business Services, and Charter One. Services have included the management of site assessments associated with lending due diligence and/or foreclosure, remediation evaluations and estimating, compliance evaluations, permitting, and/or reporting.

Underground Storage Tank (UST) Projects

Mr. Koenig manages projects ranging from single tank removals to the closure of multi-tank systems. Project sites and clients have included retail gas stations owners, automotive repair facilities, telecommunication sites, manufacturing facilities, and orphaned properties. Environmental services have include site assessment activities, project coordination, corrective action evaluations, groundwater monitoring, compliance, human health risk evaluations, remediation, regulator coordination, obtaining state approved No Further Action and or closure status, and obtaining State reimbursement funds for owner/operators.

Asbestos and Hazardous Waste Assessment Projects

Mr. Koenig manages projects ranging in size and scope from AHERA re-inspections for local school districts to large-scale demolition projects for multi-tenant commercial facilities or industrial facilities. Provides management and oversight for sampling, mapping the extent and condition of asbestos and hazardous substances, evaluating the potential for disturbance and exposure, assisting clients with obtaining abatement permits, pricing, oversight, and preparing or updating operation and maintenance programs.





May 3, 2017

Garrison Southfield Park, LLC c/o Karl R. Heisler Katten Muchin Rosenman LLP 1290 Avenue of the Americas, 9th Floor New York, New York 10104

RE: Professional Consulting Services to date under the National Contingency Plan - Closed Loop Facility located at 1675 & 1655 Watkins Road, Columbus, Ohio.

Dear Mr. Heisler:

Per your request, Atwell, LLC (Atwell) has conducted an internal review for all professional consulting services to date which qualify under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) in support of the ongoing investigation of the above referenced Closed Loop facility.

For the period of June 15, 2016 through May 3, 2017, Atwell has accrued a total of \$94,922.82 in NCP compliant professional consulting fees in association with the Closed Loop facility investigation.

If you have any questions or comments, or if we can be of further assistance, please do not hesitate to contact us at (440) 349-2000.

Sincerely, ATWELL, LLC

Tom Leigh Project Manager

Michael Koenig Team Leader



May 2, 2016

Garrison Southfield Park, LLC. C/O Karl Heisler 1290 Avenue of the Americas, 9th Floor New York, New York 10104

RE: Proposal Summary for Consulting Services Related to the Removal, Disposal & Remediation of E-Waste at the Former Closed Loop, Inc. Facility 1675 & 1655 Watkins Road

Columbus, Ohio

Dear Mr. Heisler:

Atwell, LLC is pleased to present this proposal summary for consulting services related to e-waste removal, disposal/recycling and remediation at the former Closed Loop facility located at 1675 and 1655 Watkins Road in Columbus, Ohio. Our attached proposal is based upon site visits of the former Closed Loop, Inc. facility, meetings with property owner representatives, a review of available records pertaining to Closed Loop's former operations and evaluations of site conditions, and conversations with legal counsel for Garrison Southfield Park, LLC (Garrison).

Please review the attached proposal summary. If you have any questions or would like further information, please contact us at (248) 447-2000.

Sincerely, ATWELL, LLC

Thomas Leigh Project Manager

Michael Koenig Team Leader

1.0 INTRODUCTION

This scope of work and cost estimate has been prepared in response to a request from Karl Heisler, Katten et.al., counsel to Garrison Southfield Park, LLC., 1290 Avenue of the Americas, 9th Floor, New York, New York 10104 (hereafter referred to as "Client"). Atwell, LLC (hereafter referred to as "Atwell") has prepared this scope of work and cost estimate to perform a series of consulting tasks related to the removal of abandoned e-waste, transportation to a e-waste recycling facility(ies) and/or landfills, the remediation of the building's interior, and subsequent regulatory closure associated with the former Closed Loop, Inc. operations located at 1675 and 1655 Watkins Road, Columbus, Ohio (Subject site).

Based on our understanding of the environmental and regulatory challenges associated with the site, including the issuance of a Notice of Violation (NOV) to Closed Loop Refining and Recovery, Inc. on April 11, 2016 and potential nearby sensitive receptors to current site conditions, Atwell recommends the following Scope of Services.

2.0 PROPOSED SCOPE OF WORK

Atwell proposes to act as the Client and property owner's advocate throughout the process described in this proposal. In order to ensure the most efficient approach to the removal of the accumulated e-waste as well as subsequent remediation of the buildings and regulatory compliance for the site concerns, Atwell proposes to complete the following tasks.

- <u>Task 1</u> Initial Planning and Coordination: Atwell will prepare a Project Plan for the oversight and monitoring of the work activities to be conducted at the Subject site. The Project Plan will include the necessary (and regulatory required) work plans, loading plans, monitoring plans, sampling plans, and quality assurance plans to implement the logistics, removal of e-wastes from the building, oversight, assessment, and remediation compliance.
- <u>Task 2</u> Project Administration and Advisory Services: Atwell will provide project administration advisory services on behalf of the Client to assist with the loading, transportation, removal of the e-waste, and building remediation. This task will include planning and procurement phase services, contractor removal/remediation administration phase services, and closeout phase services.
- <u>Task 3</u> Environmental Consulting Services During E-Waste Removal: Based upon the approved Project Plan, Atwell will work closely with the Client's selected contractor(s) to monitor and document environmental conditions (i.e., internal and external) during waste loading/removal activities and building remediation.
- Task 4 Environmental Consulting Services for RCRA Closure and Building Remediation: Following the removal of the abandoned e-waste from the buildings, Atwell will assist the Client to engage and confirm the services of a lead abatement contractor to remediate residual lead-contaminated dust within the buildings, and provide the necessary environmental consulting, closure sampling, and reporting activities to achieve a RCRA compliant closure.



3.0 FEES

Atwell will provide the environmental services described in this proposal on a Time & Material (T&M) basis. Sub-consultant charges, fees, commissions, materials, supplies, and out of town travel expenses will be billed at cost plus 15%. All labor charges for the project will be billed in accordance with Atwell's 2017 Fee Schedule for Professional Services. Any project related work that is conducted in hazardous working conditions utilizing the need for Tyvex suits and respirators will have an additional surcharge of 15% added to the hourly rates. A Budgetary T&M Estimate for each Task is presented in Table 1.

Table 1: Project Costs

| Table 1: Project Costs | |
|---|-------------|
| Task Summary (Budgetary Time & Materials Estimates) | |
| Task 1 – Initial Planning and Coordination | |
| Atwell labor and services | \$70,000 |
| Task 2 – Project Administration and Advisory Services | |
| Atwell labor and services | \$121,600 |
| Atwell travel costs and per diem at government rates | \$11,400 |
| Task 3 - Environmental Consulting Services During E-Waste Removal | |
| Atwell labor and services | \$490,200 |
| Atwell travel costs and per diem at government rates | \$57,000 |
| Task 4 – Environmental Consulting Services for RCRA Closure and Building Reme | diation |
| RCRA Closure - Atwell labor and services | \$300,000 |
| Building Remediation Monitoring – Atwell labor and Services | \$77,000 |
| Atwell travel costs and per diem at government rates | \$9,000 |
| Task 98 – Project Reimbursables | \$43,500 |
| Budgetary Time & Material Estimated Project Cost | \$1,179,700 |

Note: Atwell's fees associated with site monitoring, administration, and advisory services during the removal of e-waste and the building remediation activities are based on Contractor anticipated schedules and task durations. E-waste removal (9 months), Building dust remediation (3 months).

4.0 SCHEDULE

Based on the remediation estimates received for this project, the e-waste removal activities have been estimated to take approximately 9 months to compelte. The subsequent building remediation activities have been estimated to take approximately 3 months to complete. The duration of the regualory closure assessment and approval process will be dependent on the Ohio EPAs Ohio EPA's oversight over RCRA closure.

Atwell will conduct the environmental services outlined in this proposal consistent with the standard skills used by local members of the environmental profession practicing under similar



conditions. This proposal does not include sampling or laboratory analysis for the disposal of soil or liquid waste derived from the subsurface investigation operations. The handling and disposal of all sample media will be the responsibility of the independently retained laboratory. This proposal does not include contaminated soils removal, characterization, or disposal from the project site. If necessary, these costs will be in addition to the Scope of Work and fees presented herein.

5.0 PROJECT UNDERSTANDINGS

Atwell, LLC is acting in the role of Client consultant / advisor for this project and will execute all work in good faith in accordance with industry standard practice and procedures. Atwell is not serving as a General Contractor. The estimated project schedule and cost estimates are highly dependent on factors not within Atwell's control, including governmental and agency reviews and contractor's performance. Atwell's role does not include: (a) the selected contractor's health and safety protocols; and (b) transportation and ultimate recycling/disposal of e-waste. Accordingly, Atwell assumes no liability for Contractor performance, including project schedule, project budget or jobsite health and safety.

This proposal is valid for a period of sixty (60) days. This proposal shall serve as Exhibits A, B and C, as referenced in Atwell's Professional Services Agreement as agreed upon by Katten. The Time and Material cost estimates include project related reimbursable expenses, including vehicle mileage, hotels, per diem, postage/shipping, and reproductions. Those costs will be billed in accordance with the Atwell Professional Services Fee Schedule. Any application, bonding, or permit fees for the project will be paid directly by the Client.

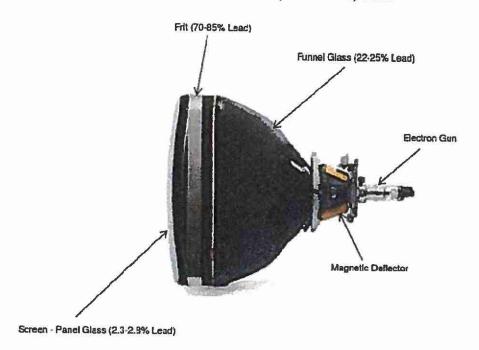
If Client chooses to alter the proposed scope of work, Client shall so advise Atwell, and Atwell shall propose alterations to the scope of work and related fees. Client will authorize Atwell in writing to conduct more or less work than defined in the proposal.



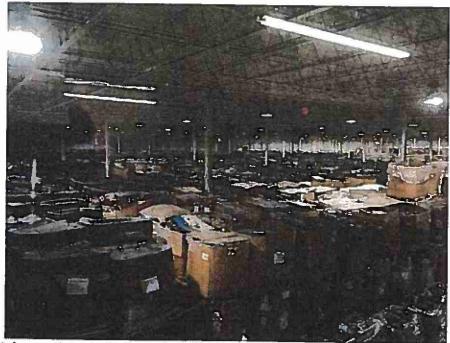
APPENDIX B

Photographs of E-Waste and Site Conditions

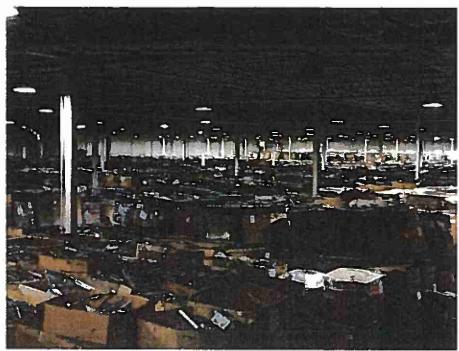
Photographic Log Abandoned E-Waste and Building Conditions 1655 and 1675 Watkins Road, Columbus, Ohio



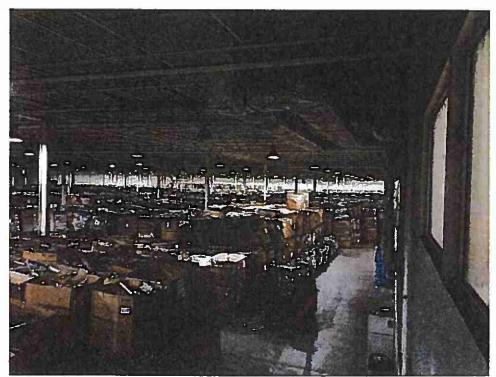
General image of a CRT, it's main components, and associated lead content.



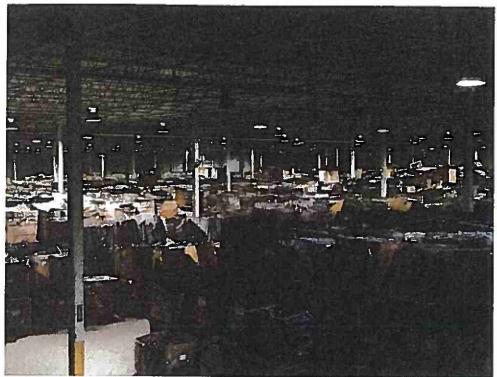
View of containers of stockpiled crushed CRT glass stacked three high in the south portion of building 1675.



Additional view of containers of stockpiled crushed CRT glass stacked three high in the south portion of building 1675. Containers of segregated scrap metal (frit) are in the foreground.



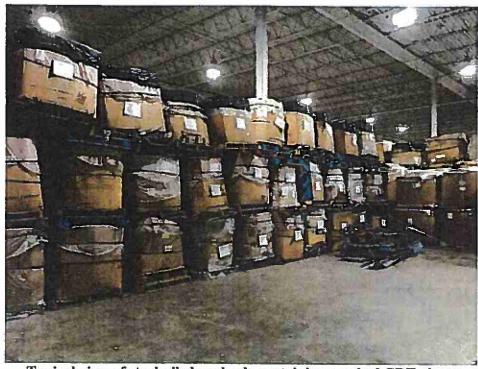
Additional view of containers of stockpiled crushed CRT glass stacked three high in the south portion of building 1675. Containers of segregated scrap metal (frit) are in the foreground.



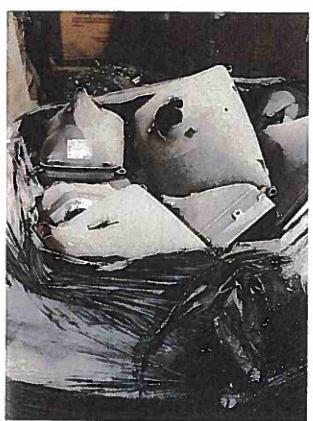
View of containers of stockpiled crushed CRT glass stacked three high in the north portion of building 1675.



View of a typical container of crushed CRT glass.



Typical view of stockpiled gaylords containing crushed CRT glass.



View of a container of CRT Tubes (not yet processed).



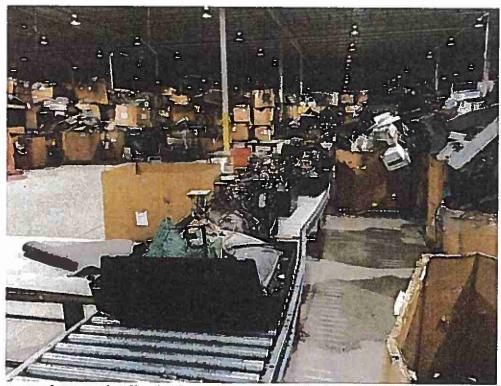
View of a container of projection CRT units not yet processed.



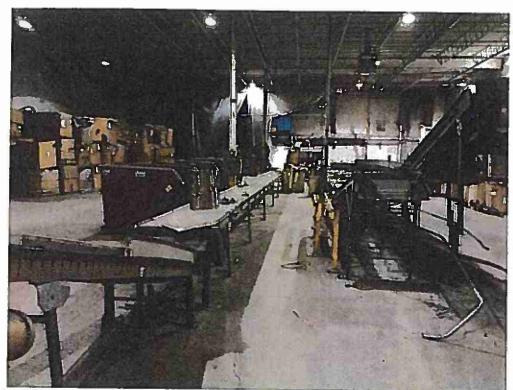
View of a container of segregated plastic components.



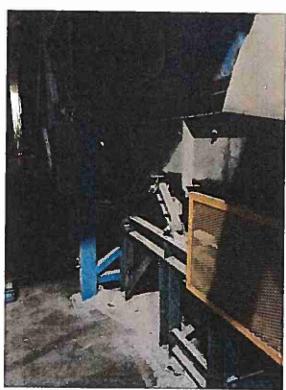
View of intact CRT devices (TVs) not in gaylord containers but as originally received by Closed Loop and unprocessed.



View of a manual processing line in the south portion of building 1675 where TVs and computer monitors would be disassembled.



View of the CRT crushing area in the west central portion of building 1675. The CRT crusher is the blue equipment behind plastic sheeting installed as an attempt to control dust.



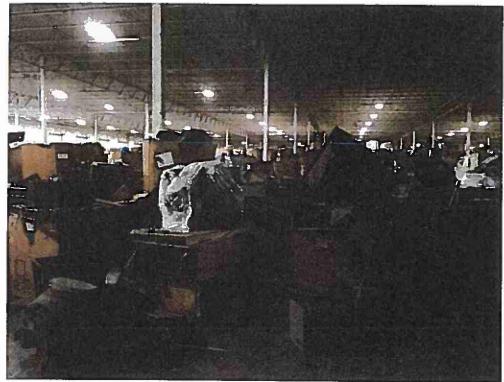
View of the crusher and a few inches of accumulated hazardous lead dust under the unit.



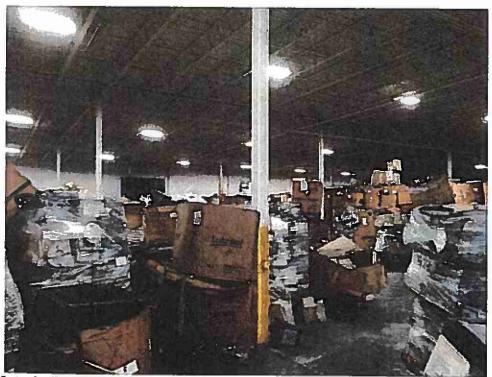
View of dust accumulation on the floor of the building.



View of stockpiled CRT devices awaiting processing in the south portion of building 1655.



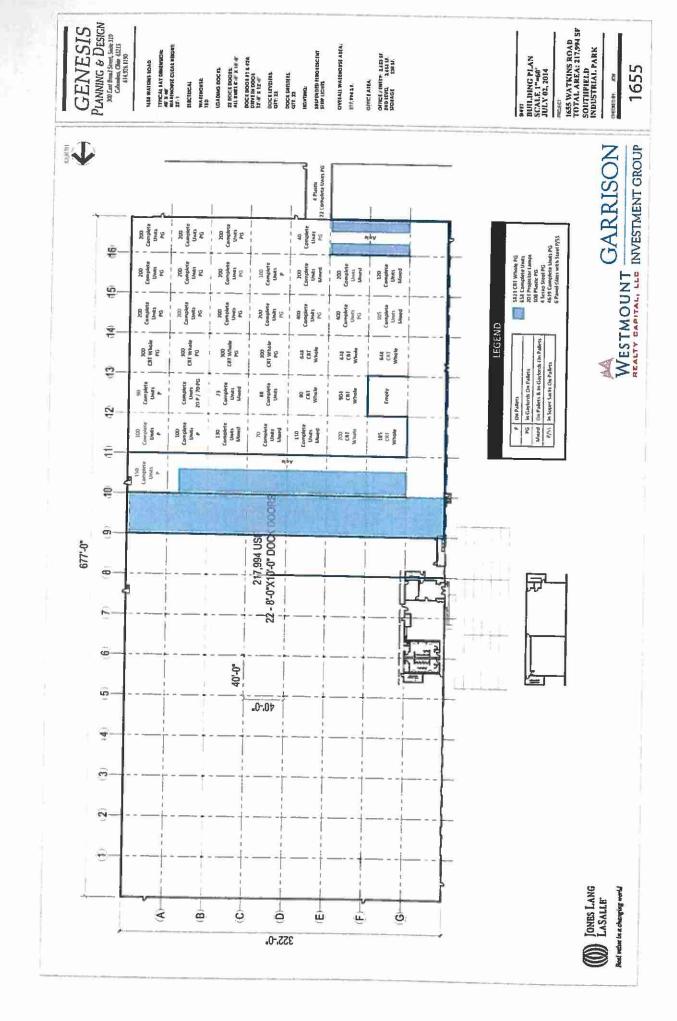
Additional view of stockpiled CRT devices awaiting processing in the south portion of building 1655.



View of stockpiled CRT devices awaiting processing in the north portion of building 1655.

APPENDIX C

Figures



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GARRISON

1675 WATKINS ROAD TOTAL AREA: 289,628 SP LOGISTICS POINTE

BUILDING PLAN SCALE 1"*80" JULY 02, 2014

INVESTMENT GROUP WESTMOUNT -

1675

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Real value in a changing world

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APPENDIX D

Preferred Removal Contractor Proposals and Qualifications: HWE, Novotec, URT



Revised Proposal for Removal and Disposition of Material from 1655 and 1675 Watkins Road Warehouse

Submitted by: Novotec Recycling LLC

Date: August 23, 2016

Novotec Recycling (hereinafter referred to as Novotec) is pleased to submit the proposal outlined below at the request of Garrison Investment Group of 1290 Avenue of the Americas, 9th Floor, New York, NY 10104 (hereinafter referred to as Garrison). This proposal is to provide all management, transportation and labor required for the removal and proper disposal and/or recycling of all Subject Material as outlined below from the Subject Property outlined below.

Summary

Novotec proposes to work with a variety of final processors for the CRT material to maximize the number of loads leaving the warehouse each week. Novotec has existing relationships with every downstream option available and will negotiate the best pricing balanced with the desire to move the material out as quickly as possible. These options include landfill, long term storage cells, glass-to-glass recycling, multiple lead and copper smelters, several glass recyclers who blend CRT glass, tile manufactures in Spain and several more. The goal would be to have multiple outlets taking material at the same time.

The pricing outlined below is design to cover all of the various costs involved in the project and thus minimize the number of contractors Garrison has to deal with to complete the project. The pricing includes all labor and equipment to stage and load the material, all transportation costs and all disposal or recycling fees.

Novotec's headquarters and all management and staff live and work in Columbus, Ohio. Novotec will provide experienced, full time employees, NO TEMPS, for this project. Each Novotec employee that will be involved in this project will have at least one full year of experience working with CRT material.

Novotec will be providing all of the equipment necessary to complete the work as outlined, including but not limited to forklifts, scissor lifts, balers, shrink wrap machines and pallet jacks.

This proposal is not intended to cover every detail of the agreement. It is anticipated that a formal contract or Service Agreement would be drafted and executed which would spell out details regarding payments, insurance and liability assumptions, notice, jurisdiction, dispute resolution, etc.

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Definitions

Subject Property: The Subject Property includes the entire approximately 290,444 square feet of warehouse space in the building located at 1675 Watkins Road, Columbus, Ohio 43207 (hereinafter referred to as 1675) and approximately 115,000 square feet of the warehouse space in the building located at 1655 Watkins Road, Columbus, Ohio 43207 (hereinafter referred to as 1655). The warehouse space located at 1655 Watkins Road is located at the southern end of that same building. The Subject Property also includes the space located in the connecting structure between 1675 and 1655 Watkins Road.

Subject Material: The material to be removed from the property includes but is not limited to whole CRT containing display devices (televisions, computer monitors and terminal displays), partial or broken CRT display devices, CRTs which have been removed from whole CRT display devices, broken or partial CRTs which have been removed from Whole CRT display devices, boxes of glass which have been removed from CRTs, steel banding from CRTs, plastic housings which have been removed from whole CRT display devices, flat panel displays (flat panel televisions and computer monitors), whole and partial projector TV sets, projector TV lamps, whole and broken pallets, miscellaneous equipment (including but not limited to conveyors, tables, portable light fixtures, balers, screeners, dumpers, trash containers) and miscellaneous non-hazardous waste. An Estimate of the breakdown of the Subject Material is attached to this proposal as Attachment A.

Approved Service Provider (ASP): An Approved Service Provider is a legal entity doing business as a company which provides disposal and/or recycling services which are required for the proper, legal and final disposition of the Subject Material such that Garrison is relieved of all liability for such material and has no further financial or legal obligation regarding such material. Novotec has relationships with a variety of possible ASP for this project. Each ASP has different processes and services which will dispose of and/or recycle the Subject Material and each of the ASP has different price structures and costs. Novotec will provide Garrison with pricing and details on the options for using the different ASP and Garrison shall choose which ASP they wish to utilize. Once approved Novotec will set up logistics and work to maximize the number of loads per day sent to each ASP with the goal of clearing the Subject Property as quickly as possible.

Novotec's Obligations

Novotec's obligations under this proposal shall include the following:

- 1) Novotec will provide all of the labor and equipment required to safely move the Subject Material within the warehouse and stage such material for shipping. This may require that some boxes or pallets currently in the warehouse be repackaged if the existing box or pallet falls apart during the staging process. Client is aware that much of this material has been sitting in the warehouse for several years or more and many of the boxes and pallets are not in very good condition. Novotec will provide the shrink wrap, pallets and gaylords as required to stage the loads properly for shipping.
- Novotec will provide all of the labor and equipment required to load the Subject Material into the appropriate shipping containers for transportation to each specific ASP for disposal and/or recycling of that specific material.
- 3) Novotec will arrange, manage and pay for all transportation services required to transport the Subject Material from the Subject Property to its designated ASP. Novotec will provide all legal documentation and keep records of all shipments as may be required by any applicable laws, rules or regulations or industry certifications.
- 4) Novotec will arrange, manage and pay for all disposal and/or recycling services as they may be provided by each ASP. Novotec will provide records of all invoices and payments to any ASP which is not Novotec.
- 5) Novotec will provide Garrison with invoices for the removal of all of the material as the material is being shipped. Due to the nature of the Subject Material it is anticipated that most of this material will require payment to be made for such services at the time the material is shipped. Novotec will provide all invoices in a timely manner such that Garrison has ample time to pay such invoices. Novotec will work with Garrison to arrange for financial assurances such as Letters of Credit or prepayment accounts that can be drawn upon for shipments as they leave the warehouse. Details of payment terms will need to be worked out in detail prior to commencement of the project.

Garrison's Obligations

Garrison's obligations under this proposal shall include the following:

- Garrison will provide access to the building, the front dock area and parking area such that Novotec can meet all of their obligations outlined above without any interference or delay.
- 2) Garrison will insure that the lights in the warehouse are working and full power is available for operating any lights, dock doors or other equipment Novotec will need to fulfill their obligations as outlined above. Novotec does not anticipate requiring any additional heavy equipment or equipment which would use large power requirements.
- 3) Garrison will pay all invoices within the terms provided for such payment. Due to the nature of the material being removed from the Subject Property it is anticipated that most or all ASP will require Novotec to make payment in advance of the material arriving at their facility. It may be prudent to set up Letters of Credit or accounts to draw against for payments in order to allow for the uninterrupted flow of material out of the warehouse. Garrison agrees to work with Novotec to provide such financial assurances as Novotec may require in order to make Novotec's payments to the various ASPs. Details of payment terms will need to be worked out in detail prior to commencement of the project.

Strategy

After additional discussions with Garrison Novotec recommends that both 1655 and 1675 be cleaned out simultaneously. The time frames below will start at approximately the same time as scheduling allows.

1655 – (24 to 39 weeks) - 1655 will involve removal of all Subject Material in 1655 such that Garrison can lease perform a final cleaning of the facility and lease it to a new tenant. Novotec would ship this material to the Novotec Recycling facility located in Columbus Ohio for recycling of the CRT glass such that all of the materials in the 1655 building remain Conditionally Exempt from being designated as waste or Hazardous Waste under CFR Title 40 Subchapter I regarding Solid Wastes. Some of this Material may also go to a Lowest Cost ASP.

1675 – (9 to 15 months) – 1675 will involve removal of all Subject Material within 1675. In order to expedite this process Novotec will identify and work with Garrison to approve as many ASP as possible for this material. Novotec has currently identified 2 definite ASP and has identified several more potential outlets which may require additional work to achieve an agreement for them to accept the material within the time frame and in the condition in which the material currently exists. One of the already identified ASP is a Lowest Cost ASP for the material in 1675. Shipping to this ASP could begin immediately. Garrison may choose to utilize an ASP which is higher in cost in addition to the Lowest Cost ASP in order to decrease the time required to ship out all of the material in the warehouse. Novotec will continually manage the contracts with each ASP to maximize the number of loads per day that each ASP can take.

Pricing – The Pricing for each different material is shown on Attachment A. The pricing for the Mixed Funnel/Panel Glass in Gaylords is based upon using our currently identified Lowest Cost ASP. The costs shown for Whole Units and Unprocessed CRT are based upon Novotec processing the material in accordance with all state Producer Responsibility Programs, all R2 certification guidelines and e-steward certification guidelines and all major Original Equipment Manufacturer requirements. All pricing includes all costs associated with the management of the material to final disposition as outlined above under Novotec's obligations. Due to the fact that these prices include transportation costs which include fuel surcharges it is understood that the prices may changes slightly prior to actual execution of the final service agreement. It is not anticipated that fuel costs or transportation costs will greatly increase or decrease pricing.



3960 Groves Rd. Columbus, OH 48232

614-236-2222 www.novotecrecycling

If this proposal is acceptable then please have the appropriate person sign and date the signature block below and return to Tom Bolon at tbolon@novotecrecycling.com.

Novotec appreciates the opportunity to submit this proposal and looks forward to working with Garrison on this project.

| Regards. | |
|-----------|-------|
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3960 Groves Road, Columbus, Ohio 43232 (614) 236-2222 tbolon@novotecrecycling.com





Garrison Investment Group accepts this proposal and agrees to move forward in good faith to negotiate, draft and execute a formal agreement based upon the above terms and conditions.

| Signature | Title: | Date: | |
|-------------|--------|-----------|--|
| Print Name: | | | |

Attachment A

| (\$12,476,611) | | 99 | (\$0.097) Average Cost per LB | 128,187,373 Ave | | Totals |
|----------------|------------------------------|--|----------------------------------|-------------------------|------------|---------------------------------------|
| (\$12,476,611) | (\$1,643,423) (\$10,833,188) | (\$1,643,423) | | 10,288,093 117,899,280 | 10,288,093 | |
| (\$17,071) | (\$15,775) | (\$1,297) | (\$0.09) | 175,273 | 14,406 | Panel with metal |
| \$3,456 | \$1,512 | \$1,944 | \$0.10 | 15,120 | 19,440 | Plastic |
| \$0 | \$0 | 0\$ | \$0.00 | 324,648 | 1,944 | Steel with glass |
| (\$10,237,568) | \$0 (\$10,237,568) | \$0 | (\$0.09) | 113,750,757 | | Mixed Funnel/Panel Glass in Gaylords. |
| (\$33,316) | \$0 | (\$33,316) | (\$0.18) | | 185,087 | Projector Lamps and TV |
| (\$1,398,459) | (\$346,176) | (\$1,052,282) | (\$0.16) | 2,163,603 | 6,576,765 | Unprocessed CRT |
| (\$793,653) | (\$235,181) | (\$558,472) | (\$0.16) | 1,469,879 | 3,490,451 | Whole Units |
| | 1675 | See Notes Below regarding Weights and Pricing Price / # 1675 | w regarding We Price / # | see Notes Belor 1675 | 1655 | Material |

Notes: 1 All weights are estimates and are not intended to be used as definative or actual weights

2 Actual weights will be provided as the material is being loaded.

3 All Cost Totals are estimates based upon estimated weights and are not intended to be used as actual costs.

4 All Pricing is a unit pricing per LB of loaded material.

Novotec Recycling

Founded: 2008

Industry Certifications: R2, ISO 14001, OSHAS 18001, EPSC approved

Employees: 170

Facility: 200,000 SF - 18 docks, 12 acres, full inside rail access

Introduction to Novotec Recycling

Novotec was founded in 2008 as a Cathode Ray Tube (CRT) and flat panel display recycler. The company, located in Columbus, Ohio operates out of a 200,000 SF facility on 12 acres with full inside rail access.

Novotec is open 7 days a week operating 3 shifts processing an average 50,000,000 LB annually. With capacity to process over 100,000,000 LB of CRT and flat panel material annually Novotec is positioned to handle any size project efficiently while maintaining full compliance. All employees are full or part time company employees with no temporary staffing.

Novotec is R2 certified as well as ISO 14001 and OSHAS 18001 certified. As a member of ISRI Novotec works with other industry leading companies to promote and encourage safe, responsible recycling of all materials. Novotec is also an approved recycler under the Electronics Product Stewardship Canada Recycler Qualification Program

Why Work with Novotec

Novotec was built and operates around three major principals:

- Focus Focus on one thing and do it right that is recycling displays including the processing and recycling CRT's and CRT glass and Flat panel displays;
- 2) Compliance Full compliance with all federal, state and industry regulations including R2 and e-steward standards Novotec from the first day of operations was focused on being ahead of the curve on Environmental, Health and Safety compliance and on finding sustainable solutions for all downstream material and by-products of our operations; and
- 3) Integrity Never compete with our clients. Novotec is a Third Party Processor and does not compete directly for contracts against our own clients (this practice was very common in the industry). Always deliver more than we promise. Focus on developing long term mutually beneficial relationships with clients over short term profit.

FOCUS

Over the past 9 years Novotec has developed a reputation as a leader in the electronics recycling industry specifically as the highest compliance level option for CRT glass. By concentrating on CRT glass and understanding its structure and physical properties as well as analyzing existing economic and market factors related to the glass and its major components, Novotec is able to continually evaluate all available recycling and processing options for CRT glass and assure our clients that their CRT material is being handled as economically as possible while maintaining the highest level of environmental stewardship and regulatory compliance. In 2008 the EPA regulations allowed for 2 main processes for the recycling of CRT glass. One was using the glass to manufacture a new CRT tube and the other was working with a smelter to melt the glass and recycle the lead from the glass. When many CRT processors were sending their glass to a company in Mexico which in turn sent the glass to India to a CRT manufacturer there Novotec saw that the CRT market was essentially gone and that soon the India option would go away. Instead Novotec worked with the largest lead smelter in North America to develop a product that was beneficial to the smelters process and economical for Novotec to produce. Smelting is the only process that removes the lead from the glass and recycles it back into the economy helping to reduce the environmental impact of mining virgin ores while utilizing no additional energy in the recycling process. Securing this option assured Novotec and its clients that their material would be fully recycled in full compliance with all EPA regulations for years to come.

When new solutions for CRT glass are promoted to the industry Novotec is able to knowledgably analyze the claims of the company and process they are promoting and determine if the option is viable and if it would be beneficial to our clients to pursue working with this option. Over the past 9 years the industry has seen many of these companies and solutions enter the market with much self-promotion and fanfare and unfortunately we have seen almost all of these companies fail to deliver and most have gone out of business and left large stockpiles of CRT material for others to deal with.

COMPLIANCE

Novotec has consistently focused on and delivered to its clients the highest level of regulatory compliance in the industry. Many top electronics OEM programs require their CRT material be sent to Novotec due to this high level of compliance with all regulations and industry environmental standards.

Novotec is audited annually by multiple OEM programs and large recycler clients. In addition Novotec is audited annually by the R2 certification program and the Canadian Recycling program. Auditors consistently relate that Novotec's operation is a top performer in audits. Below are some quotes from one R2 audit final report:

"This is the best management review I have seen over the years auditing."

"All employees interviewed in this area did a great job answering questions related to PPE, Focus Materials, Emergency Preparedness and Response. Even the newly hired employees did an excellent job answering questions. While at the organization a sense of good work ethic is felt among the work force."

"Excellent cleanliness witnessed."

"Monitor area was highly organized with all raw materials containers labeled and work areas cleaned. The following employees were interviewed and demonstrated excellent knowledge of the process:"

"Bailing operation was also very clean and organized. The operator was aware of the safety precautions for his area and the focus materials.

"Excellent work instructions for the processes."

"All employees did an excellent job on wearing the appropriate PPE for their jobs! "

- Quotes from Novotec R2 Surveillance audit Final Report - April 1st and 2nd 2013

In 2013 Novotec implemented a company-wide program 5S Site Management Standards which provided all employees with the tools and training which allowed them to take ownership of their work areas and processes.

INTEGRITY

Novotec's operating principals are all built on a base of integrity in everything we do. When many CRT processors were competing for the same contracts that their clients had in place that were generating material coming to them, Novotec specifically did not take up that practice and instead worked with their clients to make sure that they kept those contracts and focused on helping them grow which in turn helped Novotec grow.

When buying and/or selling commodities Novotec strives to create mutually beneficial pricing and terms that will help both sides want to develop long term and profitable relationships. There is always a sweet spot where both sides are happy and look forward to working together on the next deal.

In operations Novotec looks to be a leader in environmental health and safety often putting programs in place well above the required regulations. Employee safety is a top concern as well as environmental stewardship. Novotec will never take the lower cost option on processing or on working with downstream vendors if that option has any chance of creating exposure to downstream liabilities for their clients.

Novotec's Reputation is Second to None

The best marketing tool that Novotec has is their clients. Novotec is proud of the fact that nearly all of their clients have come to them thru word of mouth, coming to Novotec thru their stellar reputation as the trusted industry leader in compliant CRT recycling. When a company is new to the CRT recycling sector or finds themselves looking for a new CRT processing partner they only have to make a few calls before Novotec Recycling comes up. The next call is usually to Novotec.



HAZARDOUS WASTE EXPERTS PROPOSAL FOR SERVICES

OVERVIEW

Hazardous waste experts is pleased to submit this proposal for services to clean out the abandoned electronic waste processing facility located at 1675 Watkins Road, Columbus, Ohio. This proposal sets forth our approach for a single-source solution for the management, packing, labeling, transporting, and disposal of approximately 128 million pounds of electronic waste. The waste consists of cathode ray tube (CRT) monitors, television sets, projector lamps, crushed CRT funnel and panel glass, and various types of scrap metal and plastic. We plan to provide all services necessary to complete the cleanout of this facility. Approximately 14 million pounds of whole CRT units, television sets, projector lamps, and scrap material will be recycled in accordance with R2 standards. The crushed CRT glass will be disposed of in a hazardous waste landfill. At the conclusion of the project, all of the material will have been recycled or disposed of permanently, in a manner that is fully compliant with all appropriate rules, regulations, laws, and standards.

The Objectives

Our plan will ensure that the following objectives are met:

- The project will be completed in less than 180 working days (nine months).
- Our total cost for this project (at projected volumes) will be \$17,955 396.30
- We will complete <u>all</u> tasks related to a complete cleanout of the site.
- We will ensure that all risks associated with this project are mitigated to the fullest extent possible.

The Plan

Our plan is comprehensive, ensuring that all aspects of the project are managed and implemented by our project team.

- Whole CRTs, complete units, scrap plastic, and scrap panels with metal will be segregated into cubic yard (Gaylord) boxes on wooden pallets. These pallets will be covered entirely by stretch plastic film and then labeled with the origin, weight, load number, destination, and other regulatory information. The pallets will be loaded into 53 foot inter-modal containers at the site and then transported over-the-road to a rail siding where the containers will be transferred onto rail cars. The containers will travel by rail from Columbus. Ohio to San Bernardino, California, where they will be transferred by crane back onto truck chassis for over-the-road transportation to Calexico, California. In Calexico, the containers will be prepared and labeled for export into Mexico and then shipped over-the-road across the border to the treatment facility in Mexicali, Mexico. At the treatment facility, the units will be disassembled and all of the materials segregated. The tube guns, plastic, metal, circuit boards, and wiring will all be transferred to local companies for further recycling. The funnel and panel glass will be shredded and crushed and then continuously washed to remove all lead dust. The clean glass cullet will be placed into lined cubic yard boxes for transport to a CRT glass manufacturing facility in Bharuch, India.
- Projector lamps will be segregated into cubic yard boxes on wooden pallets and then shipped in truckload quantities over-the-road to a processing facility in East Windsor, Connecticut. The lamps will be processed in a Balcan Lamp Processor. The lamps are fed into the sealed processor where they are crushed and the materials separated into three recyclable end products- metal, glass, and mercury-containing calcium phosphate powder. Each end-product is then delivered to downstream recyclers for final recycling.
- Crushed CRT glass will be removed from the facility in cubic yard boxes on pallets. These boxes will be dumped into bulk end-dump trailers. The trailers will then travel over-the-road to a hazardous waste landfill in Oregon, Ohio. At the landfill, a sample from each load will be evaluated to determine the physical and chemical characteristics of the waste glass. The trailers will unload by dumping the glass onto a segregated tipping floor in the treatment area of the facility. The tipping



floor is equipped with an air pollution system to eliminate external dust emissions during the unloading and waste processing processes. The waste is then transported to the stabilization and containment building, where it is processed before landfilling. The glass will be treated by a stabilization process that utilizes both macroencapsulation and microencapsulation processes that utilize a combination of physical and chemical techniques to ensure that no lead from the waste can leach while contained in the landfill. Upon completion of the treatment process, the waste is then submitted to the onsite laboratory for completion of a Toxic Characteristic Leaching Protocol (TCLP) test to ensure that the material has been rendered non-hazardous under both state and federal guidelines. The waste is then disposed of in the site's fully permitted Subtitle C landfill.

Scrap plastic and steel will be vacuumed with a HEPA vacuum unit and then segregated into cubic yard boxes for transport
by over-the-road truck to approved plastic and scrap metal recycling facilities.

OUR PROPOSAL

Hazardous Waste Experts will provide a six member crew at the site to perform all inspection, packaging, labeling, preparation, documentation, and loading of the waste material. Each member of the crew is properly trained in the handling of RCRA waste, the proper fitting and wearing of personal protective equipment (PPE), the regulations for packaging and shipping of hazardous waste, and the proper documentation of waste for shipment.

Packing

All waste materials will be placed into cubic-yard cardboard boxes, commonly referred to as Gaylord Boxes. These boxes have excellent structural strength and integrity and are the most common method for packing waste for shipment to recycling or disposal locations. These boxes are placed onto standard 40° x 48° wooden pallets that allow for handling by forklift. Each box is then wrapped with plastic stretch film which provides both an air barrier to eliminate any dissipation of contaminated dust from the waste, and adds structural strength to the box. Every box will be vacuumed with a HEPA vacuum to remove any surface dust before being wrapped with stretch film and then vacuumed again once the stretch film is applied to the box.

Labeling

Each palletized box will be labeled with regulatory labels that indicate the nature of the waste, the origin, the destination, contact information for our company, and any other necessary information as required by regulation, law, or standard. Each container will have a unique serial number that is tracked from origin to disposal. We will maintain a comprehensive log of each container and its status throughout the process.

Whole CRT and Complete Units

These monitors and televisions will be vacuumed to remove exterior dust and then packed as tightly as possible into cubic yard boxes. The boxes will be stretch-wrapped with plastic film and then vacuumed once again. The box will then be labeled and logged into our management system. The boxes will be loaded tightly into 53 foot inter-modal containers that are backed up to loading docks at the facility. We will maintain approximately fifteen of these containers on site at all times. When a container is full, all regulatory documentation will be attached to the last pallet in the container. This documentation consists of the following:

000000000000000

- Material Safety Data Sheet (MSDS)
- Approval of Consent Letter from EPA
- Generator Waste Profile
- Universal Waste Labels designating the waste as "CRT Glass for Recycling"
- Packing List with gross, tare, and net weight of the container and a detailed list of the waste

All whole CRT monitors and television sets must be segregated into one of the following categories:



- 1. Monitor up to 14"
- 2. Monitor over 14"
- Television up to 14"
- Television over 14" but up to 21"
- Television over 21"

The fully loaded containers will be picked up by our drayage transporter utilizing a drop-and-hook method whereby they bring an empty container and leave with a full container. The transporter will then transport the full containers to a rail terminal in Columbus, Ohio where they will be loaded by crane onto an inter-modal rail car. These trains leave daily from the siding for transportation to another rail terminal in San Bernardino, California where they will be unloaded from the train cars onto over-the-road chassis for transportation to our receiving center in Calexico, California.

The facility in Calexico (Technologies Displays America) will receive the containers, inspect them for shipping integrity, inspect the documentation, and then prepare the loads for transfer across the U.S./Mexico border between Calexico and Mexicali, Mexico to the recycling center operated by Technologies Displays Mexicana. Both centers are subsidiaries of Indian conglomerate Videocon, a major recycler of CRT glass. The process for handling of the material will be managed by our downstream partner Cali Resources, LLC, a certified R2 recycler of CRT glass.

The processing facility at Mexicali is a US preferred recycling center for CRT glass and is certified under ISO 9001 and ISO 14001. It is the single largest processor of clean glass cullet for recycling as glass-to-glass in North America. TDM complies with all Mexican environmental regulations and is audited by state and federal entities yearly. The plant has a processing capacity of 25 tons per hour for panel glass and 12 tons per hour of funnel glass.

TDM has authorization to import CRT glass from the United States under the auspices of an EPA Approval of Consent Letter for the period July 1, 2016 until June 30, 2017. Its recycling authorization from the Mexican environmental agency SEMARNAT extends, under the current permit, from April 27, 2010 until April 26, 2020. The plant is also permitted for site operations and air pollution and holds a site closure bond and extensive insurance coverages.

All material processed at TDA and TDM is monitored by Cali Resources, LLC, our certified R2 recycler. Cali Resources will ensure that we receive certificates of recycling for each load that is transported to TDM.

The only waste processing by-product that is generated at TDM that is not 100% recycled is the metal-bearing sludge and filter press material from the waste water plant. This waste is packed into 55 gallon steel UN listed waste drums and shipped under a Universal Hazardous Waste Manifest to the US Ecology facility in Beatty, Nevada. All other material from the processing of the waste is recycled.

Our project team will segregate, package, label, and load approximately two of the 53 foot inter-modal containers per day. We estimate that there are 331 containers of whole CRT and complete units for shipment to the recycling center in Mexico, allowing us to complete this portion of the project in approximately 166 work days.

Crushed CRT Glass

There are approximately 28,233 cubic yard boxes of crushed glass from CRT and television units. This material will be processed for disposal at a hazardous waste landfill operated by Envirosafe Services of Ohio, Inc. in Oregon, Ohio.

We strongly believe that this material must be disposed of in a RCRA certified hazardous waste landfill that is permitted under federal and state regulations as a Part B Permitted RCRA Subtitle C Treatment. Storage, and Disposal Facility (TSDF), including CERCLA approval. While some states make allowances for disposal of broken CRT glass in non-hazardous landfill facilities, these facilities are not adequately prepared to address the long-term possibility of leaching of the metals, in spite of the fact that the material passes the TCLP test at the time of disposal. In order to have comfort that there will be no long-term liability issues from the disposal of this waste material, the use of a Subtitle C hazardous waste landfill is highly desirable, regardless of the higher cost of doing so.

The landfill operated by Envirosafe of Ohio is properly equipped and permitted to treat the lead-bearing glass that we intend to dispose at the facility. The waste material that arrives at the landfill is tested at the on-site quality control



laboratory. The laboratory contains two ICP units, a microwave digester, extractors, x-ray, pH meters, radiation detectors, flashpoint testers, H-Nu photo-ionization detector, TLV sniffer, and other sophisticated equipment. This laboratory will ensure that the waste is fully understood and that the proper treatment methods are employed on the waste.

The landfill's treatment capabilities include the stabilization of solid wastes classified under RCRA as hazardous due to their metal content, and the treatment of debris classified as hazardous under RCRA. The facility utilizes cement-based and pozzolannic-based stabilization technologies, which may be supplemented by other proprietary additives as needed to meet specific regulatory treatment standards. The stabilization process acts both chemically and physically to limit the solubility or mobility of contaminants in the waste by converting metals into insoluble hydroxides and carbonates, and by creating rigid physical matrices to contain the contaminants. The debris treatment system includes macroencapsulation and microencapsulation technologies. As with stabilization, these technologies act to reduce the leachability of contaminants. Macroencapsulation involves creating a "jacket" or inert material around the debris to reduce exposure to leaching agents, while microencapsulation utilizes stabilization technology to directly "treat" the contaminants associated with the debris.

Both the stabilization and debris treatment processes take place in a fully enclosed containment building with air pollution control systems. Waste streams are treated individually to ensure efficient and cost effective mix designs. Treated wastes are then disposed of in the Subtitle C landfill. Each shipment will receive a certificate of disposal and a completed Uniform Hazardous Waste Manifest. Our log system will record the manifest and COD numbers as an additional record of the disposal.

To ensure long-term risk mitigation, the facility is required to pay into a closure fund that would meet the cost of closing the cell at any given time and preparing the site for post closure monitoring for 30 years. A trust fund is used as the financial instrument to meet this requirement. The site has fully funded its closure and post-closure trust funds in cash. In addition to these funds, the facility is also required to pay into a separate trust fund, called the Perpetual Care Fund, that will function to maintain the site in perpetuity and accommodate additional future modifications to the site as required to retain the integrity of the barrier between the environment and the disposed materials. The closure, post-closure, and perpetual care funds are all fully funded in cash. The combined funds currently total over \$50 million and are estimated to grow to hundreds of millions of dollars by the time the money is needed.

Projector Lamp Recycling

There are approximately 193 cubic yard boxes of projector lamps that require transportation and processing for recycling. Projector lamps require treatment due to the mercury that is contained in the lamps.

The projector lamps will be segregated into cubic yard boxes. Each box will be vacuumed with a HEPA vacuum and stretch-wrapped to fully enclose the box. The boxes will be loaded onto over-the-road trailers and transported from the site to East Windsor, Connecticut for recycling.

The processing facility is operated by NLR, Inc. as a large quantity handler of universal waste lamps, batteries, mercury devices, and electronics.

The recycling of "spent" lamps involves the crushing of broken and unbroken mercury-containing lamps (MCL), including linear, compact, circleline, "U" tubes, and high intensity discharge (HID) lamps. Used mercury containing lamps must be managed in a way that prevents releases to the environment. The facility recycles mercury-containing lamps using a Baican MP8000 Lamp Processor, manufactured by Balcan Engineering Limited, Lincolnshire, England. Lamps are fed into the hermetically sealed processor where they are crushed and the materials separated into three recyclable end-products metal (including end caps, insulators, and wires); glass; and mercury-containing calcium phosphate powder. Each end-product is delivered to downstream recyclers in accordance with applicable waste management regulations.

The lamp recycling process generates calcium phosphate powder with mercury contamination. This powder is managed as a hazardous waste and is shipped to a permitted hazardous waste treatment facility. The EPA approved treatment process to reclaim the mercury from the powder is called a mercury retort. In a retort the powder is heated to approximately 650 degrees Celsius, causing the mercury to vaporize. Once vaporized, the gasses travel into a condenser



where it is cooled and the mercury turns back into a liquid state. Approximately 45,000 lamps recycled in this fashion will result in 3 pounds of liquid mercury being reclaimed for future use.

Plastic and Metal Recycling

There are approximately 672 cubic yard boxes of scrap metal and 192 cubic yard boxes of scrap plastic that are available for recycling.

Scrap metal will be transferred to a local scrap metal dealer in Columbus, Ohio for recycling. All boxes containing metal scrap will be vacuumed with a HEPA vacuum and packed into stretch-wrapped boxes for shipment. A receipt for each load will show the volume and weight of the metal that was accepted.

Scrap plastic, primarily High Impact Polystyrene from electronic component housings, will be transported by over-the-road transport to Genesis Plastics Recycling in Wheeling, Illinois. This material will be vacuumed and packed into stretch-wrapped cubic yard boxes for transportation. The recycler will grind the plastic and make it available on the open plastics feedstock market to a variety of recyclers. A receipt showing the volume and weight of all plastic sent to the recycler will be recorded in the project log.

Facility Remediation

Once all waste has been transported from the facility, we will HEPA vacuum the interior of the building. All floor surfaces, including the office area, ceiling beams and trusses, and accessible processing equipment will be vacuumed. Equipment and hard surfaces will also be wiped down with D-Lead wipes. We will provide necessary utility vehicles, platform lifts, HEPA vacuums, PPE, and forklift.

All waste generated during the decontamination will be collected into DOT approved 55 gal drums for off-site waste disposal. The waste will include the following lead contaminated items: PPE, HEPA vacuum filters, rags, and wipes. We assume collection of thirty 55 gal drums of this material.

Documentation

The project team will prepare all necessary documentation for the material to be recycled or disposed of. We will scan and store copies of every label, form, and document and will maintain a log of each type of document. These documents will be available as needed in the event of an audit or inspection by the EPA or other regulatory agency.

Schedule

Our plan has been calculated down to the hour and we are confident that we will be able to complete the project at a maximum duration of 180 working days (nine months). All transportation, treatment, and disposal partners have confirmed their capacity to handle this material and work load. We are committed to complete the project as rapidly as possible, and believe that this timeline is achievable.

Inventory

Below is the site inventory we received.

| Material Type | | Mumber of Containers/Units | Total Wit of Each Time (ibs) | I restumate to the |
|---------------------------------|-------------|---------------------------------|-------------------------------------|------------------------------|
| Totals | | | 1 come are not reserve above larges | Total Wt of Each Type (tons) |
| CRT Whole (PG) CRT Crushed (PG) | | 7,728 | 8,740,368 | -doin |
| Complete Units (P) | | 28,233 | 113,750,757 | 20,012 |
| Projector Lamps (PG) | | 6,790 | 4,960,330 | 2,480 |
| Plastic (PG) | | 193 | 185,087 | 93 |
| Scrap Steel (PG) | | 192 | 34,560 | 17 |
| | | 672 | 326,592 | |
| Panel with Metal (P/55) | | 79 | 189,679 | |
| | Grand Total | 43,887 | 128,187,373 | |
| Key | | | | |
| PG | | Complete Units In Saylords on P | pilets | |
| P | | Complet eunits Plastic Wrapper | | - |
| P/SS | | Pallets and Super Sades | TOTAL TURBUNA | 1 |



| Description | Rate | Unit | Total | |
|--|-------------|---------------|----------|------------------------------|
| CRT Monitors and Tube TVs | | - Citie | 110001 | |
| Recycle: CRT Monitors | \$0.33 | 8,740,368 Lb | | \$2,884,321.44 |
| Recycle: Tube TVs - No Wood | \$0.33 | 4,960,330 Lb | | \$1,636,908.90 |
| Transportation: To Mexico for Recycle | \$2,950.00 | 381 Loa | d | \$1,123,950.00 |
| | | | ub Total | \$5,645,180.34 |
| Leaded Glass | | | | |
| Disposal: Encapsulation & Landfill | \$110.00 | 56,875 Ton | | \$6,256,250.00 |
| Transportation: Oregon, OH | \$55.00 | 56,875 Ton | | \$3,128,125.00 |
| | | S | ub Total | \$9,384,375.00 |
| Scrap Metal | | | | |
| Recycle: Scrap Metal | \$0.00 | 258 Ton | | TBI |
| Transportation: Local Dealers | \$0.00 | 258 Ton | | TBI |
| | | S | ub Total | TBI |
| Plastics | | | | |
| Recycle: Plastic | \$0.00 | 17 Ton | 4-10- | TBI |
| Transportation: Wheeling, IL | \$1,850.00 | 1 Loa | | \$1,850.00 |
| I | | Sı | ub Total | \$1,850.00 |
| Lamps | | | | |
| Recycling Lamps w/Metal Housings | \$3.60 | 185,087 Lb | | \$666,313.20 |
| Transportation: East Windsor, CT | \$2,550.00 | 8 Load | | \$20,400.00 |
| Labor and Materials | | Sı | ub Total | \$686,713.20 |
| Supervisor | \$120.00 | 1,440 Hou | | 6470.000.00 |
| Project Manager | \$120.00 | 1,440 Hou | | \$172,800.00 |
| Operator - Forklift | \$85.00 | 1,440 Hou | | \$172,800.00 |
| Operator - Forklift | \$85.00 | 1,440 Hou | | \$122,400.00 \$122,400.00 |
| Operator - Loader | \$85.00 | 1,440 Hou | | \$122,400.00 |
| Laborer | \$75.00 | 1,440 Hou | | \$108,000.00 |
| Laborer | \$75.00 | 1,440 Hou | | \$108,000.00 |
| Level C PPE (6 Persons) | \$540.00 | 180 Day | | \$97,200.00 |
| Reclaimed Gaylord Boxes | \$25.00 | 5,000 Box | | \$125,000.00 |
| Recycled Wooden Pallets | \$15.00 | 200 Palle | | \$3,000.00 |
| HEPA Vacuum (2 Units per Day) | \$25.00 | 180 Day | | \$4,500.00 |
| Stretch Wrap | \$20.00 | 1,700 Roll | | \$34,000.00 |
| Utility Vehicle | \$225.00 | 180 Day | | \$40,500.00 |
| Forklifts and Fuel (2 Units) | \$2,850.00 | 36 Wee | | \$102,600.00 |
| Loader and Fuel | \$5,335.00 | 36 Wee | | \$192,060.00 |
| Meal Per Diem (6 Persons x 3 Meals) | \$450.00 | 180 Day | | \$81,000.00 |
| Lodging | \$4,250.00 | 9 Mon | th | \$38,250.00 |
| | | | b Total | \$1,646,910.00 |
| Facility Remediation | | | | |
| Supervisor and (3) Technicians | \$57,360.00 | 1 Lum | p Sum | \$57,360.00 |
| Equipment | \$30,360.00 | | p Sum | \$30,360.00 |
| Consumables | \$5,160.00 | 1 Lum | p Sum | \$5,160.00 |
| Transportation and Disposal of Lead Debris | \$445.00 | 30 55-g | | \$13,350.00 |
| | | | b Total | \$106,230.00 |
| Surcharges | | | | |
| Environmental Insurance, Taxes, FSC | 3% of | Total Invoice | | \$524,137.76 |
| Estimated Total | | | | \$17,995,396.30 |



DISCLAIMERS

- The rates and schedule will be based on contract terms agreed upon by both parties.
- The rates and schedule listed in the preceding tables are estimates and subject to change. Fuel costs and surcharges are also subject to change.
- Fuel surcharge for transportation of bulk loads of leaded glass to the landfill in Oregon, OH is currently 24% but subject to change weekly based on national average fuel price. This fuel surcharge is included in our transportation rate to Oregon, OH. This transportation rate is also based on 22 Net Tons minimum for each truck ordered. Additionally, the rate includes 2 free hours load time and 2 free hours unload time. Demurrage will be billed at \$125.00 per hour in excess of free load and unload time. Trucks ordered but unused will be billed at 60% minimum load. Overnight layover will be billed at \$850.00 per truck if loaded the next day, assuming the truck arrived during scheduled load times. Rejected shipments redirected to an alternate facility will be billed at \$3.25 per mile with a \$350.00 minimum (this does not included demurrage charges).
- Plastics and scrap metals uncontaminated with lead glass will be either recycled or landfilled. Typically, local plastics and scrap metal dealers will accept this material for free but it depends on the quality and grade of the plastic and metal. Poor grade and low quality uncontaminated metals and plastics will be sent to a non-hazardous waste landfill for \$85.00 per ton and \$1,850 per load. If this material is contaminated, then our leaded glass landfill transportation and disposal rates will apply.
- The "Consumables" rate under "Facility Remediation" includes the provision of 30 55-gal drums to contain waste along with HEPA vacuum filters and D-Lead Wipes. Additional 55-gal Drums will be billed at \$65,00 each.
- For "Facility Remediation." We assume the floor, ceiling beams, and trusses will be clean after being HEPA vacuumed one
 time. Wet wiping the floors and ceiling items with D-Lead wipes is not included in this proposal or scope of work.
- We estimate that the Facility Remediation will take 16 working days at 10 hours per day on site.
- Labor overtime rates begin after completion of an 8 hour work day. Overtime rates will be charged at standard rate + \$15.00/hr
- We are asking for a 20% prepayment before we begin along with 30 day payment terms or less.
- 53ft trailers can transport 18 Ton over the road according to DOT regulations
- The "Panel with Metal" on the inventory sheet is included in the scrap metal tonnage. It makes up 98 ton of the total 258 ton scrap metal estimate. If contaminated our hazardous landfill disposal and transportation rates will apply. If low grade and unable to recycle, our non-hazardous landfill disposal rates and transportation will apply.



This proposal is designed to provide the client with a full-service, turn-key solution to the clean-out of the facility.

Features of the Plan

- Clean-out completed within 180 working days.
- Total cost of project \$17,995,396.30
- Comprehensive, full-service, turn-key plan.
- · All risk is mitigated through utilization of recycling and disposal options that are heavily permitted

Benefits of the Plan

- Convenience. Minimal participation by client. We provide all necessary people, equipment, materials, transportation, recycling, and disposal downstream vendors.
- Transparency. We will create logs, document repositories, and dashboards that will reflect the project status in real time.
- Sustainability. We will recycle all of the whole CRTs, complete units, projector lamps, scrap plastic, and scrap metal. Only
 the crushed glass will be disposed of. We will utilize an R2 certified recycler for the whole CRTs and complete units.
- Speed. We will complete the project in less than nine months.
- Experience. Our project team has almost 200 years of combined environmental services experience.
- Peace of Mind. We are using only permitted and heavily vetted partners for work on this project. Each has presented us
 with audit packages on their facility, certificates of insurance, and we have performed due diligence on each. We are
 utilizing techniques and technologies that will heavily mitigate any long-term risk of the project.

QUALIFICATIONS

Hazardous waste experts is continually proven to be an industry leader for hazardous waste management, environmental remediation, and emergency response services.

Our unique characteristics include:

- We are extremely experienced management team. Most with over 20 years of hands-on environmental services
 experience at all levels from branch management to executive management.
- We have very strong partner relationships. We work intensively with a large group of very talented service providers.
- We have a track record of successful jobs, including many highly complex regulated waste projects.

CONCLUSION

This project is right in the center of our business model and service offerings. We have taken great effort to create a comprehensive work plan that will require virtually no involvement by the client. We have selected the most compliant and sustainable solutions within the budget that we were given. We are committed to achieving the timeline that is set forth in the plan. We look forward to working with you on this project and thank you for your consideration.

Eric Apfelbach – President | 608-210-4226 (Office) | 608-576-7549 (Mobile) | eric.apfelbach@hazardouswasteexperts.com Roy Wimer – Regional Director | 608-210-4211 (Office) | 608-628-5468 (Mobile) | roy.wimer@hazardouswasteexperts.com



Statement of Qualifications

Overview

- I. History
- II. Management Team
- III. Experience
- IV. Qualifications

History

- Founded in July 2012 and headquartered in Madison, WI
- US and Canada market coverage
- Annual revenue of \$7 M
- Specialties: Universal Waste, Hazardous Waste, Used Oil, Industrial Services, Spill Response, Medical Waste Disposal, Environmental Remediation
- Custom turnkey solutions for nationwide clients (one-stop shop)

Management Team

- Eric Apfelbach, President and CEO
 - o 16 years of CEO experience at both public and private companies
 - o BS Chemical Engineering-UW Madison
- Wade Maleck, CFO, CPA
 - 10 years of CFO experience: cash management, financial projections, and GAAP
- Dan Chamberlin, VP Sales and Marketing
 - 26 years with Safety-Kleen: Sales, field services, logistics, project management, safety manager, fleet manager
- Alisha Thompson, Director of Operations
 - o 13 years of industry experience: technical director, regulatory compliance
 - o Master's Degree in Management, BS in Earth Science-UM Ann Arbor
- Field Team
 - 167 years of combined industry experience

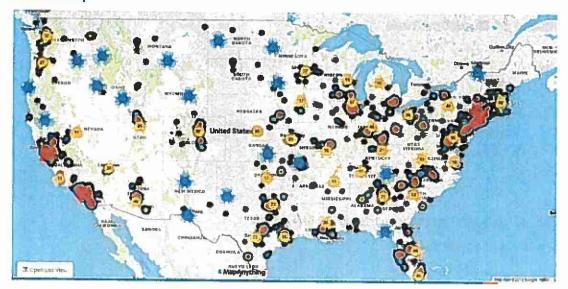
Experience

- >10,000 nationwide waste disposal projects completed
- >2,500 customers served, 50% of projects recur





Customer Map



Example projects

- E-Waste and universal waste bulk loads
- Plant decommissions
- Multi-laboratory chemical lab packing
- High Hazard waste handling and removal (reactive, explosive, radioactive)
- Household hazardous waste from donation centers and city collection programs
- \$1.3 M in Department of Defense contracts scheduled for 2017

Key customers

- Nike
- Goodwill
- Wilbur-Ellis
- Department of Defense
- Murphy's Oil

Qualifications

- · EPA/RCRA permitted disposal facilities
- Hazardous waste transportation licenses in all 50 states
- OSHA HazWoper 40 HR training for all field technicians
- Certified Hazardous Materials Manager (CHMM)



Atwell Group Quote

Customer

Atwell Group

Contact Name

Michael Koenig

Phone

(440) 394-0409

Email

mkoenig@atwell-group.com

Created Date

August 25, 2016

Expiration Date

30 Days

| Item Category | Material Specifications | U/M | Pricing |
|--------------------|---|--------|-----------------|
| 11552 505 - 501 | 113,935,844 pounds broken CRT @ \$0.11/lb.* | Lbs. | \$12,532,943.00 |
| | 14,251,529 pounds whole units @ \$0.14/lb. | Lbs. | \$1,995,214.00 |
| 30. | 713 loads (Whole units) @ \$710.00/load** | Ea. | \$506,230.00 |
| | See notes below: | | |
| | | Total: | \$15,034,387 |

^{*}Based on 22% Fuel Surcharge. If Surcharges increase, additional fees may apply. Loading time is based upon 2 hours per load. Demurrage charges may apply in excess of 2 hours.

2 hours per load. Demurrage charges may apply in excess of 2 hours.

**Based on 22% Fuel Surcharge. If surcharges increase, additional fees may apply. Based upon 20,000 pounds per load.

Let me know if you have any questions and when would be convenient time to discuss this quotation further.

Thank you for your consideration!

Steve Pfeiffer

Direct Line: 608-314-8113

Email: spfeiffer@universalrecyclers.com

www.URTsolutions.com Tel: (877) 278-0799











STATEMENT OF QUALIFICATIONS

Updated // 09.27.16



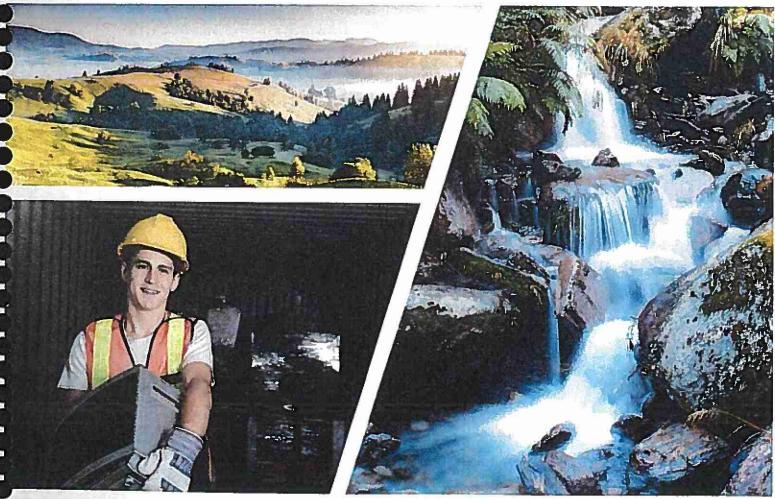




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ABOUT

As the recycling industry's trusted leader, we provide full-service electronic waste and universal waste recycling to everyone from municipalities and governments to individual consumers. Our complete transparency gives customers the peace of mind to know their materials have been processed exactly as promised.



DOING GREAT THINGS FOR THE RECYCLING INDUSTRY

We're on a mission to become the market leader in electronic and universal waste management. Focused on the innovation of technologies through a commitment to continuous improvement, we exist to serve our customers and the earth. Every day we do our part to protect the earth and the liability of our customers through our ethical, safe and secure recycling processes. Our ethical business philosophy instills trust and delivers unparalleled value to our customers—providing them peace-of-mind knowing that their materials have been processed exactly as promised.



NOBODY HANDLES MATERIAL LIKE WE DO

Our operations excel through rigorous processes which we continually improve to advance the standards of our industry for efficiency, safety and security. Through the deployment of our proprietary recycling systems, our facilities are highly efficient. Our 140,000 square foot headquarters and other supporting locations were designed to handle vast processing capacities efficiently while maintaining the highest standards for safety and security.



SAFETY IS AT THE CENTER OF OUR OPERATIONS

The safety and well-being of our people, our customers and the planet are central to our operations. We understand that we have a cradle-to-grave responsibility and duty to protect the liability of our customers and preserve and ensure the sustainability of our planet. By investing in the training of our people, we educate them to ensure their ability to properly handle all hazardous materials that come through our facilities and operate our systems safely.



WE TAKE SECURITY SERIOUSLY

Our facilities were designed taking every step necessary to keep customer data safe and secure. Unlike other recyclers who outsource services to third-party vendors, our customers' materials stay with us—we manage 100 percent of the process from start to finish. Following strict data protocols and adhering to the stringent standards of NIST, we provide customers peace-of-mind knowing their materials will not leave our secure facilities until they're properly wiped, tested and verified as completely destroyed or refurbished



WE EXCEED STANDARDS

URT takes pride in our home-grown proprietary processes that have earned stamps of approval from our industries top certifying entities. We're a registered collector in every state that we operate and 100 percent compliant with the EPA holding ISO 9001 and e-Stewards® certifications and ISO 14001 compliant as it is encompassed within the e-Stewards® certification. Our certifications ensure consistency and enable us to build and retain strong trusted relationships with our customers.



HISTORY

Since 2003, URT has provided unparalleled service and invaluable innovations to the recycling industry. Inspired by our proud past, we look ahead towards our future with an unwavering and continued commitment to do great things for the recycling industry.

BEFORE URT, CRT

CRT Processing, LLC was formed by Don Seiler and Jim Cornwell in 2003 to process electronic waste (e-waste) including cathode ray tube (CRT) glass-to-glass recycling. It was one of only a handful in the nation, and the only Midwestern firm, to do so at the time. As an engineer, Seiler designed advanced processing equipment capable of breaking down electronic component parts for safe and responsible recycling. This allowed CRT to process e-waste in-house for its customers, making the company an exceptionally trustworthy partner for big business. With a long and respected career in universal waste management, Cornwell worked with Seiler to develop a vision for the future that included the development of multiple lines of universal recycling services and products.

RAPID EXPANSION

The partnership of these visionary owners set the stage for rapid expansion. In 2007, the company was noticed and then acquired by the Hendricks Holding Co. of Beloit, WI. Hendricks Holding Co. was founded by the late Ken Hendricks and is now owned and operated by his wife, Diane Hendricks. Almost immediately after the Hendricks partnership, CRT Processing acquired Uniwaste Systems in Portsmouth, NH and acquired Environmental Light Recyclers, a fluorescent lamp processing facility in Fort Worth, TX. In 2009, CRT continued to grow, opening a West Coast e-waste processing facility in Clackamas, OR; acquiring Resource Technology, a fluorescent lamp recycling equipment sales and service company; and introducing WasteSecure, a pre-paid pack-and-ship box program for fluorescent lamp and battery recycling.

URT: POISED FOR THE FUTURE

By late 2009, it was clear that CRT Processing, LLC had expanded far beyond the "CRT processing" that first brought it acclaim. With its full-service universal waste recycling service and product lines, it was time for a new name to match the company's expanded mission. In January 2010, CRT Processing, LLC became Universal Recycling Technologies, LLC or URT.

HENDRICKS HOLDING COMPANY

CRT Processing was acquired by the Hendricks Holding Co. in 2007 and subsequently changed its name to Universal Recycling Technologies to reflect the aggressive market expansion supported by its new investment partner. Hendricks Holding Company Inc.(HHC), founded in 2001, is an investment and corporate development group with a diverse portfolio of businesses that span the globe. It has a proven track record of acquiring and developing businesses that have demonstrated a propensity for market-driven innovation. HHC seeks to become long-term partners with exceptional management teams and employees who share its goal of significant long-term growth while simultaneously leaving a lasting and positive impact on the communities in which these companies operate. Founded by Ken and Diane Hendricks and head-quartered in Beloit, Wisconsin, HHC has a diverse portfolio of companies in the recycling and sustainability, transportation and logistics, industrial products, real estate, insurance and health care industries (www.hendricksholding.com). With the force of HHC fully behind URT, there are few limits to its future growth and development.



FACILITIES' LOCATIONS & CAPABILITIES

WISCONSIN FACILITY - HDQ

Plant Manager: Randy Call 2535 Beloit Avenue Janesville, WI 53546 Phone: (877) 278-0799 Fax: (608) 754-3473

NEW HAMPSHIRE FACILITY

Plant Manager: Keith Simpson 61 Industrial Park Drive Dover, NH 03820 Phone: (603) 422-7711 Fax: (603) 422-7720

WISCONSIN - ASSETS FACILITY

Plant Manager: Randy Call 120 E. Burbank Avenue Janesville, WI 53546 Phone: (877) 278-0799 FAX: (608) 314-8180

OREGON FACILITY

Plant Manager: Robert Gaudinier 10151 S.E. Jennifer Street Clackamas, OR 97015 Phone: (503) 722-2236 Fax: (503) 722-2322

TEXAS FACILITY

Plant Manager: Keith Sheehan 2301 Franklin Dr. Fort Worth, TX 76106 Phone: (817)-924-9300

| | | Janesville, WI Beloit Ave. | Janesville, WI Burbank Ave. | Clackamas, OR | Dover, NH | Fort Worth, TX |
|---------------------------|---|-------------------------------|--------------------------------|---------------|-----------|----------------|
| in S | End-of-life Electronic Processing | / | | - | 1 | 1 |
| E- WASTE RECYCLING | CRT Glass-to-Glass Processing & Cleaning System | 1 | | 1 | - | / |
| | Shredding System | / | | | | |
| | Battery Collection & Consolidation | ✓ | | ✓ | ✓ | ✓ |
| STE | Fluorescent Lamp Processing | | | | | ✓- |
| U-WASTE RECYCLING | Fluorescent Lamp Collection & Consolidation | ✓ | | ✓ | ✓ | |
| | Ballast Collection & Consolidation | ✓ | | ✓ | ✓ | \checkmark |
| Z | Asset Recovery | | 1 | 1 | 1 | 1 |
| SET | Asset Management | | / | / | 1 | 1 |
| I.T. ASSET DISPOSITION | Data Destruction | | 1 | 1 | 1 | 1 |
| r.i Sid | Remarketing Programs | | 1 | 1 | 1 | 1 |
| | COMMODITIES | ✓ | ✓ | ✓ | 1 | ✓ |



ELECTRONIC RECYCLING SERVICES

A comprehensive electronic waste recycling program protects our customers from unnecessary complications and costs while improving their business and the environment. With locations across the nation and a history of ethical and responsible business practices. URT offers an unparalleled suite of leading-edge, integrated e-waste services.



END-OF-LIFE DESTRUCTION

Your security and safety is our priority. URT recycles all equipment to its individual commodity components and separates all hazardous materials on-site to meet U.S. Environmental Protection Agency requirements. We offer compliance documentation to eliminate the liability associated with the hazards of electronics. All equipment is handled safely to protect our customers, our employees and our environment.



CRT GLASS RECYCLING

URT's state-of-the art, automated demanufacturing and recycling system provides an effective, economical solution for recycling obsolete monitors and televisions that contain cathode ray tube glass (CRT). Using a glass recycling process that is the preferred method of recycling by state and federal agencies, we sort by type and chemistry to produce furnace-ready cullet. All protocols meet U.S. Environmental Protection Agency regulations, safely processing the glass with no exposure to the environment. The processed, clean glass is reused, eliminating customer liability associated with managing hazardous materials.



RETAIL ELECTRONIC RETURNS

URT's retailer recalls and returns program is specifically designed for retailers seeking a safe and reliable way to handle product recalls and consumer returns. Our extensive knowledge of retail operations ensures our customers the most dependable and efficient program in the nation. From secure shipments to product tracking and disposal, our program provides convenient, comprehensive recycling that improves efficiency and simplifies your business.

LEGISLATIVE MANAGEMENT

URT has assisted OEM's in meeting their legislative requirements since 2007. URT provides recycling nationally and assistance to OEM's with voluntary recycling programs. URT's extensive collector network includes municipal and retail locations across the nation—covering all 50 states—greatly expanding potential and capacity for its customers.

A PROVEN PARTNER

The URT legislative team understands the challenges OEMs face in managing a consistent flow of pounds across various states with differing legislative requirements for accurate reporting and clear visibility. URT partners with its client OEMs to provide competitive costs, consistent pounds and certified recycling capabilities that exceed industry standards.

URT offers shredding capabilities that set it apart from the competition, an experienced legislative team that provide dedicated one-on-one customer services and a national collection network capable of managing OEM legislative needs across the United States.



SHREDDING SYSTEM

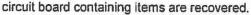
URT's proprietary "Seiler" separation and shredding system is uniquely designed to handle both whole units and e-waste commodities/components. The system is divided into three stages for maximum effectiveness and recovery:



Stage 1: The Seiler separation system begins with gross separation which allows for the best recovery of plastics, stainless steel and other bulk materials prior to shredding.

Stage 2: The primary shredder is a hydraulic shred system designed to reduce the size of metals and circuit board materials for further separation and recovery. After shredding, the processed material moves through a series of magnets to recover ferrous metals. The remaining processed material proceeds through an Eddy Current separator to remove non-ferrous metal from the stream prior to further reduction.

Stage 3: The material then enters a secondary shredder designed to further reduce material size and liberate additional ferrous and nonferrous metals, and the material again flows through series of magnets to further remove ferrous metal content. In the final step, the







ASSET MANAGEMENT

URT can help you maximize the return on your IT investment by capturing the remaining value of your assets. Our trained experts seek the highest value available for your equipment and share the true worth of obsolete electronics submitted for refurbishing. We identify equipment that can be refurbished, harvest valuable component parts, and then use our in-depth knowledge of the secondary market to turn your obsolete electronics into revenue. This is accomplished while adhering to the strictest data security protocols in the business by a third party vendor, e-Stewards®, to eliminate risk and protect your investment.

URT provides its customers with best-in-class asset management and recovery services while ensuring confidentiality and data security. URT pledges to maximize its clients return on investment in information technology by capturing the remaining value of IT assets.

- URT's trained experts seek the highest value available for equipment and share the true worth of obsolete electronics submitted for refurbishing.
- URT adheres to the strictest data security protocols in the business to eliminate risk and to protect client's environmental and data security liability.
- URT is ISO 9001, ISO 14001 and e-Stewards® (www.ban.com) certified and ISO 14001 compliant as it is
 encompassed within the e-Stewards® certification. URT is a member of the National Association for Information
 Destruction (NAID) and International Association of Information Technology Asset Managers (IAITAM).



ASSET PROCESSING

URT professionals manage each shipment based on individual industry and customer requirements. Every piece of equipment containing data is processed first in URT's on-site data security department to ensure that all data destruction is completed in a secure environment. URT asset employees undergo a stringent background review process to ensure client security. Equipment is cleaned, tested and electronically wiped to remove personal and proprietary data. All corporate identification is removed prior to remarketing. All assets are processed in accordance with the strictest security protocols that meet state and federal regulations and recommendations, including U.S. Department of Defense and National Institute of Standards and Technology requirements.

ASSET MATERIAL MANAGEMENT PROCESS

Materials entering the URT asset material flow are triaged utilizing URT Triage Guidelines. The Operations Team works in partnership with URT Sales to review and/or update the Triage Guidelines when the market changes demand it. Materials may receive one of three dispositions available:

- Asset = Material follows URT's Asset Recovery Service work instruction. This service attempts to refurbish, recover and return a portion the item's value to its original owner. Successful items result in resale. Failed items are reclassified to non-asset.
- Non-Asset = Material follows URT's Non-Asset Recycle process. This allows the item to be dismantled into resalable commodities for downstream vendors.
- Special Projects = Special project items follow the unique, required steps provided by a customer and detailed on a URT Special Project form. URT employees assigned to special projects receive supplemental training to support unique needs.

RETAILER ELECTRONIC RETURNS

URT's retailer recalls and returns program is specifically designed for retailers seeking a safe and reliable way to handle product recalls and consumer returns. Our extensive knowledge of retail operations ensures our customers the most dependable and efficient program in the nation. From secure shipments to product tracking and disposal our program provides convenient, comprehensive recycling that improves efficiency and simplifies your business.





LIFE CYCLE MANAGEMENT

URT is trusted partner able to assess and inform its clients' strategic information technology planning.

- Asset tracking: Through its infinity chain of custody, which protects clients' sensitive data from pick up through
 destruction and beyond, URT, provides secure processing. Inventory is reported by item class, brand, model
 and serial number support. A transparent grading scale ensures that recovered items receive the appropriate
 rating and customers remain fully informed.
- Data destruction: URT utilizes DoD and NIST certified sanitization processes and offers state-of-the-art, on-site shredding capabilities. Please see "Data Destruction" and "Shredding Services" for additional detail.
- Redeployment and disposal management: URT assists with remarketing whole units and components. As an
 e-Stewards® recycler, URT adheres to the highest standards of responsible recycling in the industry today. This
 protects its customers' confidential information—and their overall brand—in a way that lesser requirements
 cannot guarantee.
- Retailer return program: URT's retailer recalls and returns program is designed specifically for retailers seeking a safe and reliable way to handle product recalls and consumer returns. URT's extensive knowledge of retail
 operations ensures customers an efficient, dependable and convenient program created with the needs of the
 retail industry foremost in mind. The program provides secure shipments, detailed product tracking, convenient
 reporting and comprehensive recycling/disposal that improve efficiency.

REVENUE OPTIONS

URT can purchase used equipment outright or share revenues for asset remarketing on a percentage basis when equipment is refurbished and sold. URT's knowledge of the secondary market supports accurate assessments to maximize value, helping customers recover a portion of the capital invested in information technology. Working in partnership, URT attains the common goal of environmentally responsible management of customer assets.





IT ASSET DISPOSITION SERVICES

URT is a full-service IT asset disposition and equipment recycler. Our experience providing secure collection, transportation, data destruction, and proper recycling enables us to assist customers across industries with their equipment processing and recycling needs. Our goal with every customer is to help them turn their obsolete electronic and computer assets into revenue.

URT pledges to maximize its clients return on investment in information technology by capturing the remaining value of IT assets. URT can inform strategic IT purchases, retire equipment in compliance with the strictest industry standards by a third party vendor, e-Stewards®, ISO 9001:2008, and ISO 14001:2004, and help clients capture the maximum remaining value of retired assets.

TURNING OBSOLETE ASSETS INTO REVENUE

URT helps their customers maximize the return on their IT investment by capturing the remaining value of their assets. URT's asset management program begins with logistics management-collecting and recording each item into their personal customer site and securing items for transport to URT processing centers.

ASSET MATERIAL MANAGEMENT PROCESS

Upon arrival at a URT processing center, our receiving process captures and records the platform, make, model and serial number, accompanied by the item count and weight count, using bar-code scan technology for accuracy and simplicity.

Our ITAD professionals then identify any equipment that can be refurbished, as well as identifies and extracts component parts from equipment that retains value and can be remarketed using URT Triage Guidelines. Under these guidelines, materials may receive one of three dispositions available:

Asset: Material follows URT's Asset Recovery Service work instruction. This service attempts to refurbish, recover and return a portion of the item's value to its original owner. Successful items result in resale. Failed items are reclassified to non-asset.

Non-Asset: Material follows URT's Non-Asset Recycle process. This allows the item to be dismantled into resalable commodities for downstream vendors.

Special Projects: Special project items follow the unique, required steps provided by a customer and detailed on a URT Special Project form. URT employees assigned to special projects receive supplemental training to support unique needs.

ASSET PROCESSING

We're the industry's responsible partner. Every piece of equipment that comes to our facilities containing data is processed first in URT's on-site data security department to ensure that all data destruction is completed in a secure environment. Our data destruction processes were designed to process assets in accordance with the strictest security protocols that meet state and federal regulations and recommendations, including U.S. Department of Defense and National Institute of Standards and Technology requirements and remarketing expertise

White URT often purchases used equipment outright from our customers for processing, we also offer shared revenue programs for asset remarketing. URT's trained experts seek the highest value available for equipment and share the true worth of obsolete electronics submitted for refurbishing. Our knowledge of the secondary market supports accurate assessments to maximize value, helping customers recover a portion of the capital invested in information technology.



RETAILER RETURN PROGRAM

URT's retailer recalls and returns program is designed specifically for retailers seeking a safe and reliable way to handle product recalls and consumer returns. URT's extensive knowledge of retail operations ensures customers an efficient, dependable and convenient program created with the needs of the retail industry foremost in mind. The program provides secure shipments, detailed product tracking, convenient reporting and comprehensive recycling/disposal that improve efficiency.

DATA DESTRUCTION

URT's data security and destruction services prevent the accidental or illegal use of sensitive information, such as client data, financial and employee records. URT provides specialized services for all types of systems and can satisfy virtually any destruction need.

- · URT offers hard drive destruction capacity across multiple locations.
- · All hardware is secured until every trace of data—confidential, proprietary or otherwise—is destroyed.
- URT's comprehensive data destruction system complies with federal laws and regulations.
- · URT eliminates customer liability by offering a completed certificate of destruction documenting the entire process
- URT's detailed asset disposition and reporting service tracks each hard drive or other electronic media, including hard drives pulled from machines, through the destruction process.
- URT provides the most thorough reporting in the industry for demonstrating compliance with privacy rules. Inventory system offers online portal to view processing and reporting information.

We handle our customers' data destruction in the same manner that we handle our own—effectively and expertly—cleaning confidential data and specifying the entire process to our client. We understand security and liability are top-of-mind for our customers. We eliminate client liability by offering a completed certificate of destruction documenting the entire process—bringing them peace-of-mind that their business and brand are protected.

COMPLETE COMPLIANCE

Adhering to strictly documented and controlled information security procedures and protocols, each unit URT receives is tracked and logged, and customer identification tags are removed as part of asset recovery. Then, based on customer requirements or triage disposition, URT determines the most appropriate data destruction method. Ultimately, our processes go above and beyond to protect our customers' sensitive data and comply with all federal laws and regulations, including:

- · The Federal Privacy Act
- The Health Insurance Portability and Accountability Act (HIPPA)
- U.S. Department of Defense & National Security Agency requirements for purging classified information on magnetic disk and tape media.
- Gramm-Leach-Bliley Act requirements for device and media control policies that govern the receipt and removal
 of hardware and electronic media (including disposal, media reuse and accountability).
- In addition, the URT Shield Data Sanitation and Hard Drive Destruction Security Process safeguards our customers' private, protected information and their brand. We offer:
- · Full indemnity against risk
- · Indemnification for privacy and environmental liability
- · e-Stewards® certified recycling
- Certified environmental compliance



REMARKETING EXPERTISE

URT's trained experts seek the highest value available for equipment and share the true worth of obsolete electronics submitted for refurbishing. URT intake specialists identify equipment that can be refurbished, harvest valuable component parts and apply our in-depth knowledge of the secondary market to turn obsolete electronics into generous shared revenue.

- On-site white glove destruction (serialized and auditable)
- · Secure transport to a URT facility near you
- Materials inspection and sorting by type and value (serialized and auditable)
 - Expert refurbishment an resale
 - On-site parts harvesting
 - e-Stewards® certified recycling

COMPREHENSIVE SERVICES

URT can expertly handle all manner of data-bearing and electronic materials, including equipment beyond the desktop, from data center and networking devices to telecom equipment. As an integrated service provider, URT is a true one-stop shop, offering on-site recycling with advanced shredding technology and universal waste (bulbs, ballasts, batteries) recycling.

URT SHIELD DATA SECURE GUARANTEE

The URT Shield data sanitization and hard drive destruction security process safeguards your private, protected information and your brand. This fully auditable process offers:

- · Full indemnity against risk
- · Indemnification for privacy and environmental liability
- · e-Stewards® certified recycling
- · Certified environmental compliance

We handle your data destruction in the same manner that we handle our own—effectively and expertly—cleaning confidential data and specifying the entire process to our client. We eliminate client liability by offering a completed certificate of destruction documenting the entire process.

URT asset recovery services provide return on investment that translates into reinvestment, helping your company achieve its maximum potential







DATA SECURITY SERVICES

URT's data security and destruction services prevent the accidental or illegal use of sensitive information, such as client data, financial and employee records. URT provides specialized services for all types of systems and can satisfy virtually any destruction need:

- · URT offers hard drive destruction capacity across multiple locations.
- · All hardware is secured until every trace of data—confidential, proprietary or otherwise—is destroyed.
- URT's comprehensive data destruction system complies with federal laws and regulations.
- URT eliminates customer liability by offering a completed certificate of destruction documenting the entire process.
- URT's detailed asset disposition and reporting service tracks each hard drive or other electronic media, including hard drives pulled from machines, through the destruction process.
- URT provides the most thorough reporting in the industry for demonstrating compliance with privacy rules.
 Inventory system offers online portal to view processing and reporting information.

URT's comprehensive data destruction system is guaranteed to comply with federal laws and regulations, including the Federal Privacy Act, the Health Insurance Portability and Accountability Act (HIPPA) and state legislation. Going above and beyond to protect customers' sensitive data, URT meets:

- U.S. Department of Defense & National Security Agency requirements for purging classified information on magnetic disk and tape media. For many years, the Department of Defense (DOD) standard for data eradication was directive 5220.22-M. Today, the National Institute of Standards and Technology (NIST) has defined further eradication standards referred to as NIST 800-88, providing for both "clear" and "purged" data. URT processes meet all requirements, including DOD standards and NIST's purge rating, the highest level of security acknowledged by the NIST.
- Gramm-Leach-Bliley Act requirements for device and media control policies that govern the receipt and removal
 of hardware and electronic media (including disposal, media reuse and accountability).

URT adheres to strictly documented and controlled information security procedures and protocols. Each unit URT receives is tracked and logged, and customer identification tags are removed as part of asset recovery. Then, based on customer requirements or triage disposition, URT determines the most appropriate data destruction method: electronic data removal through sanitization software or physical destruction via shredding.





AUDIT SANITIZATION SOFTWARE

Audit sanitization software is completed via an Acronis Drive Cleanser 6.0 manufactured by Acronis Inc. The square root of each day's process is sampled daily for audit.

DOCUMENTATION

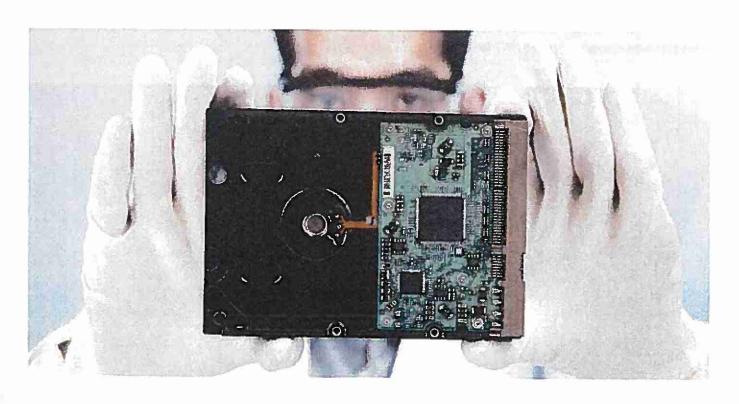
Documentation per customer requests will be recorded on a Certificate of Recycling, Certificate of Erasure, or Certificate of Destruction.

ELECTRONIC DATA SANITIZATION

Electronic data sanitization software is completed via Blancco Server Edition software manufactured by Blancco Oy Ltd.

- Blancco is an approved disk sanitizing solution by the U.S. Department of Defense that wipes hard drives at the DoD 5220.22-M standard featuring multiple overwrites, random characters and write verification.
- Blancco's Management Console creates comprehensive data erasure reports automatically detailing each hard drive serial number that is sanitized. A digital signature or 'fingerprint' evidencing wipe will be left on each hard drive.
- Standards of compliance include:
 - DoD 5220,22-M
 - HMG IS5 Baseline
 - HMG IS5 Enhanced
 - Canada Ops-II
 - US Army AR380-19

- US Air Force 5020
- German VSITR
- NAVSO P-5239-26
- NCSC-TG-025
- Russian GOST P50739-95





COMMODITY SERVICES

With in-house shred capabilities and strategic partnerships with smelters and similar downstream processors, URT acts as a trusted partner for recycling companies, recycling material collectors and other similar organizations seeking a commodity solution. URT accepts a wide range of commodity materials at a competitive market rate. Rates are typically assessed and updated weekly.

URT commodity customers are individually approved on an ongoing basis, after having completed a vendor agreement contract, third-party downstream vendor application, credit application and certificate of insurance. Once approved, proof of insurance and third-party provider forms must be updated and submitted annually.

COMMODITY QUALITY STANDARDS

URT Commodity Quality Standards are established by URT's Commodities Management Team utilizing current facility capabilities and as per customer requirements. Quality Standards for commodities are documented in a controlled file available to URT employees for reference.

The Quality Standards shall include, but are not limited to, guidelines and visual aids that define the minimum acceptable level of materials for shipment to URT's Downstream Vendors. Materials not meeting the established minimum acceptable levels can be shipped only with prior written approval from the Downstream Vendor or by upgrading/reworking materials to the minimum acceptable level. Sample loads may be shipped to vendors as a benchmark for new products or new Downstream Vendors.

The URT Quality Management Representative approves all commodities shipped from URT facilities and approval of a commodity quality standard is communicated to the URT ISO Coordinator, and then to the URT Plant Manager, through a standardized ISO-approved process. URT Plant Managers at each facility then have one week to implement the new quality standard for current or in-process materials. Shipment of in-house material after the implementation date must meet the new Quality Standard.

The URT Quality Management Representative has the authority to stop shipments of any or all commodities that do not meet approved standards from all URT facilities.





UNIVERSAL WASTE RECYCLING SERVICES

URT provides nationwide collection and recycling for all types of universal waste including lamps, batteries, mercury-containing devices, lighting ballasts and more. Because of the dangerous and toxic materials contained in these products, proper recycling is both required and mandated by various state and federal agencies. With URT, you can rest assured that your products will be recycled responsibly, conveniently and in a competitive manner that meets and exceeds every compliance standard. Our in-house recycling process provides our customers with added confidence that every requirement is attended to without fail.

Multiple state-of-the-art facilities allow URT to process huge volumes of product daily, ensuring customers avoid costly and inconvenient delays. URT has a combined 50+ years of experience handling hazardous materials. Processing capabilities include (but are not limited to):

Fluorescent Lamps:

- · Straight, U-Bend and Circular
- Shatter Resistant
- Ultra Violet
- · High Intensity Discharge
- Metal Halide
- High Pressure Sodium
- Compact Fluorescent Lamps (CFLs)

Batteries:

- · NiCad (Nickel Cadmium)
 - Mercury Oxide
 - · Silver Oxide
 - · Alkaline
 - · Lithium Metal & Hydride
- · Nickel Metal Hydride
 - · Lead Acid

OUR PROCESSES

With URT our customers can rest assured knowing that their products will be recycled responsibly, conveniently and in a competitive manner that meets and exceeds every compliance standard. With multiple state-of-the-art facilities, we're structured to process huge volumes of product daily so that our customers avoid costly and inconvenient delays. Our inhouse recycling process provides our customers with added confidence that every requirement is attended to without fail.

FLOURESCENT LAMP RECYCLING

Today's energy efficient fluorescent lamps are ever-present and provide many environmental and efficiency benefits. However, they must be recycled properly and in accordance with local, state, federal and industry guidelines. URT provides full-service and comprehensive lamp recycling services that ensure our customers' lamps will be recycled quickly, safely and in full compliance with all requirements.

Upon receipt of boxed lamps, URT personnel opens each box and take an item-by-item inventory count of lamps. Broken lamps are segregated from intact lamps, weighed, and immediately contained in the lamp processing area to prevent spread of mercury-contaminated materials. Once sorted, lamps are transported to URT's Fort Worth, TX or Dover, NH facility for final processing.

BATTERY RECYCLING

Batteries contain multiple corrosive materials that pose a liability and make proper disposal imperative. URT's full-service and comprehensive battery services recycle batteries quickly, safely and in full compliance with all local, state, federal and industry requirements.

Batteries accepted for processing or transport are sorted by type and contained in drums for transport and storage. Upon



receipt of battery shipments, URT personnel inspect, weigh and temporarily store as universal waste for transport to the batteries' final recycling destination.

BALLAST RECYCLING

The Environmental Protection Agency banned the manufacture of all lighting ballasts using PCBs in 1978. Today, both PCB-containing and non-PCB ballasts are regulated by various agencies to ensure proper recycling. URT provides full-service and comprehensive lighting ballast recycling services. We provide our customers peace-of-mind knowing their materials will be recycled quickly, safely and in full compliance with all local, state, federal and industry requirements. Upon receipt, fluorescent lighting ballasts and drums are opened, inspected and sorted to ensure that potentially PCB-containing ballasts are accounted for. The materials are then consolidated and sent to a downstream processor.

MERCURY-CONTAINING DEVICES

Mercury is found in many devices critical to business processes. yet it is highly toxic and requires great care during disposal. URT provides full-service and comprehensive recycling services for all types of mercury-containing devices. Our experience managing recycling programs for this highly regulated substance is unparalleled.

WASTESECURE (CONVENIENT PREPAID MAIL-BACK PROGRAM)

Through URT's WasteSecure® program, prepaid pack-and-ship boxes are available to simplify the process of transporting used items to URT for recycling. Scalable, compliant, documented programs that include options such as regularly scheduled nationwide pick-ups and private label branded recycling boxes help our clients select a custom recycling solution that meets their every need. Our exceptional customer service and convenient, reliable programs simplify your recycling efforts and assure complete compliance.

- · Nationwide service
- · One-stop shopping
- Web-based tracking and reporting
- All-inclusive pricing
- Certificates of Compliance via email
- · Easy-to-follow instructions
- English and Spanish language
- · Private label programs available

LAMP RECYCLING EQUIPMENT

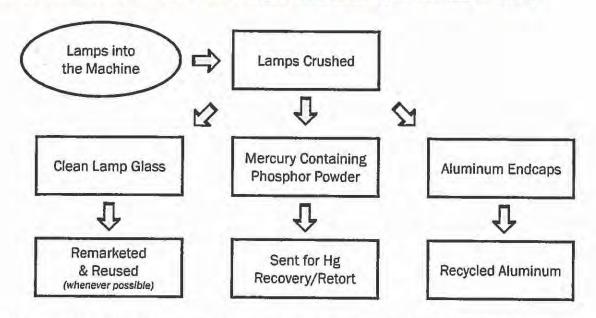
URT is the world's leading manufacturer and supplier of fluorescent lamp recycling systems. URT's lamp recycling systems have set a new standard for simplicity, safety and recycling efficiency. Every model is fully computerized to provide turnkey startup and ongoing operational safeguards. URT offers recycling systems for all types of lamps including:

- Compact Fluorescent Lamps (CFLs)
- High Intensity Discharge Lamps (HIDs)
- Shatter Resistant Lamps



RECYCLING PROCESSES

LAMP RECYCLING PROCESS: RESOURCE TECHNOLOGIES INCORPORATED (RTI) LSS1 LAMP PROCESSING MACHINE



URT is registered with the Texas Commission of Environmental Quality and the U.S. Environmental Protection Agency as a recycler of mercury-containing lamps. The company is approved to operate under recycling exemptions per 40 CFR, part 261c and 30 TAC Section 335.

Upon receipt of boxed lamps, URT personnel open each box and take an item-by-item inventory count of lamps. Broken lamps are segregated from intact lamps, weighed, and immediately contained in the lamp processing area to prevent spread of mercury-contaminated materials. URT accepts delivery of lamps directly from customers using their own vehicles or third party transportation services. Lamps transported from customer sites to the recycling facility by URT are recorded and shipped using a standard shipping document. The company uses no third party storage for lamps waiting for processing.

Waste lamps are processed inside the negative air pressure environment of our proprietary Modified LSS1 lamp processor that was designed and built by the URT team. The Model LSS1 Lamp Recycling System sets a higher standard for simplicity, safety, and recycling efficiency.

The Model LSS1 can process over 4,000 lamps per hour with virtually no fugitive emissions, and is capable of processing straight, circular, and U-shaped fluorescent, bulbs and lamps. The glass and metal is air-cleaned and mechanically separated. Glass and metal components are ejected from the processor and collected in boxes for immediate reuse. The calcium phosphate powder and mercury mixture is deposited in sealed 55-gallon barrels and sent for Mercury recover/ retort. URT is registered as a large quantity generator (LQG) of mercury contaminated powder. Materials recovered from our lamp recycling process, e.g., lamp glass, lamp metals, and cardboard are all recycled through various glass, metal, and paper recycling companies.

BALLAST PROCESS

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Upon receipt, fluorescent lighting ballasts and drums are opened, inspected, and sorted to ensure that potentially PCB-containing ballasts are accounted for. The materials are then consolidated and sent to a downstream processor.



BATTERY PROCESS

Batteries accepted for processing or transport are sorted by type by the generator, and contained in drums for transport and storage. Upon receipt of battery shipments, URT personnel inspect, weigh, and temporarily store as universal waste for transport to the batteries' final recycling destination.

ELECTRONIC WASTE HANDLING/RECYCLING PROCESS

Upon receipt electronic waste is delivered to the E-Waste warehouse to be staged for disassembly. If required, all data containing equipment will be sorted, handled appropriately, and stored in a secured designated area. All the electronic waste will be evaluated for parts recovery, recycled or disposed of as product, commodities or energy recovery.

1.) Receiving Process:

- · All inbound shipments are scheduled through the customer service department.
- Upon confirmation of shipping date, a sales order will be issued to the customer. No shipments will be received without a sales order.
- Upon delivery, the sales order will be matched to the corresponding shipping papers (BOL), as well
 as a visual inspection of the shipping load.
- Upon approval of the load and corresponding sales order, shipping papers will be signed, and
 materials will be considered received by processing facility. Universal Recycling Technologies, LLC
 reserves the right to reject any part or all of incoming loads based on non-conforming materials.
- Upon receipt, each container will be assigned a distinct bar code and labeled to be tracked throughout the process system.
- Following the assignment of the tracking code, each container will be weighed and/or units counted to confirm quantities of units per container.
- Once unit quantities are confirmed, containers will be either staged for processing or delivered to the storage area.
- Shipping paperwork will be delivered to the office for order entry and invoicing.

2.) Sorting Process:

- · Materials received will be sorted into like categories whenever possible.
- Sorting of the materials and equipment will be based on equipment type, customer requirements, size of unit, or further evaluation criteria.
- · All data containing equipment will be sorted and sent directly to the secure data processing area.

3.) Disassembly Process:

- Upon delivery to the disassembly area, each unit will be transported or conveyed to disassembly stations. Each station will be equipped with tools adequate to completely strip each unit.
- Upon removal of the plastic casing, the CRT will then be separated from the framework, and the framework and circuitry will be placed on a conveyor or appropriate container for further processing or outbound shipment.

Completely stripped of hardware, the CRT is placed onto the conveyor system which stages the CRTs for further separation in the glass processing system. These tubes are sent to URT's Janesville, WI facility for final processing and recovery.



PROCESS REQUIREMENTS

SCHEDULING PROCESS REQUIREMENTS

- The URT Business Relations Specialist, BRC, (or designee) receives a service request from a sales associate or a customer via telephone (877) 278-0799, email customerservice@URTsolutions.com or fax (608) 754-3473.
- . If the facility receives a customer request, the information is forwarded to the BRC.
- Utilizing URT facility's receiving calendar, a customer pick up or drop-off is scheduled based on available
 openings and an appointment is made to receive material. For EOL (End-of-Life) processes, the receiving
 calendar is available via Intranet or printed copy for the next day shipments.
- · Shipping instructions are detailed on the purchase order created by the BRC.
- If a delay or rescheduling occurs, the Scheduling Team (or designee) communicates any changes in the schedule to the BRC and receiving department (via email or in person). Any customer-arranged transportation delivery delays are communicated to the BRC (or designee) and rescheduled as the facility receiving schedule allows.

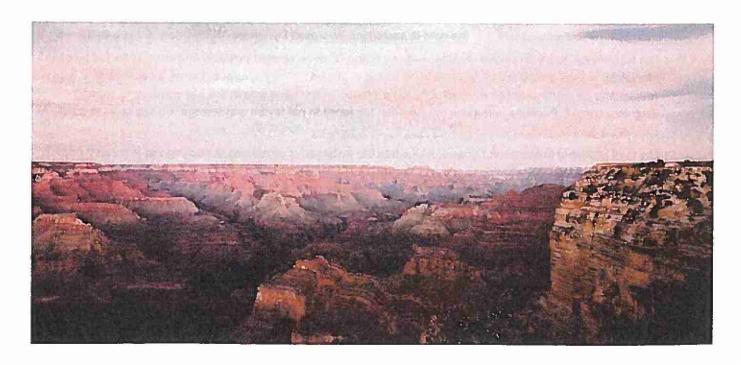
RECEIVING PROCESS REQUIREMENTS

- All incoming material is delivered to the URT receiving dock. A bill of lading document identifying the general material in the load is provided by carrier or manifest to the facility.
- The receiving forklift operator unloads the trailers, weighing each container on the floor scales. Delivery bills of lading are given to the receiving clerk for processing.
- Material is identified by type of material. The purchase order number that accompanies the bill of lading or manifest should match the purchase order number on the daily pickup list or receiving calendar.
- If the bill of lading has estimated or actual weights, the Receiving Clerk adjusts for any differences on the customer copy. The Receiving Clerk inputs the actual scaled weight and posts the data into Microsoft Dynamics AX inventory. Additionally, if materials received are bulbs or lamps, total counts are added by number and size of each item (where applicable), and the data is posted into Microsoft Dynamics AX inventory along with the weight.
- The Receiving Clerk will remove or deface any incoming labels whenever possible and accessible. Lot label identification tags are placed on all skids. This lot tag is placed on the top right or top left side of the box (depending on placement into the bay). The tag is placed on the open side of the bay walkway to support inventory control. Facilities determine the common tag location per layout and storage requirements at each location.
- The load is posted in Microsoft Dynamics AX when the truckload is completed. A packing slip is created from Microsoft Dynamics AX. One copy of the customer bill of lading is retained by the receiving clerk and the remaining copies are given to the truck driver.
- The packing slip and the customer bill of lading are placed into the production office box for the BRC, Operations staff, or designee. Every bill of lading is reviewed for discrepancies in weight or material type reported by the Receiving Clerk. The originals are scanned at the receiving facility into AX Microsoft Dynamics within 24 hours of receipt. Discrepancies are forwarded via email to the BRC for customer notification.



INVOICING PROCESS REQUIREMENTS

- After materials are received, the Receiving Shipping Clerk provides the signed documents and backup detail (known going forward as "paperwork") to the Business Relations Coordinator (BRC) or designee assigned to their facility.
- The paperwork should consist of, but is not limited to, a signed bill of lading and customer inventory sheet. Once
 the paperwork is received by the BRC, the purchase order (or internal packing slip in AX) is compared to the
 external, signed bill of lading and customer inventory sheet (if provided).
- · Materials received will fall under three categories: Consumer, Business to Business, Assets,
 - Covered materials are invoiced to the manufacturers or collector under state program guidelines as designated by the Sales Department.
 - Business to Business materials are billed to the customer as defined in their agreement. Asset ma materials are billed to the customer as defined in their agreement.
- Once the paperwork has been inspected and, if necessary, adjusted, the BRC invoices the customer for business to business materials and covered material if necessary. National Accounts Specialist will bill manufacturers, and other national accounts either once or twice a month depending on the agreement made.
- The date of the invoice is the date on the URT packing slip/last receipt date (actual date the material was
 received or, in the case of consumer materials, the 15th or the last day of the month per agreements with
 manufacturers. Other national accounts that are billed on the last day of the month per contract agreements).
- For non-covered materials, sales orders are invoiced with three business days of the receipt of the paper work, unless the BRC discovers discrepancies and has contact the customer for clarification or corrective action.
- A Certificate of Recycling is created after the material has been received. The certificate references the received materials.
- The invoice and certificates are mailed/emailed out to the customer or manufacturer once completed.





SAFETY & TRAINING

URT and its staff are committed to the protection of the environment, to meeting customer expectations and to promoting the health and safety of its personnel and operations.

The executive management team ensures that this commitment remains the highest priority and that the processing of equipment is completed under strict quality controls in an environmentally friendly, healthy and safe manner.

The executive management team ensures to the best of its ability that all vendors for downstream materials adhere to the same environmental and quality standards and protections as URT. All URT buyers, purchasers and downstream vendors are expected to protect the environment of developing countries by following good product stewardship guidelines.

URT is committed to:

- · Continual improvement, prevention of pollution and the prevention of injury and ill health.
- Complying and exceeding all legal and other requirements, including the Basel Convention, Basel Amend
 Amendment, OECD Decisions and national laws of import and export countries.
- Monitoring its Environmental, Quality, Health and Safety objectives and targets, and continually improving its management system.
- Managing hazardous e-waste materials throughout the recycling chain to final disposition with due diligence to
 protect the environment and worker health.
- Social accountability values, including the prohibition of prison and minor labor.
- Educating its customers on data security issues and protecting their data throughout the recycling chain.

URT communicates and reinforces this policy throughout the company and to its customers, suppliers and the public. At each location, URT's Plant Manager ensures that any persons performing tasks for or on behalf of URT that affect product quality, have the potential to cause a significant environmental impact or whose work involves a "significant" health and safety risk, is identified by URT as competent on the basis of appropriate education and training or experience, and will retain associated records.

All new URT employees receive Quality and EHS General Awareness Training through review of the EHS Policy and EHS expectations during URT's new hire orientation conducted by Human Resource the EHS Department or site management. Records are kept in the employees' personnel file maintained by the Human Resources Department. Additional initial EHS and competency trainings are conducted depending on the role(s) of the employee going forward, as appropriate to meet or exceed all regulatory and internal standards and guidelines. Training Records are kept by the Plant Manager and maintained by the EHS Department.

On-site contractors receive training, conducted by the Plant Manager, prior to performing tasks. These requirements are documented in URT's Visitor Contractor and Employee EHS Work Instructions.





FINANCIAL STRENGTH

In less than ten years, URT has grown from a small start-up into a formidable industry player, expanding services and annually increasing revenues. FY2011 revenues exceeded \$25.5 million—nearly double that of FY 2008, when URT began to systematically grow its business. With a proven track record of innovation, a diversified client portfolio, and strong support for continued expansion and growth from its private equity investor group, URT expects revenues to continue to grow well into the future.

CLOSURE PLAN

Closure steps are as follows:

- URT has established a facility closure plan in order to facilitate the clean up, transport and dispersion of any and all materials left over from the e-recycling process.
- URT has established a financial assurance mechanism to accomplish the closure and remediation necessary for clean up and removal of all residual materials left at a site.
- In the event of a single facility closure URT staff from existing facilities will pack up, move and transport
 materials to one or more of the other existing facilities for final processing.
- In the event of a closure of any URT operations, URT will utilize its existing locations for processing of any residual materials.
- The URT Environmental Health and Safety department will conduct final assurance testing for contamination within each closed site. In the event of a complete company closure, URT has contracted with certified 3rd party contractors for conducting final closure sampling and wipe analysis.





FACILITY SECURITY

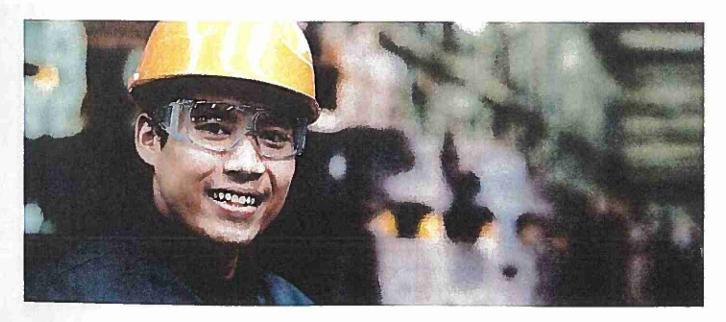
URT adheres to the following physical security procedures and protocols:

- URT facilities are under 24-hour CCTV camera surveillance both internally and externally. All recordings are retained for at least 30 days.
- URT facilities are monitored by alarm company(s).
- After hour's activity is strictly monitored. URT employees with key and alarm code access to the facility
 after hours must be pre-authorized. The list of authorized employee's is maintained by the Plant Mangers.
- URT employees are identified via an employee photo ID badge with security level access color codes.
- URT is a drug free workplace requiring pre-employment drug screening. Furthermore, URT employees who
 work within the Assets Division receive criminal background checks prior to hire.
- URT data destruction equipment is secured in a locked cage or office, and is controlled by authorized badge access. Facilities not designated for data destruction secure material for shipment to an authorized facility.
- All visitors, contractors and visiting employees must sign in and out in the Visitor Entry Log and wear an
 identification badge. Visiting URT employees entering a secured facility must be escorted into the facility by
 another employee with the appropriate security level.
- All trailers that contain material are secured.
- All access to the URT internal computer system(s) shall be monitored by the corporate IT department with specifically controlled access to the Microsoft Dynamics AX accounting systems controlled by the corporate Finance Department.

The physical security procedures and effectiveness are verified via management, internal, and external audits.

AUDIT SANITATION SOFTWARE

Audit sanitation software is completed via an Acronis Drive Cleanser 6.0 manufactured by Acronis Inc. The square root of each day's process is sampled daily for audit.





CERTIFICATIONS & MEMBERSHIPS

In 2011, URT's became the 11th recycling company in the nation certified to the e-Stewards® Standard for Responsible Recycling and Reuse of Electronic Equipment.

Representing our years of concerted effort to recycle ethically and operate responsibly, URT upholds the standards and qualifications of our industry's most rigorous certifying agencies.

ISO 14001:2004 & ISO 9001:2008

The ISO 14001:2004 standard recognizes the consistent application and success of a company's environmental health and safety management system. URT is ISO 14001:2004 compliant as it is encompassed within the e-stewards certification.

URT's ISO 9001:2008 standard certification takes this a step further, certifying the overall company quality management system. It demonstrates the company's commitment and ability to deliver superior quality and customer satisfaction. Both standards were developed and maintained by the International Organization for Standardization.

MICROSOFT® REGISTERED REFURBISHER

URT is a Microsoft® Registered Refurbisher, which allows the company to install Microsoft® operating systems and software, opening up tremendous revenue opportunities for recycled computer equipment.

E-STEWARDS® CERTIFICATION

Each of URT's facilities are e-Stewards® certified, providing unparalleled security and brand protection. The e-Stewards® Certification program, created by the Basel Action Network (BAN-www.e-stewards.org), formally recognizes electronics recyclers that adhere to the highest environmentally and socially responsible practices when recovering materials from electronic scrap. It is the only electronics recycling standard that bans all exports of hazardous e-waste to developing countries, and prohibits the use of prison labor. The accredited third-party certification program is supported by the U.S. EPA and is endorsed by Greenpeace USA, the Sierra Club, the Natural Resources Defense Council (NRDC), the Electronics Take Back Coalition and 68 other environmental organizations. It has drawn the public support of major corporate "e-Stewards® Enterprises" including Samsung, Alcoa, Bank of America, Capital One Financial Corp. and Wells Fargo.

URT has been recognized by BAN for its ongoing efforts to safely process and clean leaded CRT glass, a hazard that requires extra care and has historically been difficult to cleanly recycle. URT's proprietary process of glass recycling safely removes the coatings allowing it to be recycled into various new products.

"URT has demonstrated a commitment to the highest levels of responsible recycling. As one of the few recyclers nationwide who can safely process leaded TV and monitor glass, the company not only benefits its direct customers but also is a great resource to other recyclers," said BAN Executive Director Jim Puckett.

e-Stewards® Standard for Responsible Recycling & Reuse of Electronic Equipment: Version 2.0 "1. SCOPE:

This international Standard specifies requirements for an environment management system to enable an Organization to develop and implement a policy and objectives which take into account legal requirements and other requirements to which the Organization subscribes, and information about significant environmental, health and safety, data security, and social accountability aspects. It applies to those Environmental and Stewardship Aspects that the Organization identifies as those which it can control and those which it can influence. It does not itself state specific environmental performance criteria, except as defined by e-Stewards® requirements.

This International Standard is applicable to any Organization that wishes to:



- a) establish, implement, maintain and improve an environmental management system in conformity with ISO 14001: 2004 and e-Stewards[©] requirements,
- b) assure itself of conformity with its stated environmental policy, and minimize internal and customer risks associated with the environment, occupational health and safety, and data security,
- c) demonstrate conformity with this International Standard only by exercising option 4 below
 - 1. making a self-determination and self-declaration (not allowed under e-Stewards® requirements), or
 - 2. seeking confirmation of its conformance by parties having an interest in the organization, such as customers (not allowed under e-Stewards® requirements), or
 - 3. seeking confirmation of its self-declaration by a party external to the organization (not allowed under e-Stewards® requirements), or
 - seeking certification/registration of its environmental management system by an external organization, and specifically <u>by an e-Stewards accredited certification body.</u>

All the requirements in this International Standard are intended to be incorporated into any e-Stewards® environmental management system. The extent of the application depends on factors such as the environmental policy of the Organization, the nature of its activities, products and services and the location where and the conditions in which it functions. This International Standard also provides, in Annex A1, informative guidance on its use.

The e-Stewards[©] Standard specifies minimum performance requirements for eligible Organizations in the electronics Recycling, asset recovery, Processing, and refining industries, inserted into the framework of the ISO 14001 environmental management system standard. This enables an Organization to develop policies and objectives which also take into account information about significant health and safety, data security, and social accountability aspects of its operation.

The term "environmental management system", as used throughout this Standard, includes within its scope the environmental, occupational health and safety, data security, social accountability, and other performance requirements identified in this Standard. The scope of the management system also extends to Ancillary Sites owned and/or Controlled by the e-Stewards® corporate entity (see Appendix B for more information on Ancillary Sites.)

1.1 Application // 1.1.1 Integration with ISO 14001: 2004

The e-Stewards[®] Standard fully incorporates the requirements of the international environmental management systems standard, ISO 14001: 2004[®] (ISO). It also includes industry-specific performance requirements which are fully integrated into ISO 14001and are written for use internationally.

For the sake of clarity, regular font indicates the e-Stewards® industry-specific performance requirements throughout this Standard, while italic font depicts the requirements of ISO 14001: 2004. The font style does not infer greater or lesser importance of the text. Conformance to this e- Stewards® Standard requires that both sets of criteria be met in order to receive e-Stewards® certification.

The textual requirements of ISO 14001: 2004 are reproduced in full in this Standard, including references to this document as an "International Standard." Where this phrase is used in italic font, "International Standard" refers to ISO 14001: 2004, and may also refer to the e-Stewards® Standard requirements."

NAID MEMBERSHIP

Through URT's certification in e-Stewards® V2:2013 and its own company policies, URT is compliant with the requirements of NAID AAA Certification for Computer Hard Drive Sanitization. Additionally, as a member of NAID since 2011, URT has had the ability to adopt and implement many of the NAID forms.

APPENDIX E

Preferred Remediation Contractor Proposals and Qualifications: EMS, HWE, and Precision

Cincinnati/Dayton • Cleveland/Akron/Canton • Columbus Indianapolis • Toledo/Detroit • Wheeling/Pittsburgh • Zanesville

Customer: Atwell LLC Contact: Mike Koening Address: 7100 E Pleasant Valley Rd. Suite 220 Phone: 440.349.2000 Independence Ohio 44131 Email: mkoening@atwell-group.com Project Name: Lead Abatement Bid Date: Project Address: 1655-1675 Watkins Rd Columbus, Ohlo Bid Type: Industrial Services

Scope of Work

- EMS will provide a crew to Abate a 435,000 square foot warehouse, 1,000 square foot office, foam seal a wall 20' X 322' and decon a crushing machine.
- · EMS will also provide Haz and Non Haz waste disposal and transportation
- EMS assumes all waste characterization will be completed by Atwell
- Labor and equipment will include: Master Vac with Operator, Supervisor, 4 Techs, Service truck, All required PPE

.

| Item# | Description | Estimated Quantity | Units | | Unit Cost | Lin | ne Item Cost |
|-------|--|-----------------------|-------------|----|-----------|-----|--------------|
| 1.0 | General Terms and Conditions | 1 | LS | \$ | 6,500.00 | \$ | 6,500.00 |
| 2.0 | Mobilization | 1 | Per event | \$ | 900.00 | 5 | 900.00 |
| 3.0 | Labor and Equipment | 22 | Days | 5 | 3,920.00 | \$ | 86,240.00 |
| 4.0 | Non Haz C&D waste Disposal (5 ton Min) | 5 | Ton | \$ | 40.00 | 5 | 200.00 |
| 5.0 | Non Haz Dust waste disposal (10 ton Min) | 10 | Ton | \$ | 66.00 | 5 | 660.00 |
| 6.0 | Haz Dust waste disposal (5 yard Min) | 5 | Yard | 5 | 156.00 | 5 | 780.00 |
| 7.0 | Vac Box Rental (2) | 40 | Days | 5 | 55.00 | \$ | 2,200.00 |
| 8.0 | Roll off box rental (1) | 20 | Days | Ś | 17.00 | \$ | 340.00 |
| 9.0 | Haz Waste Transportation | TBD | Load | \$ | 920.00 | | |
| 10.0 | Non Haz Waste Transportation | TBD | Load | \$ | 450.00 | | |
| | | Estir | nated Total | \$ | | | 97,820.00 |

Conditions

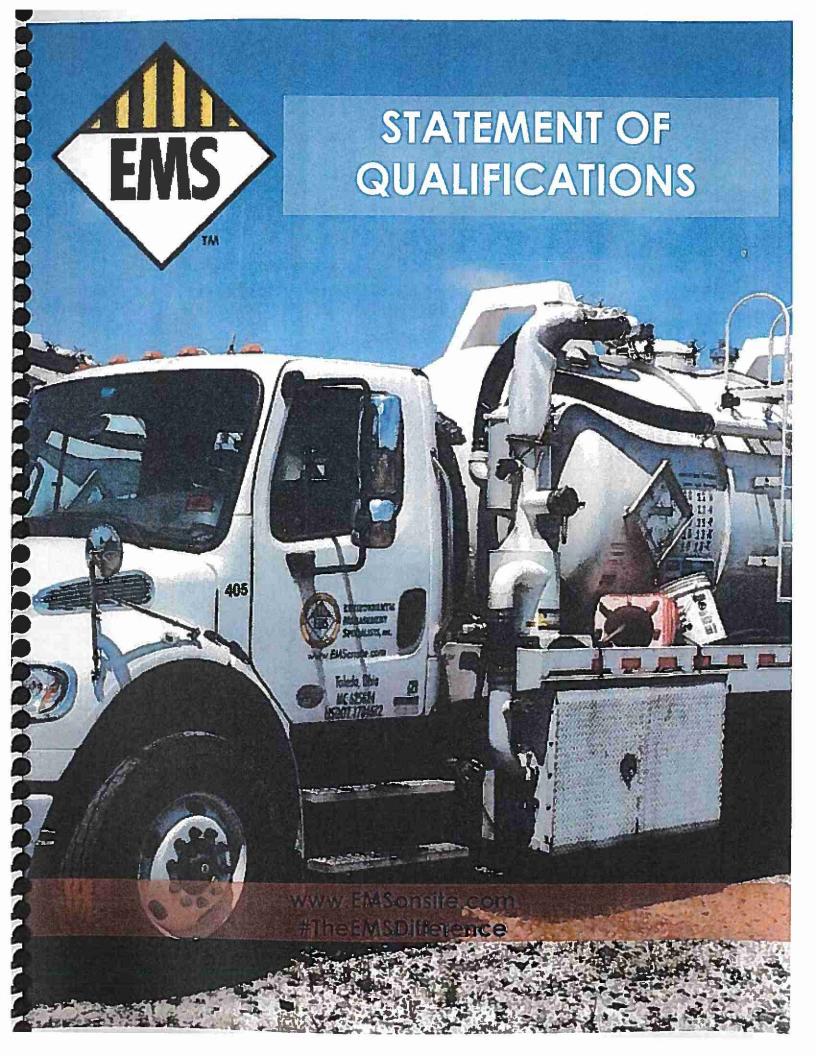
- EMS assumes that all work will be completed in one mobilization unless otherwise noted above.
- For any additional work beyond the original scope of work, Time & Material (T&M) rates will apply according to the EMS Preferred Rate Sheet.
- Above noted quantities are speculative. With the exception of minimums, all billing will be based on actual quantities at the above noted Unit Costs.
- A four (4) hour minimum will apply to all Unit Costs quoted by the hour.
- Unit Costs quoted by the day will be billed at the full day rate for any work on site. There will be no partial billing for partial work days.
- Unit Costs quoted by the day apply up to eight (8) hours per day. After eight (8) hours per day, the day rate will be pro-rated for additional hours.
- Above Unit Costs are based on a non-union work force, no prevailing wages, no overtime work and no performance bond.
- This proposal is valid for thirty (30) days.

Additional costs related to unexpected or concealed conditions or any delays at the project site shall be incurred by Customer. In the event that underground or above ground structures, cables, conduit or other materials or equipment are destroyed or damaged during the project, EMS will not be held responsible. By signing below Customer acknowledges that they have received, reviewed and agreed to the EMS Standard Terms and Conditions (or the master service agreement between Customer and EMS if applicable). The terms of this agreement are effective and binding on Customer and EMS upon written execution or initiation of performance of this Agreement. Thank you for the opportunity to assist with your environmental service needs. If you require any additional information, please contact us at the below.

Payment Terms

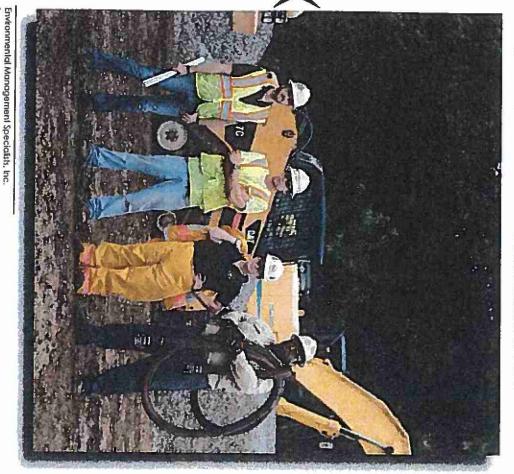
Unless otherwise agreed to in writing, payment terms are net thirty (30) days from the invoice date.

| Authorization To Proceed | | | *** | |
|---------------------------------|---|------------------------------|-----------------------------|--|
| The above prices, specification | ns and conditions are satisfactory and here | by accepted and EMS is autho | rized to proceed. | |
| Buyer: | | RETURN AC | CEPTANCE TO: | |
| | Print Name | | ital Management Specialists | |
| A. Carrier and | | 6909 Engle F | | |
| Signature: | | Cleveland, O | Phio 44130 | |
| | Buyer Signoture | Estimator: | Josh Baker | |
| | | Phone: | (440) 816-1107 | |
| Date of Acceptance: | | Email: | jbaker@emsonsite.com | |



INTRODUCTION

Founded in 2000, Environmental Management Specialists, Inc. (EMS) is a protessional environmental services company with strategically-located service centers providing coverage across Ohio, western Pennsylvania, West Virginia, Kentucky, Indiana, Minois, southern Wisconsin, southern Michigan, and beyond.



10 KEY DIFFERENTIATORS:

- SAFETY is at our core. Our comprehensive safety program is deeply-ingrained in the EMS RESPONSIBLE. Our EMR is 0.50 and we've culture and our care values
- history of the company.

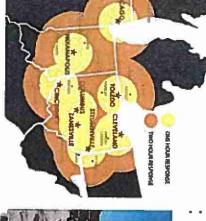
 CAPABLE. Our employees are extensively-trained and certified (i.e. HAZWOPER, CSE. never had a lost time accident in the entire

SaleLand, APL e-RAILSAFE, RWI...].

- contractor screening consortiums, including ISNetworld, PEC Premier and Avetto.

 EXTENSIVE EXPERIENCE: EMS is your one-stop. QUALIFIED. EMS is pre-qualified by several
- shop for a wide variety of environmental
- 9111. We offer 24/7 accessibility through our "One Call" dispatch program. RESPONSIVE. Call us anytime at: (877) 816-
- contact for repeal customers through our DEDICATED. We provide a single point-of-"Operations Conclerge" program
- PROMISES KEPT. The EMS "Value Guarantee" deliver on the expected value to the Division VP, COO, or CEO If we did not any T&M invoice or confest any change order gives our customers the ability to short pay
- dspose of waste the right way, every time.

 10. OSRO CERTIFIED. EMS is a United States Coast WASTE EXPERTS. EMS is permitted to transport We properly containerize, document, and both non-hazardous and hazardous waste.
- Guard-certified Oil Spill Removal Organization OSRO #473).



OUR CORE SERVICES:

REMEDIATION

- Hog-and-haul site remediation Fueting station cleanup and UST removal Gas and vapor barrier installation
- Mulli-laceted brownfield remediation
- Wetland, stream and channel restoration
- Hazardous soil and groundwater treatment

Impoundment pond and lagoon remediation

- EMERGENCY RESPONSE
- Railway, pipeline, roadway, and waterway spill
- OSRO for Facility Response Plans (FRPs)
- 24/7/365 dispaich tor emergency service needs HAZWOPER Training

TANK & UTILITY SERVICES

- OWS, vessels... Tank cleaning (API lanks, trac lanks, pils, sumps,
- Product transfer and temporary storage Tank decommissioning and demostion Confined Space Entry (CSE) rescue learns
- Line jetting
- CSE training (mobile training vessel Air knifing and hydro-excavation

- Inlegrated waste management services
 Waste transport and disposal
- Waste characterization and containerization
- Drum waste "milk runs"
- Roll-off truck services Vacuum truck/tanker services
- /acuum and roll-oll box rental



Environmental Management Specialists, Inc.

THE HISTORY OF EMS

companies in North Carolina added to his knowledge and experience. Family lies brought him back to Ohlo began his career in the environmental industry as a consulting firms and contractors with management sales representative with Ashland Chemical in 1991 EMS started in Ohio in November 2000 as a single-Subsequent positions with environmental service of hazardous waste. EMS tounder Jon Ransom employee waste broker aiding environmental

balance sheet, and a quality reputation in the industry. Thereby establishing the foundation for future Starting out of Jon's basement. EMS overcame many early challenges typical of startups as the company recruited a core group of remediation professionals from start to finish. Through 2009, EMS experienced developed an extensive network of transpartation one small warehouse. Throughout this time frame. EMS developed a solid company culture, a strong and began self-performing remediation projects sleady growth expanding to 12 employees and and disposal vendors to broker. In 2006, EMS growth.

several Best of the Best (808) professionals who jained EMS hit its stidde in the second halt of 2009 and quickly response, tank and utility services, and waste services Team. From here, the Leadership feam launched an inlense drive to grow EMS through continuous, improvement and the development of people and EMS and formed the nucleus of the EMS Leadership growth. At the center of this growth trittalive were processes. From 2009 to 2011, EMS became the #1 ranked remediation contractor in Ohlo, and rated region. At the same time, EMS began an initiative accelerated both its pace of improvement and to diversity its capabilities to include emergency among the best remediation contractors in the

obrupt half along with the majority of the remediation work across the state. With close to 80 percent of services. This diversification initiative ted directly to the recruitment and development of BOB professionals at In late 2011, remediation funding in Ohio came to an neighboring states and added strategic remediation increased the fempo of its push into services work. Its business fied to remediation. EMS significantly installation and wetland and stream restoration EMS also expanded its remediation reach into capabililles, including gas and vapor barrier all levels of the company

actoss an expanding operating area. Transformative updaled annually, serves as a guiding document to has saliditied its reputation as a high-quality provider approval by multiple contractor screen consortiums; events included: designation as an Oil Spill Removal maintain a sustainable competitive advantage. By numerous fortune 500 companies in the oil and gas, utility, transportation, and manufacturing industries. investing in Iraining, equipment, and facilities. EMS comprehensive Strategic Plan. This plan, which is and execution of master service agreements with of environmental, industrial, and energy services Organization (OSRO) by the U.S. Coast Guard; In 2013, EMS committed to developing a

Today, EMS has grown to mote than 150 employees, with operallan centers in Cleveland, Chicago, service emergency spill response, oillield services, environmental services, waste transportation, site Cincinnati, Columbus, Indianapolis, Steubenville, days as a waste broker, EMS now provides fullremedialion, and tank management services. oledo, and Zanesville. Far beyond its early



MISSION STATEMENT

929999999999999999999999999999999

safety, preparedness, and communication at the commitment to providing what our customers need, when they need II, with a guarantee of environmental contractor with a deep EMS to quality-citiven, value-added center of every retallonship.

campetilor but rather to the progress of our step-by-step pursuit of excellence. Our repulation as the best-at-the-best is our most valued asset, and we are determined to maintain and build on that We have an intense drive to succeed, with each our potential. We compare ourselves not to any incremental Improvement bringing us closer to

they are challenged, appreciated, supported and recruiting and relaining greaf people who thrive empowered to maximize the value delivered to customers, and we take great care to cuttivate a meaningful and enjoyable workplace for the environmental Industry's best of the best where We maintain a consistent focus on sustainable, that building a great company is achieved by on learnwork. We have a lundamental belief in doing light by our employees, as well as our prolitable growth, with the understanding our customers.

CORE VALUES

decision we make as a company, and they are a gulde to daily decisions made by each and every ourselves and hence what others should expect and demand of us. They shape every strategic more than what we wish athers would think of us. Our core values are what we expect from At EMS, our core values are more than words person of EMS.

Anticipate clent needs Enthusiastic dedication Solution-ariented rollow-through

rust through integrily and compassion

fes - "Can do!"



WHO IS EMS?

Awards | Recognition



EMS is proud to announce exclusive list of America's Inc. Magazine's annual lasiesi-grawing privale companies - the Inc. our inclusion on the 500 | 5000

America's Fastest-Growing Companies. Even more impressive, this is our 6th 2016 Inc. 5000 List of

year, we rank at #3320 overall and #24 among all appearance on the Inc. 5000 list since 2009. This environmental services companies on the list

vision of EMS's leadership, who continue to guide We're grateful to our 150 dedicated employees, environmental projects every day; and for the our many valued clients who trust us with their our fremendous growth and the continuous Improvement that drives It



2011 AWARD WINNER

EMS founder and President Jon Ransom raceived the Emst & Young Entrapteneur Of the Years 2011 Northeast Ohlo Award in the Specialty Products and Services category.

RECOGNITION

About Ernst & Young Entrepreneur Of The Year®

vision, leadership and achlevement and celebrates growing and dynamic businesses, recognizing them through regional, national and global awards contribution of people who inspire others with their programs in more than 140 cities in more than 50 countries. enfrepreneurs. The unique award recognizes the the world's most prestligious business award for those who are building and leading successful. Ernst & Young Entrepreneur Of the Year® is

Environmental Management Specialists, Inc.

4

SAFETY

EMS considers the safety of our employees and customers the most important aspect of our operations. EMS has never had an OSHA violation or a lost-time accident in the history of the company. EMS maintains a BWC Experience Modification Rating (EMR) of 0.50. All EMS personnel receive extensive training, including 40-hour HAZWOPER, annual eight-hour HAZWOPER refresher. RCRA, DOT, confined space entry, respiratory protection. first aid/CPR and associated industry-specific and customer-specific training programs.

- SAFETY PROGRAM HIGHLIGHTS:

 Our EMR is 0.50 and we've never had a lost-lime
- accident in the entire history of the company lop quartite Total Recordable Incident Rate (TRIR) performance for NAICS Code 562910
- Comprehensive, independently-reviewed corporate health and safety plan

KEY SAFETY PRACTICES:

- Daily Job Safety Analysis on all projects
- Weekly safely performance reporting to corporate Quarterly altemployee safety meetings leadership learn

Short-Service Employee Program

- Enhanced incident reporting protocol, including near-Full rool-cause investigation of all reported incidents Regular, documented jobsite and facility safety audits
- and near-misses, including documentalian of corrective
- Safety performance included in all employee performance evaluations

HAZWOPER TRAINING:

training Includes both classrom and hands-on activities, and covers all of the topics outlined in OSHA regulations. respiratory protection, first aid/CPR and assorted industry-HAZWOPER refresher, RCRA, DOT, confined space entry, including 40-hour initial HAZWOPER, annual eight-hour All EMS personnel performing duties involving hazardous waste and emergency response receive extensive training. specific and customer-specific training programs. Our

ADVANCED RAIL CAR SPECIALIST TRAINING:

haz-mal response. haz-mal emergency training course covering all facets of

ANK CAR SPECIALIST (TCS) TRAINING:

1 necessary for effectively managing a haz-mal/ Advanced (TCS-A) trained and certified. TCS training covers the technical skills and knowledge Several EMS personnel are Tank Car Specialists

commodilies emergencies related to rail transport of a variety of while functioning within a designated emergency WMD incident in a rail transportation emergency. Participants respond to railcar emergencies and incidents response team. Situations involve scenario-based

FRA ROADWAY WORKER TRAINING [RWT]:

qualification requirements, and with the FRAs On-Track Protection, 49 Code of Regulations (CFR), Part 214, including, without imitations, the training and Raitoad Administration (FRA), Roadway Worker EMS complies with all requirements of the federal

API WORKSAFE TRAINING:

Jalely Program.

A large percentage of EWS field personnel are API WorkSale certified by the American Petroleum testification Petroleum institute.



Environmental Management Specialists, Inc.

Several EAS personnel are certified by the Emergency Response Training Center (ERTC) in Pueblo, Calarado as Advanced Rail Car Specialist (ARCS), ARCS training is a comprehensive four-day

CONFINED SPACE ENTRY (CSE)

undersland the health and safety risks of entering and working in contined compliance with OSHA requirements confined space entry training in spaces, workers are required to take for continuous occupancy. To fully inherently hazardous and not meant general industrias, are in construction and Confined spaces, no matter how common

CSE RESCUE TRAINING: skills needed to safely and will be proficient in the basic space rescue leam members EMS ensures that our confined

equipment systems; and personal protective verikal and horizantal hautng/lowering equipment use and smilations; knots; monitoring; confined space rescue confined space hazards; almospheric workplace, including assessment of efficiently perform entry rescues in the

and quick service, which we get every time from EMS. I feel at ease knowing the EMS team is a phone of all involved call away to help ensure the safety guidelines and provide professional contractors follow strict regulatory "It is very important that our WHAT OUR CLIENTS HAVE TO SAY ..

Environmental Manager
 The Ohlo State University

API TANK ENTRY SUPERVISOR (TES)

TRAINING:
Several EMS personnel are frank Entry Supervisors (TES) dulies required by lank entry supervisors program qualities participants as having the minimum knowledge, experience, and skills needed to safely perform certified. The API-TES certification

SAFELAND TRAINING:

certification. SafeLandUSA is an organization of independent oil and Industry purpose of developing standardized gas operaling companies with the receive SafeLand training and equirements for the U.S. onshore E&P safety orientation with minimum Statement St. A large percentage of EMS field personnel







Environmental Management Specialists, Inc.

CERTIFICATIONS

In order to develop and maintain our reputation as a best-in-class contractor in each of the markets we serve, EMS and our personnel maintain a wide assortment of certifications, from regulatory training and industry-specific training, to qualifications with government agencies, safety consortiums and regulatory boards. As our customers continue to increase the safety and certification qualifications required of their contractor, EMS is convnilted to meeting and exceeding those requirements. Along with the various safety training certifications noted on the previous page, EMS also maintains the following certifications and credentials:

OIL SPILL REMOVAL ORGANIZATION (OSRO) CERTIFICATION

to the regulatory requirements estabished by the Oil Pollution Act of 1990 (OPA90), the OSRO classification process was developed to facilitate the preparation of vesset and facility EMS maintains a Class V OSRO Classification throughout its operating area. In response response plan.

U.S. COAST GUARD OSRO #473 B.O.A. HSCG84-13-A-G00005

standard guidelines by which the Coast Guard potential to respond to and recover oil spilk of various sizes. Classifications are based upon and plan developers can evaluate an OSRO's lime standards outlined in the Coast Guard's minimum equipment amounts and response The OSRO Classification process provides OSRO Classification Guidelines.

ISNETWORLD, AVETTA, CCS, AND FEC PREMIER CERTIFICATION







(ISN), Avetla, CCS, and PEC

Premier. These contractor screening consorliums collect ongoing conformance information from contractors/suppliers, verify its accuracy, and confractors in capital-intensive industries. They connect corporations with safe, reliable report the results to owners and clents.

SBA EMS is a certified Small Business
Enterprise (SBE). This classification
can be helpful to prime contractors SMALL BUSINESS ENTERPRISE (SBE) CERTIFICATION in satisfying contract goals and requirements.

E-RAILS AFE CERTIFICATION

A large percentage of EMS field

personnel receive e-RAILSAFE certifications. The purpose of the operations and facilities. As part of these efforts, designated railroad confractors are required to security of railroad employees, comply with the program, which includes:

- Personnel screening:
- Compliance awareness and festing; and Workplace credentiating.

TRANSPORTATION WORKER IDENTIFICATION CREDENTIALING (TWIC)

Several EMS field personnel are credentialed is a Transportation Security Administration and U.S. Coast through the TWIC program. This program



Guard security threat assessment resistant blometilc credentials to Initialive that provides tamper-

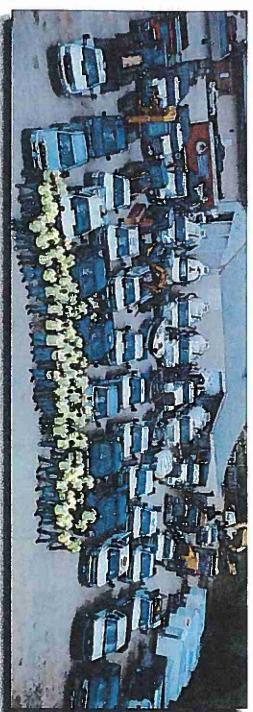
marilime workers requising un-escorted access to secure areas regulated under the Maritime Transportation Security Act of 2002.

UNDERGROUND STORAGE TANK REMOVAL CERTIFICATION

EMS personnel maintain underground storage tank romaval certifications in multiple states.



THE EMS DIFFERENCE



completion to the customer's full satisfaction

pravide the most value for the dollar and bring all wark to problem or providing routine services, we always strive to measure our success. Whether we are solving a customer

the minimum performance standards by which we manner. The expectations of our customers determine that we provide high-quality services in a cost-effective To succeed in a highly compellitive market, it is critical rekallanships with our customers, we are able to fully

understand their needs and execute the work accordingly

By developing and maintaining strong personal

24-HOUR DISPATCH

week, 365 days a year available 24 hours a day, 7 days a operation with on-call EMS personnel EMS maintains a "one call" dispatch

ONE

STRATEGIC PLANNING

a comprehensive planning process and results in a broad commitment to achieving our common goals. across all business groups leads to iniliatives. Wide participation throughout our various growth planning process, which is updated annually, in order to leverage aur EMS conducts a formal strategic strengths and maintain afgnment

NSURANCE

EMS maintains substantial insurance coverage, including general liability. Our insurance certificate can be and automobile tability insurance pollullan liability, professional liability provided for detailed coverage

NONDING

capacity in excess of \$20 million. EMS maintains aggregate bonding

EXPERIENCE AND EXPERIISE

customers. The extensive Iraining, experience, and expertise of our personnel to exceeding the expectations of our as demonstrated by a commitment proven record of service excellence, laced by our customers. EMS has a to a wide variety of challenges enables us to recognize and respond

PROFESSIONALISM

appearance and attitude of our to maintain those skills. from the our professionalism is always on personnel to the quality of our receive extensive ongoing training their area of experits and also documentation and record-keeping All EMS personnel are skilled in

RESPONSIVENESS

EMS is dedicated to providing locused first and loremost on the the highest level of service and is needs of our customers.

consulting firm

Project Manager, Regional environmental

INTEGRITY

reasonable. We take our reputation very seriously, and we recognize that term consequences, we step to the plate and deal with difficult issues our reputation. everything we do has an impact an We are committed to being fair and in an honest and uplicant manner. and ending up with negative long-Instead of taking the easy route

COMMUNICATION

communication Inroughout our on training, enhanced internal EMS conducts a quarterly meeting and especially with our customers. maintain a culture of effective an essential part of our effort to designed to encourage and teamwork. These meetings are communication strategies, and with all employees which focuses communication - both within EMS clear, accurate, and consistent maintain a constant focus on Throughout our organization, we educate our employees, and are

What our clients have to say...

and willing to address unforeseen issues in a limely projects by working with us in a callaborative nature. innovative solutions to complex remediation We have found EMS to be efficient, cost-effective. found that EMS differentiales itself by providing petroleum, and RCRA cleanup projects. I have for the past 25 years on brownfield remediation environmental contractors throughout the Midwest "I have had the apportunity to work with many

manner Principal, Regional environmental consulling firm

other consultants and clients." performance, and I have recommended them to cost-conscious. I am completely salisfied with their remediation activities and emergency years. I have used them to do disposal of waste. "I have worked with EMS for more than five knowledgeable of regulatory requirements, and responses. They are professional, client-oriented, undergraund storage tank (USI) removats.

> other contractors." affention to detail that is rarely experienced with personnel are highly-malivated and display an courteous service at competitive prices. Their "In all cases, EMS has pravided professional

consulling firm Project Manager, Regional environmental

cleaning feam up with EMS for these services. of waste management, remediation, or industrial professional, complete, and done right the first time Professionals. The work performed by EMS is accurate, and cancise, which is crucial for EHS communications on operations are expedient "Working with EMS provides peace of mind that would recommend that any company in need EHS Specialist, Fortune 500 oil & gas producer

are a cut above any contractor we have had complete work here. We will absolutely be using your company again for future work." "EMS equipment, crew, and general work ethic Plant Manager, Steel manufacturing facility

Environmental Management Specialists, Inc.

PERSONNEL

quality reputation in Like any company. EMS is a collection are the reason EMS capabilities and a the environmental an extensive ist of These individuals has developed of individuals. Industry.

quality of character in We take great pride expertise, depth of experience, and in the diversity of our personnel. Please refer to the following professional biographies of our about the people who make EMS who we are today. key personnel for additional detals

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DEARING GLARK **ANNING** BRUCE MARKE GRESS ₫ KARA EHRNFEL DENNIS NEOL

WII SON CURTIS SCOTT

What our clients have to say...

and regulations and they have the answer. Their reparting is excellent – it's automatic, and it saves me valuable "They're on site, not just on the phone. They really know every detail about us and our facilities. I can ask them anything about technical issues lime."

500 Company, Manulacturing Facility - Environmental Coordinator, Fortune



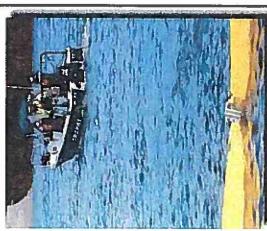
enned, cost estimating, site supervision, s more than 20 years of experience d characterizotlon, soil treatment, and disposal, and lab packing amediation, unknown waste s worked in sales, project protects He.

EDUCATION

Bachelor of Science, Muskingum Callege, 1991 Summa Cum Laude

IRAINING AND CERTIFICATIONS

Advanced Project Management Advanced RCRA Hazardous Waste Management Advanced First Aid/CPR (American Red Cross) OSHA Annual 8-hour Refreshers DOT HazMat Transportation Applied Strategic Planning Leadership Development OSHA 40-hour HAZWOPER







served as a field fechnician, sife supervisar, project sclenlist, project manager, division manager and now Chief Operating Officer. emergency response, sile remediallan, demolition, construction and earth-moving projects. He has Ilm Acri has more than 20 years of experience providing services for the oil and gas Industry,

EDUCATION

Bachelor of Science, Environmental Science. Trinity College, 2000

TRAINING AND CERTIFICATIONS OSHA 40-hour HAZWOPER

Fit-Tested for Respirator Use 80-hour Project Manager (Earth Tech, Inc.) Safety, Compliance Management and Function Confined Space Enliy Rescue - Team Member Current Medical Surveillance Documentation Advanced First Ald/CPR (American RCRA Hazardous Waste Managemer Confined Space Entry - Supervisor OSHA Annual B-hour Retreshers DOT Hazardous Material

Remediation and Monitoring Well Rehabilitation 80-hour Environmental Law and Liability (U.S. Navy) Applied Borehale Geaphysics (NGWA sanctioned) Damage Control Repair Locker Leader (U.S. Navy) Seabse Combat Warfare Specialist (U.S. Navy) Surface Warfare Specialist (U.S. Navy) Specific (unpacker)



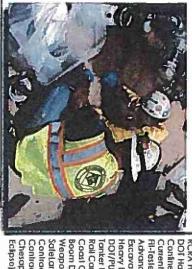
Services DENNIS
Vice President, Environmental

subject to joint federal and state regulation. large-scale remediation and redevelopment projects management. He has served in roles N demolikans, hazardous material m hydrogeologist to senior project manager on multiple oil and gas industry services, and cr projects, brownfield redevelopme large-scale site characterization a Bill Dennis has more than 15 years o

of Missouri-Ralla, 1999, Chancellor's Fellow Master of Science, Geology & Geophysics, University University, 1996, Summa Cum Laude Bachelor of Science, Geology, Youngstown State

TRAINING AND CERTIFICATIONS

DOI General Awareness Salety FII-Tested for Respirator Use IATA Dangerous Good Regulations Smith System DriverDirect On Road Defensive Driving Contractor Safety (Range Resources)
Contractor Safety (Rice Energy) SaleLandUSA/PEC Basic Ottentation Unconventional Business Unit Safety (Hess) OSHA Annual 8-hour Refreshers OSHA 40-hour HAZWOPER Advanced First AId/CPR (American Red Cross)



Environmental Management Specialists, Inc.





Environmental Services Director of Operations,

in oil and gas field services, emergency response, industrial services, and remediation projects. He has PUCO compliance officer, and health and safety coordinator, project manager, estimator, DOT/ equipment operator, site supervisor, on-scene served in roles ranging from field technician, heavy evi Catale has more than 15 years of experience.

EDUCATION

Associates of Business, Ohlo Univ

OSHA 40-hour HAZWOPER TRAINING AND CERTIFICATIONS

OSHA Annual 8-hour Retreshers

RCRA Hazardous Waste Management OSHA Annual 8-hour Retreshers - Supervisor

Confined Space Entry Rescue - Team Member Fil-Tested for Respirator Use Current Medical Surveillance Documentation **DOT Hazardous Malerial**

Rail Car Competent Person Excavalion/Tranching Competent Person Advanced First Ald/CPR (American Red Cross) DOT/PUCO Hazardous Waste Transportation/Trainer anker Roll-over, Transfer and Recovery leavy Equipment. Operations/Rescue

Boom Deployment, Fast Waler
Weapons of Mass Destruction Awareness Chesapeake, Anlero, Williams, Gulfport, Maralhan Contractor Safety (Range Resources, Rice Energy. Contractor Safety/Down Une Awareness (AEP) SateLandUSA/PEC Basic Orientation Coast Guard, Shareline Assessment/Clean-up



FRANK

Operations Manager, Environmental Services CLARK

and removal hazardous waste excavation/inin the environmental services industry, including fransportation manager, and ope project manager, hazardous/non-hazardos mat responder, site toreman, site superintendent a number of roles including field technician, hazground water trealment systems. He has served in remediation SVE (Soll Vapor Extraction), and situ treatment, ISCA remediation/excavation. transportation and disposal, UST installation rank Clark has more than 25 years of experience

EDUCATION

Technical Institute, 1986-1987 Associates degree, Business Md

RAINING AND CERTIFICATIONS

OSHA 30-hour Safety Confined Space Enlry OSHA 40-hour HAZWOPER

OSHA Hazardous Waste – Supervisor Confined Space Entry - Supervisor

Worksale (API) Drug & Alcohol Awareness – Supervisor lank Entry (APII) - Supervisor

RCRA Hazardous Wasle Management Operation Aerial Work Platforms – Scissor & Boom Lilt Sale

DOI Hazardous Molerial Advanced Tank Car Specialist (CSX - 24-hour)

E-RAILSAFE Certification Roadworker Safely

ransportation Worker Identification Credenliab

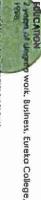
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HSOL

Environmental Servicas Operations Manager DEARING

releases, hazardous/hon-hazardous chemical spills, UST Instalkalkons and removals, and cleaning/ responses, including train detailments, pipeline experience in the environmental services industry as a field technician, haz-mat responder, site demolilan of ASIs. Jash has expertise in responding to emergency superintendent, and operations manager. Josh Dearing has more than 18 years of



RAINING AND CERTIFICATIONS 8-hour Refreshers M.ZWOPER

Confined Space Enlry Rescue – Team Member Confined Space Enlry – Supervisor DOI Hazardous Malerial Advanced First Aid/CPR (American Red Cross)
RCRA Hazardous Waste Management

E-RAILSAFE Certification Tank Entry – Supervisor (American Petroleum

Advanced Tank Car Specialist (CSX – 24-hour)

Fall Protection UST Installation/Retrofitting (NCCER Pipeline)

Trenching & Excavation – (Association of Reciprocal Safety Council)

(TWIC) Transportation Worker Identification Credentials





EHRNFELT, PE NHO

program experience, including working with the Ohlo Voluntary Action Program, RCRA, and CERCLA. performed site assessments, remedial design, project remediation projects. John ako has strong regulatory er heatmen waste management, stormwater managemen landill construction, and demotition, tie has management and estimating for several large environmental remediation, and divi projects John Ehmfelt has worked on a wide variety of willeld redevelopments, soil and groundwal including industrial site cleanups, br

EDUCATION

Bachelor of Science, Civil and Environmental Engineering, Cleveland State University, 2006 Professional Engineer (P.E.)

TRAINING AND CERTIFICATIONS OSHA 40-hour HAZWOPER

Advanced First Aid/CPR (American Red Cross) Excavation/Trenching Competent Person OSHA Annual B-haur Refreshers Professional Engineer (P.E.), State of Ohio



Environmental Management Specialists, Inc.





Director of Operations. HAWKINS

restoration; excavation, transportation and disposal Ilm Hawkins has more than 20 years of experience PCBs): on-sile project infrastructure excavation, transportation and disposal of contemhated solls: solidification and erosion control; manufactured of contaminated soll: and confined space entry. superintendent. Jim has developed expertise in haz-mat response (petroleum, volatiles, matak, tevee and earth dam construction, slabilization/ dredging and dewalering PCB solb, water, and sludge; landfill atosure, drainage and sediment; gas plant remediation; wetlands construction/ in the environmental services industry as an equipment operator, foreman, and field

Three Rivers High School, Three Rivers, M. Equipment Operator "A" school, U.S.

TRAINING AND CERTIFICATIONS OSHA 40-hour HAZWOPER OSHA Annual B-hour Refreshers Confined Space Entry Rescue Confined Space Entry OSHA 10-hour Safety

Advanced first Aid/CPR (American Red Cross) Excavation/Irenahing Competent Person Teamwork Communication – I, II Navy Leadership

Transportation Worker Identification Credential (TWK.)



CURTIS CHRIS

has served in roles as a project manager, project raitoad, and emergency response proje superintendent, and regional manager ndustry experience specific to remed Chris Curlis has over 29 years of dive

EDUCATION

Bachelar of Science, Construction Technology, Purdue University

TRAINING AND CERTIFICATIONS

OSHA Annual 8-hour Refreshers OSHA 40-hour HAZWOPER

OSHA Annual 8-hour Refreshers - Supervisor

RCRA Trenching and Excavating OSHA Contined Space

OSHA Sile Safety Officer

Advanced First Ald/CPR (American Red Cross) CSX Roadway Worker Protection

E-RAILSAFE Certification





WILSON Program Manager SCOT

moving Industry. Scott has served as a field technician, sile supervisor, project engineer, aperations manager, division manager and divisional senior vice president. Scott Wilson has over 29 years of diverse operalland amergency response, sile remediation, stream and sediment remediallon and restoration and earthand project management experience in the

EDUCATION

Bachelor of Science, Environmenta Madison University, 2002

IRAINING AND CERTIFICATIONS

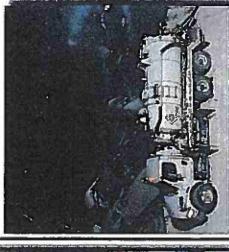
OSHA 40-Hour Health and Safety Training -OSHA 40-Hour Health and Satety Trail OSHA 8-Hour Annual HAZWOPER Retr

CSXT Annual Confractor Training E-RAILSAFE Certification Incident Command

CSXT Redi Center 24-Hour Advanced Tank Car

fransportation Technology Center (TTCI) 40-Hour Advanced Tank Car Specialist Specialist Training

CSXT Roadway Worker Pratection Training OSHA Confined Space Entry Supervisor RCRA Annual Review Training



Environmental Management Specialists, Inc.



salety program development; worker Iraining; data policy and program development. He has worked in project management, sile supervision, training, data management, technical witing and public Jim Gress has more than 25 years of experience management; and corporate-level regulatory characterization, transportation and disposal, characterization and remediation; waste In the hazardous waste industry with sile relations.

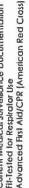
EDUCATION

Masters, Applied Communicalion Theory and Methodology, Cleveland State University, 2000 Bachelors of Arts, Communication, Cleveland State University, 1994

TRAINING AND CERTIFICATIONS OSHA 40-hour HAZWOPER

RCRA Hazardous Waste Managar OSHA Annual 8-hour Refreshers DOT Hazardous Material Confined Space Entry

Current Medical Surveillance Documentation









Environmental Management Specialists, Inc.





Vice President, Sales & Markeling APR ALLISON, KARA

legisialors, government officials, municipalities, community groups, and reporters by helping them understand the management, community outreach, media stralegy, and crisis communications, Kara builds credibility with clients, as a nationally recognized environmental consultant, a and communications for EMS. Kara's methe expertise is a unique blend of her previous 20 years of experience Protection Agency, and a former newspayer reporter. An expert in business and project development, state Kara Alison directs corporate development stratemes media relations coordinator for the Ohle Environment and faderal environmental policy Issues, reputation

EDUCATION

Bachefor of Arts, Journalsm, Politics & Government, Humanilles & Classics, Ohio Wesleyan University, 1995

various environmental tsues associated with projects.

TRAINING AND CERTIFICATIONS

Public Retations Society of America (PRSA) PRSA, Central Ohio Chapter Accredited in Pubitc Relations (APR) NIMS PIS and ICS-100 (FEMA)

PRSSA Professional Advisor, Marietta College **MSECA Board of Directors**

Ohlo Economic Development Association, Brownfields Manufacturing Albance of Communities Subcommiltee

Commercial Real Estate Women, Greater Cincinnati Registered Lobbyst, State of Ohio Ohio Women in Government

Calonel. The Honorable Order of Kentucky Colonals



LPG MARKEY, LPG Director, Business Development

development and developing client relationships environmental construction, and vapor intrusion the VAP, CORF and JobsOhio programs in Ohio cleaning, waste management, landfill capping involving site remediation, demostion, industrial managed over 35 brownfield projects under In the public and private sector. Bruce has of environmental experience in business Bruce is a cerlified applicator and insp various vapor barrier systems. Brug-Bruce Markey has more than 25 years Ucensed Professional Geologist

EDUCATION

Bachelor of Science, Geology, 1979

TRAINING AND CERTIFICATIONS

Licensed Professional Geologist - Indiana (IN 1157) OSHA 40-hour HAZWOPER OSHA Annual 8-hour Refreshers OSHA Annual 8-hour Refreshers – Supervisor Certified Uquid Boof Inspector

LPS Behavior-based Salety Training Confined Space Entry

Advanced First Aid/CPR (American Red Cross) Current Medical Surveillance Documentation Fit-Tested for Respirator Use

ENVIRONMENTAL SERVICES

VACUUM TRUCK SERVICES

vacuum Irucks to remove liquids, sludges and/or sollds from a wide variety of sites. Our super sucker vacuum disposal facililles or transfer waste to vacuum boxes, frac lanks, or other containers for temporary storage frucks can transport waste directly to appropriate EMS owns and operates a fleet of well and dry on-site or off-site at an EMS service center.

extraction), product fransfers, dewalering and support for various industrial service, emergency response, and EMS vacuum frucks also provide various onsite services including vacuum enhanced recovery (dual phase storage tank management needs

TANK AND PIT CLEANING

EMS has thoroughly trained technicians and owns the equipment required to enter and clean various-sized space entry trained and have experience cleaning even the most difficult-to-clean spaces while safely lanks and pilts to remove all kinds of liquids, sludges solids, and debris. All EMS employees are confined managing a wide variety of hazardous canditions.

OILFIELD SERVICES

from lank cleaning to emergency response, and super sucker vacuum frucks, EMS provides a wide range of services to the oil and gas Industry, Including:

- Emergency response (trac-outs, spills, etc.)
- Tank cleaning
- Mud pil cleaning Rig washing Super sucker vacuum truck services
- Waste containers (roll-off/vac boxes)
 - Air knifing (pipeline excovation)
 - Equipment decontamination Roll-off trucking

PRESSURE WASHING

Our partable fleet consists at units that range from 3,000 pst to 10,000 pst and includes both cold and hot pressure washing capabililles, which can be coupled EMS performs a variety of pressure washing services. with the use of environmentally inendly degreasers to clean oils, lubricants, greases and fats. We also provide field equipment designed to provide self-contained water to clean areas that have finited water availability



Environmental Management Specialists, Inc.

EMERGENCY RESPONSE

including releases at transportation facilities, Industrial manage releases on roadways, railways, pipelines and waterways including fakes, rivers and tributaries. to a broad range of environmental emergencies :MS has highly-Irained people and state-of-the art equipment ready and prepared to respond facilities, utilities, and energy facilities. We also

Our extensive land and water resource capabilities Include

- Abandoned wastes
 - Damaged goods
 - Derailments
- Leaking containers Leaking transformers Natural disasters
- Pipeline releases
- Roadside spills
- A! EMS, we manage spills from start-to-finish with
- various processes, Including:

 Establishment of secondary containment for

leaking containers

- Containment booms and sorbant media, booms, and pads
 - Recovering and Iransferring of product Protection of sensitive areas
 - Prevention of spilled product migration
- Installation and maintenance of siphon dams Waste characterization
- Transportation and disposal of contaminated
 - soils, materials, and wastes
- Thorough post-cleanup documentalian Site restoration to pre-spill conditions

WASTE TRANSPORTATION

EMS is incensed to have both hazardous waste and non-hazardous waste throughout our operating area. Our diverse feet Includes rolf-off trucks, #II and operators on all aspects of truck driving gale box frucks, vacuum frucks, and tractor Irollers, EMS emplays a full-time DOT compilance officer and canducts regular safety and DOI complance Iraining with drivers and operation.

PRODUCT TRANSFER

ransfer rate of up to 300 gallons per minute, rail cars, storage tanks, or tankers. With the use of hydraufic or air driven pumps, EMS can transfer any amount of product at a hazardous, or food grade products from During rouline maintenance projects or emergency response incidents, EMS has equipment to transfer hazardous, non-Irained personnel and stale-of-the-art

LINE JETTING AND INSPECTION

EMS owns specially equipment and employs trained fechnicians to provide full-service line letting Ine video inspection to evaluate the condition of a sewer fine and to confirm successful cleaning after contamination from sewer lines. EMS also provides services to remove obstructions, residues and/or work completion.

ROLL-OFF BOXES, FRAC TANKS,

AND VACUUM BOXES

EMS provides all types and sizes of bulk storage necessary to facilitate our work at project sites including frac lanks, roll-off boxes and vacuum sludge/sediment storage, or contaminated soil baxes. Whether the need involves temporary confainerization. EMS can provide sufficient luel storage, confaminated water storage, quantities of all appropriate containers

HYDRO-EXCAVATION

an alternative to conventional excavation methods. EMS provides hydro-excavation on certain sites as Unike tradilional mechanical excavation, there is

fille chance of damage or disruption to critical underground utilities utilized to excavate, Hydrohigh-power vacuuming are when pressure washing and







transported off-site into a vacuum truck to be contained and/or excavation point while the soil slurry is vacuumed excavalion equipment is directed at the desired angles, while preserving natural surroundings. Hydro-

from the crea using a powerful vacuum. Air knifing (aka poliholing or daylighling) includes all of the advantages of hydro-excavation. In addition. AIR KNIFING

Similar to hydro-excavation (without the water) Typical air knife applications include: produced through hydro-excavation. reduces disposal costs compared to the slurry air kniling results in ary soil waste, which typically expand, and break up soil. The soil is then removed air knifing utilizes high velocity air to penetrate,

- Surgical excavation around known or suspected
- Pre-drilling location clearance
- Underground utility location vertication
- Underground piping and conduit repairs Rehabilitation/desitting of small diameter

EQUIPMENT DECOMMISSIONING AND FACILITY

DECONTAMINATION

from small-scale product ine removal to large-scale EMS provides all facets of equipment decommissioning and facility decontamination facility closure activities.

Environmental Management Specialists, Inc. 21

WASTE CHARACTERIZATION REMOVA

as last-track waste approval and shipment.

Customers rely on EMS to handle all kinds of RCRA hazardous waste, ISCA regulated waste, and nonwith same-day, competitive price quotations as well as drum quantilies. EMS strives to provide customers and treatment and disposal. EMS offers recycling. EMS provides all aspects of waste management including lab packing, waste identification. hazardous and non-hazardous waste in bulk as well characterization, containerization, transportation, trealment, and disposal alternatives for all types of

the receipt and processing at the malerials of the disposal facility. EMS personnel are experts allematives rolated to waste generating processes stream, and also assist customers with cost-saving environmentally-sound destination for each waste at determining the most economical and environmental care starts at the generator's site with all laws and regulations. The EMS system of waste materials are managed in strict accordance EMS customers have the assurance that their treatment options, and material packaging. with waste characterization and continues through

CONFINED SPACE RESCUE TEAMS

non-entry and industrial entry fears, in most cases, non-entry rescue is preferred. But for many confined When it comes to worker rescue, there are two types: space rescue situations – which are often complex

and dangerous – entry rescue learns are the only

depth training and use specialized equipment to save performed by the entry attendant with minimal the worker trapped in the confined space. training, emergency service learns have more in-Unlike non-entry rescue, which often can be

clients in the event of a confined space rescue. the specialty equipment required to support our EMS has thoroughly-trained entry rescue teams and

TRAINING SERVICES

to do It, and why It needs to be done. Doing so leave into context and use real-world scenarios to explain variety of EHS disciplines. This experience enables our Our EMS trainers are industry experts straight from the trainees learn and truly understand what to do, how more than checking baxes. We locus on helping the "how to" in the classroom. EMS training is about uniquely-qualified frainers to put salety procedures field with extensive hands-on experience in a wide

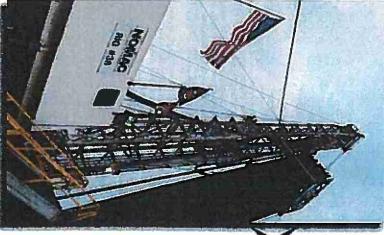




a lasting impact and leads to safety in action. EMS is your ONE CALL for:

- 40-Hour HAZWOPER
- 24-Hour HAZWOPER
- 8-Hour HAZWOPER Refresher
- Confined Space Entry (CSE)
- Confined Space Rescue (CSR)
- **DOT Hazardous Materials**
- IMO/IMDG Dangerous Goods ICAO/IATA Hazardous Materials
- ockaut Tag Out
- Personal Protective Equipment PEC SafeLand
- RCRA Hazardous Waste

- Respiratory Protection (with Fit Testing)
 First Aid/CPR/AED (can be offered as part of
 40-hour, 24-hour, and CSR)



ENVIRONMENTAL CASE STUDIES

pillows and booms. EMS crews worked around the clock (12-hour

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containers in addition to bulk waste ulfizing 5,000-psi hot pressure wash units. EMS safety protocok required space procedures, and confinuous and removal of various hazardous air monitoring throughout the work Former Automotive Stamping Industrial cleaning. EMS removed approximately 250,000 gailons of and pressure washed all surfaces Plant - Waste and Industrial oil and water from two oil water EMS provided characterization the implementation of lockout/ removal and confined space separators and five press pilts. lagoul procedures, confined and non-hazardous waste

erminal - Emergency Rallroad Locamotive

Response – Indianapolis, IN EMS responded to a large gasalna to a retention basin. EMS mobilized lechalcians to the project site from spill at a locomotive terminal in Indianapolis. The cause of the spill properly which in turn discharged was a feaking petroleum pipeline gasalne was discharged to a 3 supervisors, 6 operators and 5 4 different EMS locations along with 5 service lrucks, 3 vacuum Incks, and asserted PPE, pack, Approximately 100,000 gallons drainage ditch located on the that ran through the terminal.



drainage ditch. After the bulk liquia equipment operation to remediate the impacted sails. Over 4,000 tons of impacted sall, as well as 500,000 gallons of water and product, was for five days vacuuming gasofine knifing, hand digging, and heavy removed and transported for offshifts and through the weekend from the refertion pond and the was removed from the affected areas, EMS transitioned to air sile disposal.

Storm Damage (37 Transformer As a result of a severe windsform, EMS responded to multiple Response - Southern Ohlo Spill Sites) - Emergency

response. All 37 sites were granted NFA (No Further Action) status and EMS to succeed in this emergency spill siles. The high volume of work rapid response time requirements. daily EMS operations. Nothing less challenges. EMS overcame these challenges while ato addressing all commitments associated with had released PCB and non-PCB olk. Several EMS crews with proper personal protective to complete site cleanup, waste management and thorough sile documentation for a total of 37 han extraordinary effort by our seven days following the storm supervisors and crews enabled and remote location of many locallons where Iransformers of the siles presented unique equipment (PPE) worked for

13.000 gallons of flammable liquid crew to complete installation and Irain Derailment - Emergency EMS mobilized a multidisciplinary EMS responded to a train derailment with the release of Response - Northern Ohla requirements.

excavation near a major fiber optic line. EMS also conducted extensive In total, EMS mobilized two incident femporary water freatment system provide 24-hour product recovery services. EMS simullaneously assisted in definating the extent addillonal exploratory excavation, vacuum Iracks, three roll-off trucks, equipment, 10 carbon vessels and installation, and sile maintenance lour fully-equipped project trailers. to provide daily product recovery inillal response. EMS was relained support and waste fransportation After establishing the limits of the prevent product from impacting and 12 service Irucks, in addition two air lancers with compressors, operators, 15 technicians, seven examining on-site subterranean structures for spill-related waste. al remediation technologies to 500 linear feet of sheet piting to spill, EMS assisted in the design miligate off-site migration and a nearby marsh. Following the consequently completed the lest pitting, including air knife Installation of approximately of the spill through precision confined space entry work, managers, six supervisors, 11 services while assisting with lo mulliple pieces of heavy commanders, two project

Industrial Services - Cincinnall, **Terminal Storage Facility** fank Cleaning at Major

lank manifold to the rack, removed product change-over. The process appropriate protocol for confined nto a vac fruck for transportation containing canola oil as part of a water blaster, scattolding, and all space entry. EMS crews cleaned emaining product from the lank and unloaded the Ine Irom the invalved the use of a 10,000-psi EMS provided tank and line cleaning services for fanks

As a result of our attention-to-delail he walk and floors of the lank to and disposal, and powerwashed and strong safety practices, EMS continues to gain repeat work at clean II for new product storage

Hydrostatic Testing Projects and Emergency Response - Environmental Services Northern Kentucky

permitting and field coordination to allow for disposal of hydrostalic test water to the tocal sanitary Northern Kentucky, Responsibilities containment/response measures; solutions and rinse water; analysis and disposal of cleaning solullons sewer system; analysis, treatment for hydrostatic testing projects in and tinse water at an approved facility; overall environmental plan: providing roll aft containers response spill support, including safely, Additional roles taken on included providing emergency providing erosion and sediment project management; and site during these projects included EMS was awarded a contract controls for disturbed areas in emergency response support accordance with the SWPPP storage of pipeline cleaning environmental services and by a major utility to provide vac fruck services and spill

services for hydrostatic festing frac fanks; and providing asbestos abatement of coal far coatings and gaskets encountered on the pipelines and ancillary equipment and disposal of pipeline pigging providing cleaning and disposal during the course of the project condensales and scrap plping: materials; providing PCB characterization of natural gas

Tank and PH Cleaning for Shale Pads - Industrial Services -Eastern Ohlo and Western Gas Drill and Completion Pennsylvania

mulliple drill pads across Eastern Ohio and Western Pennsylvania washer units and vacuum trucks frac lank cleaning, plt cleaning EMS was confracted to provide frac fanks and pilts, often under to clean studge and mud from and vacuum fruck services for Responsiveness, a strang work detailed record-keeping have During rig sklds or moves, EMS ethic, quality equipment and extreme weather conditions. crews utilized hot pressure as key EMS differentiators. been recognized by this

Recovery - Canollion, OH Emergency Response, Air Knifing and Vapor/Fluid Residential Property -

resulted in the safe and permanent efminalian of hazardous conditions construction, line let camera videa recovery (dual phase extraction) SVE system installation (soil vapor extraction) including design and refease from a petroleum facility nstallation, vacuum enhanced onto a residential property. This inspection and site restoration. EMS responded to a gasoline EMS's mulli-stage approach project included air knifing. excavation, backfill, well

Solidification Services for Shale EMS was confracted to provide 24-hour on-site solidification services soledifying and loading out waste to enable the drilling operations employed the use of excavators lor multiple drill pads. Operator/ process fluids with power ash to soldify the waste in preparation shale gas dilli pads, where they to mix drill cuttings and related operators assisted with other rig to flow seamlessly. Additionally. Gas Drill Pads - Industrial supervisors were assigned to for disposal. Operators were Services - Eastern Ohlo responsible for continuously dulles as requested.

and more projects of varying size and complexity.

# REMEDIATION SERVICES DIVISION



# SITE REMEDIATION

EMS provides a diverse range of remediation services

- Mulli-faceled remediation
- MGP site remediation Hog-and-haul sile remediation
- In-situ remediation system installallan Hazardous soil and groundwater trealment
- Gas and vapor barrier installation
- Fueling station cleanup and UST removal Impoundment pond and lagoon remediation
- Welland, stream and channel restoration

throughout our operaling area to support our project ongoing contracts with several equipment suppliers own a large assortment of equipment and also have well-respected in the environmental industry. We extensive and diverse project experience, and are operators and hazardous material technicians have on each and every project site. Our equipment EMS supplies top-quality field crews and equipment

# CONTAMINATED SOIL AND WATER TRANSPORTATION AND DISPOSAL OF

EMS maintains ongoing relationships with numerous We've utilized dozens of disposal facilities for excavation of contaminated soil for off-site disposal EMS has completed hundreds of projects involving meeling regulatory guidelines for beneficial reuse. hazardous waste soil, non-hazardous soil, and soils

Environmental Management Specialists, Inc.

disposal and recycling companies and is familiar with their capabilities and approval requirements to ensure a smooth and efficient working relationship from the nllial approval process through final documentation

equipment to pump, filter, and containerize the water for characterization treatment, discharge, or off-site is encountered on a sile. EMS has a wide variety of of contaminated water. When contaminated water EMS also has extensive experience with management

and compaction of backfill. With our extensive about industry standards, means and methods construction experience and are knowledgeable any sile remediation project involving the removal of to provide specified backfill at a cost-effective price regional supplier and vendor relationships, EMS is able required to achieve proper geolechnical placement contaminated soil. EMS personnel have broad civil Backfill supply and placement is a key element of

# MGP SITE CLEANUP

accustomed to the special subsurface conditions associated with MGP siles, and EMS personnel are managing the unique challenges and specific regulatory ksues that apply to these sites. We are EMS is an experienced manufactured gas plant typical to MGP sites. familiar with various cleanup and disposal afternatives (MGP) site remediation confractor with expertse

# HAZARDOUS SOIL AND

contractor," EMS strives to provide Innovative reduction, performance, and ease of use economical means and methods possible. EMS has approaches to meeting cleanup goats by the most As part of our pledge to be "more than a lechnologies with an emphasts on safety, cost specialized expertse with several in-situ remediation

mixing with excavation equipment and specially mixing attachments. Because the contamination leves in excess of hazardous waste standards especially beneficial when addressing contamination situ"] pilar to generalian of a waste, this method is is treated directly within the impacted area ("intrealment method preferred by EMS involves in-situ on many siles, especially for groundwater. The soil methods. Injection is a viable and effective process groundwaler can be achieved by various means and In-situ treatment of contaminated soil and

of hazardous waste remediation, in-situ treatment sell to more traditional "hog and haut" methods When comparing in-situ mixing and treatment of





It significantly reduces overall project costs.

- It is tast-acting.
- It prevents the generation of hazardous waste.

when addressing soil and groundwater contamination, including the following: EMS utilizes various in-situ remediation technologies

- In-situ chemical oxidation (ISCO) Metals stabilization/fixation
- Enhanced aerobic blodegradation
- Enhanced reductive dechloringtion

# IN-SITU REMEDIATION SYSTEM INSTALLATION

specifications. associated frenches, piping and wells per the system system components, construct the system, and instal and pump & treat systems. EMS will procure the and installation of in-situ temediation systems, including soil vapor extraction (SVE), air sparge, EMS has extensive experience with the construction

# GAS AND VAPOR BARRIER INSTALLATION

and design assistance to complete these complex engineering control for pollulion containment. brownfields and other contaminated sites as an vapor barrier systems. EMS can provide installation As a certified installer of various types of gas and Impermeable membranes are an ideal use on

systems which provide a barrier against vapor Intrusion water-based, and VOC-tree membranes and venting EMS installs a variety of seamless cold spray applied. VOC-free vapor intrusion coaling systems that consist mpaired sites. EMS also Installs various 2-part odorless. nto structures on brownfields or other environmentally

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of chemically resistant materials to protect existing floor slabs and structures from the threat of contaminant vopor intrusion.

this service as a component of our site remediation capabilities, as well as a containment measure during EMS provides Installation of sheet piling in various configurations and site conditions. Using a vibratory drive head affached to a 35-metric-ton excavator, EMS has installed thousands of feet of steet sheeting as well as HDPE sheeting, to prevent migration of contaminants of concern (COCs). EMS provides large emergency response incidents.

# MPOUNDMENT POND AND LAGOON REMEDIATION

EMS is experienced with various means and methods EMS has a variety of equipment with which to effectively manage small to large-scale dewatering for dewatering and solidifying sediment and sludge. and solidification projects.

1999999999999999999999999999999

STORAGE TANK REMOVAL EMS provides comprehensive tank removal, decommissioning, and demotition services across our operating area.

provides fum-key removal services for various sizes of aboveground storage tanks (ASTs) and underground With several certified personnel on staff, EMS storage fanks (USTs), Including the following:

- Permitting and inspection
- Product removal and tank clearing Tank decommissioning and demostion
  - Tank system removal UST closure-in-place
- Confaminated soil removal
  - Site restoration

# WETLAND, STREAM, AND

# EMS specializes in working collaboralively with CHANNEL RESTORATION

wellands to systems with anhanced fish and wildlife learn is qualified to restore degraded streams and consultants to implement design-build plans that improve the condition of wellands, streams. channels, and other natural systems. The EMS



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deploying a broad range of construction techniques and measures in ecologically-sensitive systems, while habilat, increased stability, diverse ripartan corridors, and improved water quality. We are well-versed in working within the regulatory parameters for these specialized restoration projects.

# BROWNFIELD DEMOLITION

experienced personnel and investing in specialized demosition equipment. EMS is able to provide turn-key projects involve a combination of demotition and site Because a large percentage of brownfield cleanup demostion services along with our core remediation remediation, EMS has expanded our capabilities to include demosillan services. By hiring quasiled and capabilities Not only is EMS able to reduce costs for our customers work, but we are also better able to manage quality by self-performing both demotition and remediation confrol and provide an exceptional level of project reporting and documentation.

often fearts with strategic partners in the demolition industry. Combining resources and expertise on larges scale brownfield projects has proven to be the safest. On large siles with complex demoifilon needs, EMS most economical, and most efficient approach to many of our projects.

in vailaus disciplines, a proven frack record and We have a fremendous safely record, expertise second to none.

# LANDFILL REMEDIATION

Geo-composite liner (GCL), HDPE liner, and cap EMS specializes in landfill capping, repairs, closures and cell expansions, including:

- construction
  - Leachale collection piping Umited new cell expansion

# SITE RESTORATION

have extensive civil construction experience. As such, Many of our equipment operators and site supervisors tesforation services provided by EMS include:
Clearing and mulching
Earthwork and grading (GPS accuracy and lasergrade quality) EMS is able to provide a seamless transition from remediation to restoration of the project site. Site

- Excavation Backfilling
- Stream and welland restoration Revegetation
  - Geo-composite Ining (GCL)
- Lease and access road construction Water and sower line construction



extensive project management experience on complex, high-profile redevelopment sites. Our project execution and documentation in this arena are

# REMEDIATION CASE STUDIES



Former Automotive Due to the site history and Barrier - Columbus, OH Manufacturer – Gas Vapor

vapors and meet residential indoor air standards. In total, EMS installed 60-mil LiquidBool® liner more than 240,000 square feel of 2-inch diameter vent pipe and more than 16,000 linear teet at la miligate potential residual of a passive vent system designed vapor barrier was installed as part Program (VAP), approximately 240,000 square feet of 60-mit gas under the Ohio Voluntary Action compliance standards required

On an especially expedited Former Dry Cleaner - Sile Remediation - Lyndhurst, OH

> while pratecting underground utilities in the area. This \$1 million. the environmental consultant and project was completed by EMS on property developer. to the complete satisfaction of start to finish), under budget, and schedule (23 working days from Clean Ohio Revitalization Fund to remove contaminated soil kniling in the right-of-way in order In addition, EWS conducted air contaminated groundwater. structures and 10,000 gallons of 200 tons of subsurface concrete compaction. EMS also removed

Irealment - Cleveland, OH In accordance with a Rule 13 Development – Site Remediation and in-situ Sot Commercial Property permit and the Ohio EPA Voluntary

> have been associated with all-site compared to casts that would turn delivered significant savings stabilized the lead-contaminated of hazardous waste standards. EMS tans of soil contained lead in excess heavy metak. Of that total 3,000 contaminated with petroleum and and removed 38,000 lans of soil this former manufacturing lacility Action Program, Bus maduzed to

discharge through an engineered were then planted with native welland plant material for the other areas on site. The wellands the grading process, the basin then compacted a total of 4,500 cubic areas. EMS Imported, placed, and solls and overburden was required of 3,000 cubic yards of unusable were constructed in conjunction quality, as both welland areas Erosion and water filtration control 3.50 acres of area was cleared filtration of the seep water prior to with native soils excavated from geomembrane liner and covered was fined with a welded 40-mil yards of soll to build the required prior to initial grading of the with existing streams. Excavation were installed to maintain water two separate wetland features. to provide for the installation of from a former landfill. A total of the treatment of leachate seeps EMS was contracted to construct Construction - Steubenville, 9

> areas were restored with native drainage system. All adjacent

former Automotive

confaminated hazardous waste and remove 2,000 tons of leadphase of the project to excavate removal on schedule and under soil. EMS completed this soil remobilized during a subsequent from the Ballimore area. EMS received from local contractors to the customer compared to bids EMS delivered a 25 percent savings project was completed in six days site. The projected two-week conformated sail from the project and 200 ions of petroleumeight USTs, five all/water separators EMS was confracted to remove Removal -- Baltimore, MD Remediation and Tank

project was the unusually large One notable obstacle on this associated engineering controls landfill cap and liner, as well as all landfill cap. EMS then installed the in preparation for installation of a the environmental consulting firm We then imported thousands of to a non-hazardous waste landfill sile. After being treated to below EMS conducted in-silu Zanesville, OH Superfund Site - Site to specifications developed by lons of clay and graded the site then excavaled and transported regulatory standards. The soil was lead-confaminated soil at the stabilization of 10,000 tons of Remediation and Landfill Cap

existing utilly lines at this former walk, contaminated soil, and basements, vaults and retaining building foundations, stabs. EMS was contracted to provide Demolition - Cleveland, OH Site Remediation and removal and disposal of all Former Industrial Facility –

amount of rainfall encountered at the job site during construction challenges and the project was EMS worked through these complete satisfaction. completed to the consultant's

challenging former industrial site grade campaction, and restored all surface features across this all excavations with construction point of compliance; backlilled according to the specifications; barrier in-situ remediation systems EMS successfully installed air [PCE]-contaminated soil to the removed perchiproethylene (SVE), and groundwater hydraulic Installation and In-situ Soil Former Industrial Property parge, soil vapor extraction ireatment - Canton, OH Remediation System

impact on neighboring properties utilized as needed based on air of personal profestive equipmen and 1,430 lons of C&D debits, as monitoring in order to prevent any PPE. Vapor suppressing loam was (PPE) from Level D PPE to Level B were conducted in various levels attachments. Mixing operations using an excavator and mixing standard. Mixing look place in lift above the hazardous waste with initial PCE concentrations silu with the contaminated soil sile, chemicals were mixed intreatment designed for the part of a chemical oxidation hazardous wasle standard. As of 2,360 tons of soil with inilial well as treatment and removal hazardous PCE concentrations of 7,320 ions of sall with non-CE concentrations above the this project included removal

various ill maledak and graded The online site was backfilled with 49,000 tons of contaminated soil. yards of subsurface concrete and total of more than 4,000 cubic per the specifications. ndustrial sile. EMS removed a

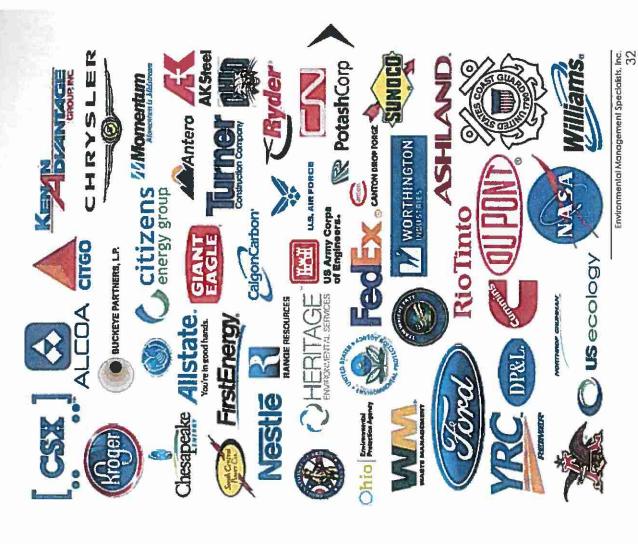
waste profiles for rush approval and was able to remabilize to petroleum-contaminated soil was site, an additional 1,300 tors of site redevelopment project on with slandby lime and kept lihe minimized the casts associated hazardous soil. The fast lumaround the site the next day to begin results, EMS immediately submitted facility. After receipt of analytical being hauled to a TSCA disposal high-level PCB-contaminated soil disposal facility and 400 tons of being hauled to a non-hazardous low-level PCB-contaminated soil discovery resulted in 2,500 tans of at two areas of the property. This elevated levels of PCBs in the soil ot soil, lab analysis indicated fank installer. Prior to removal direction of our in-house certified the four USTs from the site under the excavaled, crushed and removed one 42,000-gallon UST. EMS then petrateurn-contaminated water from three 20,000-gatton USTs and industrial facility. Immediately and dispose of a wide variety of rauled for bloremediation schedule. From other areas on the emoving both hazardous and non to remove 90,000 gallons of following demolition, EMS mobilized to identify, containerize, transport Before demostion of the existing Former industrial Facility – azardous wastes inside the former ive-story building, EMS mobilized Removal – Cleveland, OH Site Remediation and Tank

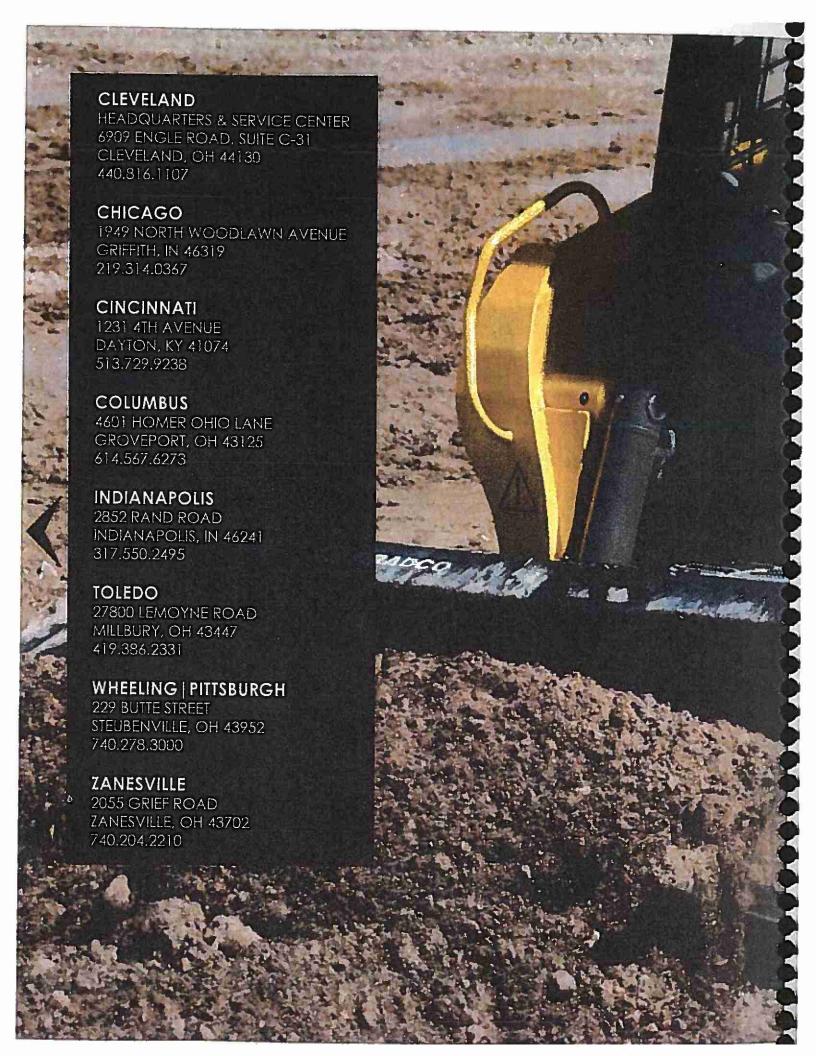
and complexity. and more projects of varying size

Environmental Management Specialists, Inc.

Some of our Clients we are so honored to serve...









Safety. Customer. Efficiency. Sustainability.

DATE: 9/12/2016

COMPANY: Atwell, LLC

ATTENTION:

LOCATION:

Mike Koenig 1675 Watkins Rd, Columbus, OH 43207

PROJECT TYPE: Facility Remediation

Hazardous Waste Experts (HWE) is pleased to provide you with a cost proposal to furnish environmental management services to complete the above referenced project. We are committed to providing the best possible service in a timely and efficient manner.

#### General Scope of Work

HWE will utilize several HEPA vacuums to perform the cleaning of the building interior. All of the floor surfaces will be vacuumed, including the office area, ceiling beams and trusses, and accessible processing equipment. Accessible processing equipment and hard surfaces in the office area will also be wiped down with D-Lead wipes.

All waste generated during the decontamination activities will be collected into DOT approved 55 gallon drums for off-site disposal. The waste will include the following lead contaminated items: PPE, HEPA vacuum filters, rags and wipes. HWE assumes that 30 x 55 gallon drums of this material will be collected. HWE assumes that the floor, ceiling beams and trusses will be clean after being HEPA vacuumed one time. Not included in this scope of work is wet wiping of the floors and ceiling items with D-Lead wipes. HWE estimates that this portion of the decontamination will take approximately 16 days at 10 hours per day.

#### Price Schedule

|             |                           |                                                                  | Unit                                | Total                                                 |
|-------------|---------------------------|------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------|
| \$55,800.00 | LS                        | 1                                                                | Lump Sum                            | \$55,800.00                                           |
| \$27,500.00 | LS                        |                                                                  |                                     | \$27,500.00                                           |
|             |                           |                                                                  |                                     | \$4,800.00                                            |
|             |                           |                                                                  |                                     | \$15,000.00                                           |
|             | \$27,500.00<br>\$4,800.00 | \$27,500.00 LS<br>\$27,500.00 LS<br>\$4,800.00 LS<br>\$500.00 EA | \$27,500.00 LS 1<br>\$4,800.00 LS 1 | \$27,500.00 LS 1 Lump Sum<br>\$4,800.00 LS 1 Lump Sum |

- Includes lodging and Per Diem
- Equipment includes utility vehicles, platform lifts, HEPA vacuums, PPE, Forklift, Mobilization and Demobilization
- Includes provision of 30 x 55-GAL DOT drums, HEPA vacuum filters, and D-Lead wipes and subsequent transportation and disposal of these drums at Envirosafe's landfill in Mentor, OH.



### **Acceptance**

The Undersigned proposes to furnish all materials and perform all labor necessary to complete the above referenced project according to the general assumptions and service agreement contained herein.

Roy Wimer

Roy Wimer Technical Director Hazardous Waste Experts roy.wimer@hazardouswasteexperts.com (608) 210-4211

| Customer Name: | Customer Signature: |
|----------------|---------------------|
|                |                     |
|                |                     |
|                |                     |
|                |                     |
|                |                     |
| Date:          |                     |



#### Service Agreement

#### 1.0 GENERAL PROVISIONS

- Hazardous Waste Experts ("HWE") is a subsidiary of Pegasus Sustainability Solutions, Inc., a corporation engaged in the business of environmental management, including, but not limited to, the packaging, transportation and disposal of hazardous waste; general and specific environmental, health and safety compliance, chemical relocations; radiological waste management; biological waste management, facility decontaminations; and on-site staffing of environmental professionals.
- 1.2 Upon acceptance of the agreement, the parties agree to be bound by the terms of the Service Agreement. The parties understand that the terms of the agreement and the terms of the Service Agreement make up the entire contract of the parties.
- 13 HWE carries all permits and authorizations required to perform work for CUSTOMER

#### 2.0 LAWFUL COMPLIANCE IN PERFORMANCE OF WORK

- HWE and CUSTOMER agree to comply with all applicable federal, state and local laws and ordinances and fawful orders, rules and regulations of any constituted authority that may pertain to the generation, collection, transportation, handling, storage or disposal of any of CUSTOMER'S waste. HWE and CUSTOMER have obtained all necessary permits, licenses and other forms of documentation required to perform their respective obligations hereunder and, upon request of the other party, each shall furnish copies thereof to such other party. CUSTOMER shall obtain generator EPA identification numbers and promptly notify HWE of such EPA identification numbers and any changes thereto. As it pertains to the transporting of the waste material, HWE is acting as a common carrier and in no other capacity. HWE will not accept improperly identified and/or unidentified material for packaging, transportation and/or disposal.
- 2.2 CUSTOMER warrants that it is under no temporary or permanent injunction, administrative or court order or writ, which would prohibit or constrain the transportation, treatment, storage and/or disposal of such wastes by HWE in any manner whatsoever.

#### 3.0 OWNERSHIP AND TITLE OF WASTE

- CUSTOMER warrants that it holds clear title to all the wastes to be packaged, transported, treated, stored and or disposed of as part of the work. CUSTOMER assumes responsibility, without limitation, as "Generator" (as defined in the applicable statutes and/or regulations) for compliance with the Resource Conservation and Recovery Act. 42 USCA, section 6901, et seq., (hereinafter "RCRA"), the Comprehensive Environmental Response, Compensation and Liability Act. 42 U.S.C. 9601, et seq., (hereinafter "CERCLA") and any federal, state or local statute, ordinance, treaty or regulation that applies to "Generators" or entities responsible for the creation of a hazardous waste or release thereof.
- 3.2 Nothing contained within this Contract shall be construed or interpreted as requiring HWE to assume the status of "Generator" as that term appears in RCRA, CERCLA, or any federal, state or local statute or ordinance or any treaty governing the generation, treatment, storage, transportation and disposal of waste, such as, without limitation, the Hazardous Waste Control Act and the Carpenter-Presley-Tanner Hazardous Substance Account Act.

#### 4.0 INSURANCE

- 4.1 HWE maintains insurance at or above the required levels required by governing agencies for work performed for CUSTOMER.
- 4.2 Certificates of insurance will be provided upon request.

#### 5.0 WASTE DISPOSAL

5.1 CUSTOMER shall approve of the disposal facility to which the waste shall be taken. CUSTOMER acknowledges and agrees that CUSTOMER alone has reviewed and approved of the place of disposal, as indicated by CUSTOMER'S signature on relevant shipping documents.

#### 6.0 NON-CONFORMING WASTE

- 6.1 CUSTOMER understands that waste pricing is highly dependent on the constituents, and percentage of constituents, of the waste. CUSTOMER warrants that all wastes which may be serviced pursuant to this agreement shall materially conform to the WASTE DESCRIPTIONS in the Proposal, which were provided to HWE by CUSTOMER.
- 6.2 If CUSTOMER ships waste outside of the parameters set forth in the waste's profile. CUSTOMER understands additional charges may result, and agrees to pay the additional charges related to the packaging, transportation and disposal of the nonconforming waste.

### 7.0 PRICING AND COMPENSATION

7.1 CUSTOMER agrees to compensate HWE pursuant to the parameters set forth in this agreement. HWE will invoice CUSTOMER as each stage of the project is completed. All invoices are due net thirty (30) days from date of issuance. HWE reserves the right to charge a 11% finance charge per month for balances past due thirty (30) days.



7.2 Pricing may be modified to (a) Include pricing for new services and/or (b) adjust current pricing for existing services. If the pricing is modified, HWE shall provide CUSTOMER a Revised Pricing Schedule, which shall become effective upon date of receipt, indicated by signature of CUSTOMER.

#### 8.0 INDEMNIFICATION

- 8.1 HWE agrees, to the fullest extent permitted by law, to indemnify and hold harmless CUSTOMER from and against any liabilities, damages, and/or costs (including reasonable attorney's fees and cost of defense) arising out of the death or bodily injury to any person, or the destruction or damage to any property, to the extent caused, during performance of services under this Contract, by the negligent acts, errors and/or omissions of HWE or its officers, directors, principals, or employees, subject to the limitations set forth in the Section 9.0 (Limitation of Liability) of this Contract.
- 8.2 CUSTOMER agrees, to the fullest extent permitted by law, to indemnify and hold harmless HWE, its officers, directors, principals and employees, from and against any liabilities, damages, and/or costs (including reasonable attorney's fees and cost of defense) arising out of the death or bodily injury to any person, or the destruction or damage to any property, to the extent caused, during performance of services under this Contract, by the negligent acts, errors or omissions of the CUSTOMER or CUSTOMER'S contractors, consultants or anyone for whom CUSTOMER is legally responsible.

#### 9.0 LIMITATION OF LIABILITY

- To the fullest extent permitted by law, the total liability of HWE and its officers, directors, principals, employees, and any of them, to CUSTOMER, and anyone claiming by or through CUSTOMER, for any and all claims, losses, costs or damages, including attorneys' lees and costs and expert-witness fees and costs of any nature whatsoever, or claims or expenses, resulting from or in any way related to work performed for CUSTOMER, shall not exceed the total compensation received by HWE under this agreement, or the total amount of \$10,000 (Ten Thousand Dollars), whichever is less, except for HWE's willful misconduct. It is intended that this limitation apply to any and all liability or cause of action, including HWE's negligent acts, errors and/or omissions, however alleged or arising, unless otherwise prohibited by taw, and unless otherwise provided in this section
- 9.2 CUSTOMER acknowledges and understands the inherent difficulty in packaging and moving materials in chemical relocation projects. Examples may include, but are not limited to, chemicals, media, livestock cultures, refrigerated material, research compounds and/or pharmaceutical related material. If any damage occurs to the materials during the packaging, shipment, unpacking and placement of the materials, CUSTOMER agrees to submit claims only for the replacement value of the materials and in no circumstance shall such claim(s) exceed \$5,000 per project. CUSTOMER understands and agrees that \$5,000 is the maximum allowed claim for the replacement and damage of materials under this Contract, and that all other damage and/or replacement claims are hereby waived by CUSTOMER.
- 9.3 All materials with a value in excess of \$1,000 shall be identified to the HWE project manager. Any items damaged by HWE during relocation will have a maximum combined liability not to exceed \$1,000 unless identified to the HWE project manager in advance of start of work.

#### 10.0 INDEPENDENT CONTRACTORS

10.1 CUSTOMER understands and acknowledges, and HWE hereby agrees that this agreement shall not render the agents of HWE as employees of CUSTOMER for any purpose. The agent of HWE is and will remain an agent of HWE in his or her relationship to CUSTOMER. Consequently, CUSTOMER shall not be responsible for withholding taxes with respect to the agent's compensation. The agent shall have no claim against CUSTOMER hereunder or otherwise for vacation pay, sick leave retirement benefits, social security, worker's compensation, health or disability benefits, unemployment insurance benefits, or employee benefits of any kind.

#### 11.0 RESTRICTIVE COVENANT CONVERSION/RIGHT TO HIRE

11.1 If CUSTOMER wishes to hire or otherwise engage an HWE employee as an employee, consultant, independent contractor, or in any other way utilize a person employed by HWE, or hire, contract or in any other way utilize a person employed by HWE within the previous 3 years of the date of said hiring, contracting or utilization, CUSTOMER agrees to pay HWE a personnel acquisition fee equal to one year (2060 Hours) of the individual's highest customer hourly billing rate.

### 12.0 SUBCONTRACTORS

12.1 CUSTOMER understands and agrees that HWE may assign and subcontract certain portions of the work performed for CUSTOMER, However, HWE warrants that all work performed for CUSTOMER by HWE subcontractors shall carry all protections, restrictions and limitations as if HWE performed the work.

#### 13.0 ATTORNEY'S FEES

13.1 In any litigation, arbitration, or other proceeding by which one party either seeks to enforce its rights under this agreement (whether in contract, tort, or both) or seeks a declaration of any rights or obligations under this Contract, the prevailing party shall be awarded its reasonable attorney fees, and costs and expenses incurred.

#### 14.0 NOTICE

14.1 Any notices required or permitted to be given under this agreement shall be given in writing and shall be delivered (a) in person.
(b) by a commercial overnight courier that guarantees next day delivery and provides a receipt or (c) by or prepaid certified mail, return receipt requested to both: Pegasus Sustainability Solutions, Inc. 2693 Research Park Drive, Suite 201, Fitchburg, Wisconsin 53711, Attn. Mark Hope, President, and Pegasus Sustainability Solutions, Inc.



#### 15.0 CONFIDENTIALITY

All Information and material that may be disclosed by one party to the other in the course of performance of this Contract is considered confidential and proprietary and will not be used by the receiving party other than for the purposes under this agreement for which it was disclosed. The receiving party will protect such information from disclosure to third parties and hold it as confidential using the same degree of care as that party uses to protect its own confidential or proprietary material of like importance, but at least reasonable care. This obligation will continue for a period of two (2) years following receipt of the material and will survive any termination of this Contract, but it will not cover any information which is disclosed to a third party by the disclosing party without restrictions on disclosure, any information that has been or is developed independently by the receiving party without violation of obligations of confidentiality, any information that falls into the public domain without fault of the receiving party any Information that is rightly obtained by the receiving party from a third party without restriction, or any information that is rightly in the possession of the receiving party at the time of disclosure by the disclosing party.

#### 16.0 FORCE MAJEURE

16.1 Neither party shall be liable in damages or have the right to terminate this agreement for any delay or default in performing hereunder if such delay or default is caused by conditions beyond its control including Acts of God, government restrictions (including the denial or cancellation of any export or other necessary license), wars, insurrections and/or any other cause beyond the reasonable control of the party whose performance is affected.

#### 17.0 SEVERABILITY

17.1 If any provision or provisions of this agreement shall be held to be invalid, illegal, and unenforceable or in conflict with the law of any jurisdiction, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

#### 18.0 ENTIRE CONTRACT

- 18.1 This agreement, including the Scope of Work, Revised Pricing Schedule, Waste Profile Sheet(s) and any other schedule or exhibit referred to in this agreement, constitutes the final, complete, and exclusive statement of the terms of the agreement between the parties pertaining to the subject matter of this agreement and supersede all prior and contemporaneous understandings or agreements, whether oral or written, of the parties. This agreement may not be contradicted by evidence of any prior or contemporaneous statements or agreements.
- 18.2 No party has been induced to enter into this agreement by, nor is any party relying on,

any representation, understanding, agreement, commitment or warranty outside those expressly set forth in this agreement.

18.3 No modification shall be binding on HWE unless in writing and signed by both parties.

In no event shall the conflicting terms or conditions found on any CUSTOMER purchase or work order be considered an amendment or modification to this agreement.

#### 19.0 GOVERNING LAW

19.1 The laws of the State of Wisconsin shall govern the validity and interpretation of this agreement, without regard for conflicts of law principles of this, or any other, jurisdiction

#### 20.0 JURISDICTION AND VENUE

20.1 All claims arising from the sale of the service, including any claim concerning the validity, construction, or enforcement of this Service Agreement, shall be brought exclusively in the Circuit Court of Dane County, Wisconsin, or the United States District Court for the Western District of Wisconsin. The parties hereby waive any objection to venue and consent to the personal jurisdiction of the state and federal courts located in Dane County, Wisconsin.





#### **Statement of Qualifications**

#### Overview

- I. History
- II. Management Team
- III. Experience
- IV. Qualifications

#### History

- Founded in July 2012 and headquartered in Madison, WI
- US and Canada market coverage
- Annual revenue of \$7 M
- Specialties: Universal Waste, Hazardous Waste, Used Oil, Industrial Services, Spill Response, Medical Waste Disposal, Environmental Remediation
- Custom turnkey solutions for nationwide clients (one-stop shop)

#### **Management Team**

- Eric Apfelbach, President and CEO
  - 16 years of CEO experience at both public and private companies
  - o BS Chemical Engineering-UW Madison
- Wade Maleck, CFO, CPA
  - o 10 years of CFO experience: cash management, financial projections, and GAAP
- Dan Chamberlin, VP Sales and Marketing
  - 26 years with Safety-Kleen: Sales, field services, logistics, project management, safety manager, fleet manager
- Alisha Thompson, Director of Operations
  - 13 years of industry experience: technical director, regulatory compliance
  - Master's Degree in Management, BS in Earth Science-UM Ann Arbor
- Field Team
  - 167 years of combined industry experience

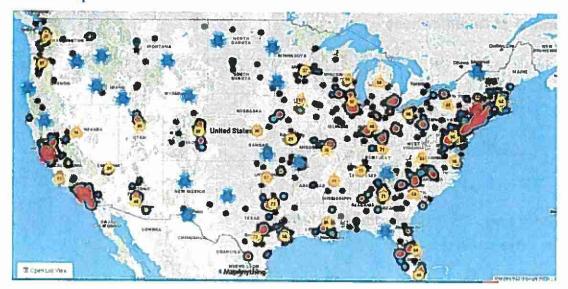
#### Experience

- >10,000 nationwide waste disposal projects completed
- >2,500 customers served, 50% of projects recur





#### **Customer Map**



### Example projects

- E-Waste and universal waste bulk loads
- Plant decommissions
- Multi-laboratory chemical lab packing
- High Hazard waste handling and removal (reactive, explosive, radioactive)
- Household hazardous waste from donation centers and city collection programs
- \$1.3 M in Department of Defense contracts scheduled for 2017

#### Key customers

- Nike
- Goodwill
- Wilbur-Ellis
- Department of Defense
- Murphy's Oil

#### Qualifications

- EPA/RCRA permitted disposal facilities
- Hazardous waste transportation licenses in all 50 states
- OSHA HazWoper 40 HR training for all field technicians
- Certified Hazardous Materials Manager (CHMM)



5500 Old Brecksville Road • Independence, Ohio 44131 (216) 642-6040 • fax (216) 642-6041

We are an equal opportunity employer

April 14, 2017

Mr. Tom Leigh Atwell, LLC. 7100 East Pleasant Valley Road Sulte 200 Independence, Ohio 44131

Re:

Watkins Road Facilities – Columbus Lead and Cadmium Decontamination (Revision of 6/16/16 - #2)

Dear Mr. Leigh:

Thank you for the opportunity to provide our services. Precision Environmental proposes the following:

Clean the lead and cadmium dust from 1655 and 1675 Watkins Road warehouses in Columbus. The
floors, walls, bar joists, and horizontal surfaces will be HEPA vacuumed and/or power washed. Waste,
be it solid or liquid, is assumed to be hazardous. The offices in 1675 will have the ceiling pads, carpets,
and contents removed as part of this proposal. In addition, remaining conveyors and the crusher will
be vacuumed and wet wiped (externally only). All other contents will be removed by others prior to
mobilization.

### The following is understood:

- All work will be performed in accordance with applicable Federal, State and Local compliance regulations.
- OSHA compliance personnel air monitoring is included.
- Power and water will be provided by the owner.
- The interior of ducts or air handlers are not included.
- Work hours would be Monday through Thursday, 10 hour days.
- No clearance levels are established for cleanliness.
- This proposal is valid for a term of 60 calendar days without confirmation of intended award or inclusion.
- Insurance Proposal includes asbestos liability insurance, general liability, auto liability with limits of one million/three million secured from Great American Insurance Company and Zurich and workman's compensations as regulated by the State of Ohio.
- Projects are involced monthly, on a percentage complete basis. Payments are due 30 days following the monthly invoice. Final payment is due within 30 days of last invoice. Unpaid balances received after the due date will accumulate interest at a rate of 1 ½% per month.

#### **Proposed Costs:**

• 1655:

\$129,800.00 (up to 4 weeks duration)

1675:

\$283,250.00 (up to 8-9 weeks duration)

If you require further information, please contact me at 216-642-6040.

Sincerely,

Imes Bower Project Manager

10.4

### Precision Environmental Co.

### SERVICES

- Ashestos Abatement
  - Environmental
- Remediation
- Selective Demolition
- ✓ Concrete Sawing & Drilling
- ✓ Floor Preparation
- ✓ HVAC Duct Cleaning
- ✓ Firestopping



### PRECISION Environmental Co.

### Industrial Plant Experience

Honesty. Respect. Integrity. Innovation. Safety. Quality Workmanship. Loyalty. Commitment.

5500 Old Brecksville Road, Independence, Ohio 44131 Phone: (216) 642-6040

### Industrial Plant Experience

### McCracken Power Plant Columbus, Ohio

**Owner: Ohio State University** 

Year: 2004

Scope: As Ohio State University's main steam plant, the plant had to remain open and operational during asbestos abatement and demolition of four boilers. Removal of asbestos insulation from 1500 KCMII cables at an OSU substation. Removal and disposal of appx. 710 F of deactivated high voltage cable from the west pampus substation.

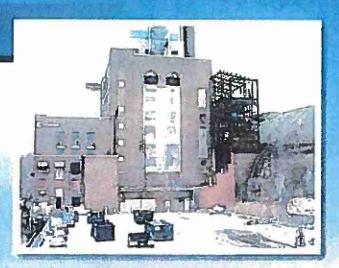


### Former Akron Gorge Power Plant Akron, Ohio

Owner: First Energy Corporation

Year: 2008

Scope: Remediation of asbestos and other hazardous and non-hazardous materials prior to demolition. Items to be abated and/or removed included approximately 60,000 square feet of asbestos containing Insulation, 18,000 square feet of asbestos-cement exterior siding, PCB containing transformers and ballasts, bulbs, switch controls as well as hazardous and non-hazardous oils and chemicals. In order to perform the asbestos removal on the two boilers, turbines and miscellaneous piping Precision placed the entire structure under negative air pressure.



### Acme Power Plant Toledo, Ohio

Owner: City of Toledo

Year: 2009

Scope: Clean-up of the former Toledo Edison Acme Power Plant consisted of the removal and disposal of approximately 150,000 square feet of ACM boiler insulation from 9 boilers and associated insulation from vessels, fan ducts, heat exchangers, hoppers and other components. In addition, over 15,000 linear feat of pipe insulation and approximately 140,000 square feet of floor debris were removed. Despite obstacles such as no utilities or infrastructure, Precision completed the project safely and ahead of schedule.



### **Industrial Plant Experience**

### Burns Harbor Stove Abatement Burns Harbor, Indiana

Owner: ArcelorMittal Year: 2006 & 2008

Scope: Utilizing the stove shell as a the primary containment barrier, crews removed and disposed of asbestos containing insulation and associated refractory brick from the inner-lining of 2 C Stove and D Stove.



### Mad River Power Station Demolition Springfield, Ohio

**Owner: First Energy Corporation** 

Year: 2010

Scope: Removal of asbestos associated with three main boilers. The next phase of the project included the removal and recycling or disposing of transformers and ballasts containing PCBs, bulbs and switch controls containing Mercury, and other hazardous and non-hazardous oils and chemicals found at the facility.



### Ashtabula Power Plant C Ashtabula, Ohio

**Owner:** Ashtabula County Port Authority

Year: 2008

Scope: Previously a First Energy Corporation Pow-er Plant, Precision Environmental provided abatement services on the unoccupied 6-story, 700,000 square foot structure that contained 4 boilers, 4 recuperators and multiple office areas. Utilizing one large negative air pressure containment, crews removed and disposed of 17,000 linear feet of pipe insulation and 64,850 square feet of surfacing material, floor tile with associated mas-tic, and exterior transite panels from the recuperators.

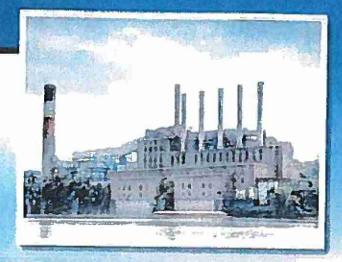


### Frank R. Phillips Power Station Crescent, PA

Owner: Orion Power Midwest

Year: 2010

Scope: Removal of asbestos associated with boilers, pipe, breeching. Removal and disposal of regulated waste.



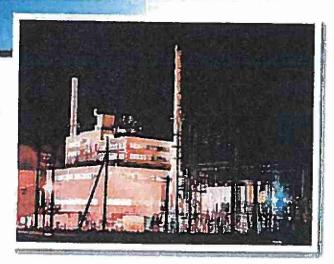
### W.N. Clark Power Plant

Canon City, Colorado

Owner: Black Hills Power

Year: 2014

Scope: The W.N. Clark Facility located in Canon City, CO. was a decommissioned power house facility consisting of two large coal-fired boilers and steam generators. Prior to the demolition sequence of the facility, asbestos abatement was required for approximately 16,000 square feet of boiler insulation, 2,862 lineal feet of pipe insulation, and 13,830 square feet of exterior transite paneling. Abatement of the facility provided unique challenges due to the stringent abatement standards required in the state of Colorado. Precision was required to encase the entire facility and line all walls, floors, and ceilings prior to abatement activity.



### Precision Environmental Co.

For questions about our project experience or for more information regarding the wide range of services we provide, please feel free to contact us at the information below.



### Precision Environmental Co.

5500 Old Brecksville Road Independence, Ohio 44131

Phone: (216) 642-6040 Fax: (216) 642-6041

www.precision-env.com

@PrecisionEnv

### **Dan Hazlett**

Project Manager

Office: (216) 642-6040

Cell: (216) 570-5006

dhazlett@precision-env.com



Ranked 6th in the Country Amongst Asbestos Abatement Firms in 2013

### **AIA** Document A305" - 1986

### Contractor's Qualification Statement

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

SUBMITTED TO: ADDRESS: SUBMITTED BY: Precision Environmental Company NAME: John E. Savage, Jr. ADDRESS: 5500 Old Brecksville Road Independence, Ohio 44131 PRINCIPAL OFFICE 5500 Old Brecksville Road Independence, Ohio 44131 [X] Corporation Partnership [ ] Individual [ ] Joint Venture [ ] Other NAME OF PROJECT (if applicable): TYPE OF WORK (file separate form for each Classification of Work): [ ] General Construction [ ] HVAC [ ] Electrical [ ] Plumbing [X] Other (please specify) Selective Demolition

ADDITIONS AND DELETIONS: The author of this document has acided information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or delated from the original AIA tent.

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### § 1. ORGANIZATION

- § 1.1 How many years has your organization been in business as a Contractor? 30
- § 1.2 How many years has your organization been in business under its present business name? 30
  - § 1.21 Under what other or former names has your organization operated?

    N/A

### § 1.3 If your organization is a corporation, answer the following:

§ 1.3.1 Date of incorporation: 11-20-1987

§ 1.3.2 State of incorporation: Ohio

§133 President's name: Anthony DiGeronimo

§ 1.1.4 Vice-president's name(s)

John E. Savage, Jr. Joseph DiGeronimo

§1.3.5 Secretary's name: James Reeves

§ 1.16 Treasurer's name: Anthony DiGeronimo

### § 1.4 If your organization is a partnership, answer the following: § 1.4.1 Date of organization:

§ 1.4.2 Type of partnership (if applicable):

§ 1.4.3 Name(s) of general partner(s)

§ 1.5 If your organization is individually owned, answer the following: § 1.5.1 Date of organization:

# § 1.5.2 Name of owner: § 1.5 If the form of your organization is other than those listed above, describe it and name the principals: § 2. LICENSINO § 2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable. § 2.2 List jurisdictions in which your organization's partnership or trade name is filed.

§ 3.2 Claims and Suits. (If the answer to any of the questions below is yes, please attach details.) § 3.2.1 Has your organization ever failed to complete any work awarded to it?

§ 3.1 List the categories of work that your organization normally performs with its own forces.

No

Please see attached list

§ 3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

No

§ 3.2.3 Has your organization filed any law suits or requested arbitration with regard to construction contracts within the last five years?

No

§ 3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please attach details.)

No

§ 3.4 On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

Please see attached

§ 3.4.1 State total worth of work in progress and under contract:

Please see attached

§ 3.5 On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

Please see attached

§ 3.5.1 State average annual amount of construction work performed during the past five years:

\$35,000,000.00

§ 3.6 On a separate sheet, list the construction experience and present commitments of the key individuals of your organization.

See attached

§ 4. REFERENCES § 4.1 Trade References:

See attached

### § 42 Bank References:

PNC Bank

23000 Millcreek Boulevard Highland Hills, Ohio 44122

Contact: Andrew Rutherford (216)222-7146

§ 4.3 Surety:

§ 43.1 Name of bonding company:

Great American Insurance

§ 43.2 Name and address of agent:

Jackson, Dieken & Associates 27893 Clemens Road, Suite 1

Contact: Maggie Loeser

(440)250-6873

Westlake, Ohio 44145

**8 5. FINANCING** 

§ 5.1 Pinancial Statement.

§ 5.1.1 Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement showing the following items: Given Upon Award of Project

Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);

Net Fixed Assets:

Other Assets;

Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes);

Other Liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

§ 5.1.2 Name and address of firm preparing attached financial statement, and date thereof:

AMA Document ASOSTE \_ 1888. Copyright © 1984, 1989, 1979 and 1989 by The American Institute of Architects. All rights reserved. WARRING: This AMA® Document is protected by U.S. Copyright Lew and International Treatment. Unauthorized reproduction or distribution of this AMA® Document, or any parties of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. This document was produced by AMA anthese at 13:28-18 on 03/22/2005 under Order No.1000901977\_1 which expires on 10/11/2008, and is not for results. (28:33/369901)

§ 8.1.3 Is the attached financial statement for the identical organization named on page one? Yes

§ 5.1.4 If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

§ 5.2 Will the organization whose financial statement is attached act as guarantee of the contract for construction?

Yes

### 6 6. SIGNATURE

§6.1 Dated at this 13th day 4 April , 2017

Name of Organization: Precision Environmental Company

Bv:

Title John E. Savage, Jr. - Vice President

§ 6.2

being duly swom deposes and says that the information provided herein is true and sufficiently complete so as not to be mialeading.

Subscribed and swom before me this 13th day of April 20 17

Notary Public:

My Commission Expires:



Company Name:

Address:

Precision Environmental Co. 5500 Old Brecksville Road Independence, Ohio 44131

**Our Facility:** 

We operate out of 100,000 square foot facility in Independence, Ohio 7 miles south of Cleveland. We operate our service center with a staff of over 50 people to support our field operation. In addition, we warehouse over 40,000 square feet of small tools and consumable materials that are deployed to our job on a 24-hour basis as required. In-house, we maintain over 120 licensed vehicles, 60 pieces of construction equipment and a multitude of specialized abatement and demolition tools. In total, our support facility provides over \$5 million dollars of efficient resources to our customer projects on a yearly basis.

Phone Number: Fax Number:

(216) 642-6040 (216) 642-6041

Year Established:

November 1987

Officers:

Tony DiGeronimo, President John E. Savage, Jr., Vice President Joseph DiGeronimo, Vice President James Reeves, Corporate Secretary Tony DiGeronimo, Treasurer

Type of Business:

Corporation

State of Incorporation:

Ohio

Federal ID Number:

34-1570806

**State Unemployment Number:** 

0902950-00-5

Invoices:

Issued by Denise Rischel — <u>driscchel@precision-env.com</u> Received by Cathy Fox — <u>cfox@precision-env.com</u>

PO's Please Send To:

joyc@precision-env.com

Bank Information:

Andrew Rutherford

PNC Bank

23000 Mill Creek Boulevard

B7-YB72-04-7

Highland Hills, Ohio 44122

Remit to address: same as above.



### Current State Registrations 2017

State of Ohio
Asbestos Contractor
# 1154
Exp: 02-26-18

State of Michigan Asbestos Contractor #C2637 Exp: 02-23-18 State of Pensylvania
Asbestos Contractor
#C0013A
Exp: 10-30-17

State of Illinois
Asbestos Contractor
#500-0743
Exp: 05-15-17

State of Indiana Asbestos Contractor #193606025 Exp: 02-16-18 State of Maryland Asbestos Contractor #M36-00-432 Exp: 8/3/2017

State of New Jersey
Asbestos Contractor
#01212
Exp: 09-02-17

State of NY
Asbestos Handling
#29861
Exp: 04-30-17

State of W.V.
Contractor
# WV034878
Exp: 02-09-18

State of W.V. Asbestos #AC002482 Exp: 02-28-18

State of Colorado Asbestos #20961 Exp: 03-31-17 State of S Carolina Contractor #CO-00435 Exp: 02-22-17

State of Georgia
Asbestos
#70NF011866
Exp: 01-06-18

State of Kentucky Asbestos C17-516-1 Exp: 1-18-18 State of Tennessee Asbestos A-F-4421-49755 4/30/2017

State of Virginia Contractor 2705161344 10/31/2018

State of Virginia Asbestos 3306001217

11/30/2017





January 6, 2020

Garrison Southfield Park LLC c/o Mr. Karl Heisler King & Spalding LLP 353 N. Clark Street, 12<sup>th</sup> Floor Chicago, IL 60654

AKT Peerless Project No. 137530

Subject: Projection Lens Remediation and Recycling - Summary of Activities
Former Closed Loop Facility
1655-1675 Watkins Road
Columbus, OH

Dear Mr. Heisler:

In response to your request, AKT Peerless Environmental Services (AKT Peerless) is pleased to present the following summary of the activities associated with the removal and recycling of projection lenses located at the former Closed Loop facility at 1655-1675 Watkins Road in Columbus, Ohio (Facility). These activities were conducted from June 25, 2019 to July 3, 2019.

AKT Peerless and Environmental Management Specialist, Inc. (EMS) implemented the following task objectives, as set forth in the Revised Projection Lens Remediation and Recycling Work Plan Outline, dated March 21, 2019:

- 1. Constructed a contamination reduction zone inside 1655 Watkins Road for the removal and loading of outbound gaylord containers.
- 2. Identified projection lens material for processing and removal.
- 3. Removed/isolated bulk lead-containing dust from any packaging or projection lens material leaving the Facility via the contamination reduction zone.
- 4. Processed the decontaminated containers by weighing, sealing, and labeling (container ID and hazardous material label) outbound gaylord containers.
- 5. Staged the decontaminated and processed outbound gaylord containers for subsequent removal from the Facility.
- 6. Inventoried outbound gaylord containers by container ID, gross weight, tare weight, and net weight for the Bills of Lading (BOLs).
- 7. Loaded the outbound gaylord containers in a single-stack formation for shipment by NovoTec Recycling (NovoTec) in Columbus, Ohio.
- 8. Decontaminated tools and forklifts used in furtherance of the project following removal of the outbound gaylord containers.

AKT Peerless and EMS decontaminated and processed approximately 259,309 lbs (net weight) of projection lens material as part of the projection lens project. Approximately 185,975 lbs (net weight) of the 259,309 lbs were shipped under BOLs to NovoTec for recycling in 10 shipments. The approximately 73,334 lbs (net weight) of processed projection lens material that remains at the Facility has been staged for removal at a later date. AKT also identified additional unprocessed projection lens material that remains at the Facility for decontamination, processing, and removal at a later date as well.

AKT Peerless and EMS demobilized from the Facility on July 3, 2019. The equipment used for decontamination, processing, and shipping projection lens material was removed from the Facility. The two (2) tow-motors, HEPA vacuums, negative air machine, gas cylinders, and additional materials were decontaminated with a HEPA vacuum and liquid detergent before being removed from the Facility. The contamination reduction zone will remain in place for the next phase of the project.

Copies of the photo documentation, BOLs, and Certificates of Recycling are provided in **Attachment II**, and **Attachment III**, respectively.

The above-referenced task objectives were implemented in a manner consistent with federal and state law, including, but not limited to, U.S. Environmental Protection Agency (EPA) regulations and their state corollaries governing the transport and recycling of CRTs. In this regard, these objectives were conducted in keeping with an interpretive letter from the Ohio Environmental Protection Agency (Ohio EPA), such that the projection lenses processed and removed from the Facility were considered to be exempt from certain federal and state hazardous waste laws, including hazardous waste manifesting requirements. A copy of this interpretive letter is included as **Attachment IV**.

The above-referenced task objectives were likewise implemented in a manner consistent with the EPA National Contingency Plan (NCP) at 40 C.F.R. Part 300, so as to facilitate cost recovery by Garrison from potentially responsible parties under the Comprehensive Environmental Response, Compensation and Liability Act. In this regard, Ohio EPA determined that all disbursements to project contractors for the removal and recycling of projection lenses were necessary costs consistent with the EPA NCP and approved such disbursements from an escrow account controlled by the Ohio Attorney General's Office. Copies of these disbursement approvals are included as **Attachment V**.

\_

<sup>&</sup>lt;sup>1</sup> Shipping weights are approximate and may vary within plus/minus 1% between the shipping and receiving facilities.

If you have any questions or need additional information please contact me at 440-799-0006 or Karl Primdahl at 989-239-0255, or via email at Rogatze@aktpeerless.com and Primdahlk@aktpeerless.com.

Sincerely,

**AKT Peerless** 

Elias Rogatz

Environmental Consultant

Karl Primdahl
Senior Project Manager

Mike Koenig Senior Project Manager Attachment I

Photolog



1655 Watkins Road warehouse facing north toward the hallway to 1675 Watkins Road and the ground level loading dock.



Central portion of 1655 Watkins Road warehouse facing southeast towards the dividing wall with the south adjacent business.



Southeast corner of 1655 Watkins Road where an electrical utility closet, CRT material, and the southern dividing wall are located.



Central portion of 1655 Watkins Road warehouse facing northwest towards gaylord containers stacked 3 high across all rows.



Southeast corner of 1655 Watkins Road warehouse looking west down a central aisle to the western wall of the facility.



Dividing wall with southern adjacent business that extends the length of the warehouse and is sealed from ventilation and airflow.

**AKT**PEERLESS

Property Photographs 1655-1675 Watkins Road Columbus, Ohio Taken by: E. Rogatz Date: 7.16.19

Project No: 13753o



North wall of the contaminant reduction zone located in the southeast corner of 1655 Watkins Road warehouse.



View from the west entrance of the contaminant reduction zone showing the sealed connection to a parked trailer before loading.



Tow-motor outside of the contaminant reduction zone passes processed material to the clean loading tow-motor within the CRZ.



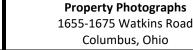
West entrance to the contaminant reduction zone that connects to a loading dock. Negative air machine is on the southwest corner.



Decontaminated floor space leading into the contaminant reduction zone. Tow-motor was cleaned prior to entering the CRZ.



Processed material is loaded single-stack onto a parked trailer through the contaminant reduction zone for Novotec Recycling.



Taken by: E. Rogatz Date: 7.16.19

Project No: 13753o





West entrance to the contaminant reduction zone is sealed between shipments when the loading dock is closed.



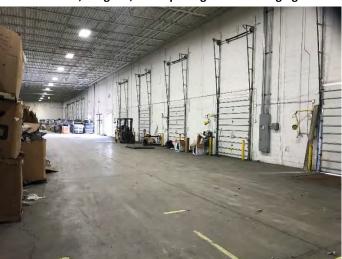
Processed container staged by the contaminant reduction zone that has been labeled with a container ID, weights, and hazard ID.



Contaminant reduction zone, east wall, and southern dividing wall of 1655 Watkins Road after loading out the last Novotec shipment.



Material processing station where the containers are cleaned, labeled, weighed, and repackaged before staging.



Eastern wall and loading docks of 1655 Watkins Road warehouse have been cleared and will be used for staging processed material.



Central portion of 1655 Watkins Road where processed material being shipped to Kuusakowski Recycling is currently staged.



**Property Photographs** 1655-1675 Watkins Road Columbus, Ohio Taken by: E. Rogatz Date: 7.16.19

Project No: 13753o

Attachment II

Bills of Lading

## STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE) Carrier: BOL # Seal # 25994501 Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207 Pick Up Date/Time: 46174191215

Sold To:
Novotech
3960 Groves Road
Columbus, OH 48232
Phone:
Contact:

Booking/PO #

### **Special Instructions:**

| No. of Pkgs. | Kind of               | Description of Product       | Shipping    |                      |
|--------------|-----------------------|------------------------------|-------------|----------------------|
|              | Package               |                              | Weight Lbs. |                      |
| 26           | GAYLORD<br>CONTAINERS | CRT- used cathole ray to bes | 11950       | NET<br>TARE<br>GROSS |
|              |                       |                              |             |                      |
|              |                       |                              |             |                      |
|              | The sages             |                              |             |                      |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

NOTICE: Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract, promised, representation, or understanding between parties, except to the extent of any written contract signed by both parties to the contract.

| SHIPPER: Closed Loop Refining and Recovery, Inc         | Carrier: SANDS | TIME OUT:       |
|---------------------------------------------------------|----------------|-----------------|
|                                                         | Signature:     | DATE: 06 (24/19 |
| *As an authorized agent of Garrison Southfield Park LLC |                |                 |

| STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE) Carrier:                                                  |                                                                |  |  |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--|--|
| BOL # DO 2<br>shipper:<br>Closed Loop Refining and Recovery, Inc<br>1675 Watkins Road<br>Columbus, OH 43207 | Seal # 259945 02 Trailer # 1 0 42 1 536065  Pick Up Date/Time: |  |  |
| Sold To:                                                                                                    | Booking/PO#                                                    |  |  |

Novotec 3960 browes Rd Columbs 10H

Phone: Contact:

Special Instructions:

| No. of Pkgs. | Kind of Package       | Description of Product                              | Shipping<br>Weight Lbs.                |                      |
|--------------|-----------------------|-----------------------------------------------------|----------------------------------------|----------------------|
| 26           | GAYLORD<br>CONTAINERS | CRT-Used cathode<br>Ray tubes, projection<br>lenses | 17,932<br>1,950                        | NET<br>TARE<br>GROSS |
|              |                       |                                                     | ************************************** |                      |
|              |                       | placards. Packages are marked esseigned as a        |                                        |                      |

of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

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| SHIPPER: Closed Loop Refining and Recovery, Inc         | Carrier:   | TIME OUT: |
|---------------------------------------------------------|------------|-----------|
| Signature*: Le 6/2/15                                   | Signature: | 06/27/19  |
| *As an authorized agent of Garrison Southfield Park LLC | Un y       | 2.25 pm   |

| STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE) |                        |  |
|---------------------------------------------------|------------------------|--|
| BOL # CDCPQ3                                      | Seal # 2 S 9 9 4 S 9 1 |  |
| Shipper:                                          | 3 1 1 3 1 1            |  |
| Closed Loop Refining and Recovery, Inc            | Trailer # 5911190      |  |
| 675 Watkins Road                                  |                        |  |
| Columbus OH 42207                                 | Pick Up Date/Time:     |  |
|                                                   | 6128119 1009           |  |

Sold To:

Booking/PO#

Phone: Contact:

### Special Instructions:

Novotec

3960 Croves Road Columbus, OH 43232

| No. of Pkgs. | Kind of<br>Package    | Description of Product        | Shipping<br>Weight Lbs.    |                      |
|--------------|-----------------------|-------------------------------|----------------------------|----------------------|
| 26           | GAYLORD<br>CONTAINERS | CRT-Used cathode<br>Ray Tiles | 19,315<br>1,95 ¢<br>21,265 | NET<br>TARE<br>GROSS |
|              |                       |                               |                            |                      |
|              |                       |                               |                            |                      |
|              |                       |                               |                            |                      |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

NOTICE: Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract, promised, representation, or understanding between parties, except to the extent of any written contract signed by both parties to the contract.

| SHIPPER: Closed Loop Refining and Recovery, Inc         | Carrier:   | TIME OUT: |
|---------------------------------------------------------|------------|-----------|
| Signature*: GO. D.                                      | Signature: | DATE:     |
| *As an authorized agent of Garrison Southfield Park LLC | white at   |           |

| STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE) Carrier:                      |                                                                                            |  |  |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--|--|
| BOL # DOOD 4  Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road | Seal # 5 25994592  Trailer # 4317-5                                                        |  |  |
| Columbus, OH 43207                                                              | Pick Up Date/Time: 6   78   19   13   13   13   13   14   15   15   15   15   15   15   15 |  |  |
| Sold To:                                                                        | Booking/PO #                                                                               |  |  |

Novotech 3960 Groves Road Columbus, OH 43232

Phone: Contact:

### **Special Instructions:**

| No. of Pkgs. | Kind of<br>Package    | Description of Product                          | Shipping<br>Weight Lbs.   |                      |
|--------------|-----------------------|-------------------------------------------------|---------------------------|----------------------|
| 26           | GAYLORD<br>CONTAINERS | CRT-Used cathode Ray<br>tubes/Projection lenses | 21,65¢<br>1,95¢<br>23,6¢¢ | NET<br>TARE<br>GROSS |
|              |                       |                                                 |                           |                      |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

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| SHIPPER: Closed Loop Refining and Recovery, Inc         | Carrier:   | TIME OUT: |
|---------------------------------------------------------|------------|-----------|
| Signature*: GO, Roca A                                  | Signature: | DATE:     |
| *As an authorized agent of Garrison Southfield Park LLC | T- Va      | X 3       |

| Carrier: (ORIGINAL NON-NEGOTIABL                                  | ·E)                                |
|-------------------------------------------------------------------|------------------------------------|
| Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road | Seal # 2599 459 3  Trailer # 42631 |
| Columbus, OH 43207                                                | Pick Up Date/Time: (ο/28/19 133Φ   |
| Novotech 3960 Graves Rd Columbus, OH 43232                        | Booking/PO #                       |

Special Instructions:

Phone: Contact:

| No. of Pkgs. | Kind of               | Description of Product | Shipping                  | 2.3  |
|--------------|-----------------------|------------------------|---------------------------|------|
|              | Package               |                        | Weight Lbs.               |      |
| 24           | GAYLORD<br>CONTAINERS | thes projection lenses | 17,700<br>11800<br>19,570 | TARE |
|              |                       |                        |                           |      |
|              |                       |                        |                           |      |
|              |                       |                        |                           |      |
|              |                       |                        |                           |      |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

NOTICE: Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract, promised, representation, or understanding between parties, except to the extent of any written contract signed by both parties to the contract.

| SHIPPER: Closed Loop Refining and Recovery, Inc         | Carrier:   | TIME OUT: |
|---------------------------------------------------------|------------|-----------|
| Signature*:                                             | Signature: | DATE:     |
| *As an authorized agent of Garrison Southfield Park LLC | A So y     |           |
| TAS an authorized agent of Gamson Southlield Park LLC   | 1          |           |

| STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIAB Carrier:                                        | SLE)                                                               |
|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| BOL # OCO Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207 | Seal # 25994594  Trailer # 511190  Pick Up Date/Time: 6/28/19 1420 |
| Sold To:  Novotech  3960 Groves Road  Columbus, OH 43237                                       | Booking/PO #                                                       |

### **Special Instructions:**

Phone: Contact:

| No. of Pkgs. | Kind of               | Description of Product                             | Shipping                  |                      |
|--------------|-----------------------|----------------------------------------------------|---------------------------|----------------------|
| V 30         | Package               |                                                    | Weight Lbs.               |                      |
| 26           | GAYLORD<br>CONTAINERS | CRT-Used cathode<br>Ray to be / projection<br>lens | 18,501<br>1,950<br>20,451 | NET<br>TARE<br>GROSS |
|              |                       |                                                    |                           |                      |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

NOTICE: Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract, promised, representation, or understanding between parties, except to the extent of any written contract signed by both parties to the contract.

| SHIPPER: Closed Loop Refining and Recovery, Inc         | Carrier:   | TIME OUT:          |
|---------------------------------------------------------|------------|--------------------|
| Signature*: El Rogage                                   | Signature: | DATE:              |
| *As an authorized agent of Garrison Southfield Park LLC | Misa       | School Live of the |

|                                             |                                                                           | 6/28/19/1                                                                                                                                                                   | 6PP                                 |
|---------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Sold To:                                    |                                                                           | Booking/PO #                                                                                                                                                                |                                     |
|                                             | Jouotech                                                                  | Booking/r O #                                                                                                                                                               |                                     |
|                                             | 39100 (000)                                                               | os Pood                                                                                                                                                                     |                                     |
|                                             | step era                                                                  | es, Road<br>oH, 43232                                                                                                                                                       |                                     |
| Phone:                                      | olumbus, c                                                                | DH195652                                                                                                                                                                    |                                     |
| Contact:                                    |                                                                           |                                                                                                                                                                             |                                     |
| Special Instru                              | uctions:                                                                  |                                                                                                                                                                             |                                     |
| No. of Pkgs.                                | Kind of                                                                   | Description of Product                                                                                                                                                      | Shipping                            |
|                                             | Package                                                                   |                                                                                                                                                                             | Weight Lbs.                         |
| 26                                          | GAYLORD<br>CONTAINERS                                                     | CRT- cathode ray toper                                                                                                                                                      | IS, ΨΦΦ NET TARE                    |
|                                             |                                                                           | used / projection lens                                                                                                                                                      | 1950 TARE GROSS                     |
|                                             |                                                                           | , , , ,                                                                                                                                                                     | 17,350 GROSS                        |
|                                             |                                                                           |                                                                                                                                                                             |                                     |
|                                             |                                                                           | 27                                                                                                                                                                          |                                     |
| A A A A A A A A A A A A A A A A A A A       |                                                                           |                                                                                                                                                                             | 1899                                |
|                                             |                                                                           |                                                                                                                                                                             |                                     |
|                                             | 30                                                                        |                                                                                                                                                                             |                                     |
|                                             |                                                                           |                                                                                                                                                                             |                                     |
|                                             |                                                                           |                                                                                                                                                                             |                                     |
|                                             |                                                                           | d placards. Packages are marked, consigned, and destined, as indicated above,                                                                                               |                                     |
| deliver to the constarrier of all or any of | ginee at the said destination, if on<br>the goods over all or any portion | its route or otherwise to deliver to another carrier on the route to said destination of the route to destination, and as to each party of any time interested in all or an | n. It is mutually agreed as to each |
| ervice to be perform                        |                                                                           | all the conditions of this bill of lading not prohibited by law, whether printed or writ                                                                                    |                                     |
| NOTICE: Freight mo                          | ving under this Bill of Lading is su                                      | bject to classifications and tariffs established by the carrier and are available to s                                                                                      |                                     |
| upersedes and nega<br>igned by both parties |                                                                           | ntract, promised, representation, or understanding between parties, except to the                                                                                           | e extent of any written contract    |
|                                             |                                                                           | nt are fully accurately described above by proper shipping name and are classifie according to applicable international and national government regulations. Any u          |                                     |
|                                             |                                                                           | any carrier other than that designated by company, may VOID company's obligat                                                                                               |                                     |
| nake any payments r                         | elating to this shipment are VOID                                         | all rate quotes.                                                                                                                                                            |                                     |
| SHIPPER: Clo                                | sed Loop Refining                                                         | and Recovery, Inc Carrier:                                                                                                                                                  | TIME OUT:                           |
| Signature*:                                 | 0.00                                                                      | Signature:                                                                                                                                                                  | DATE:                               |
|                                             | Vi Moge                                                                   |                                                                                                                                                                             |                                     |
|                                             | 01                                                                        | n Southfield Park LLC                                                                                                                                                       | 1                                   |

Seal #

Trailer #

Pick Up Date/Time:

25994595

43175

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE)
Carrier:

Closed Loop Refining and Recovery, Inc 1675 Watkins Road

BOL# OXPOT

Columbus, OH 43207

Shipper:

| BOL # (COO) Some                                                        |                                                              |  |
|-------------------------------------------------------------------------|--------------------------------------------------------------|--|
| shipper:<br>Closed Loop Refining and Recovery, Inc<br>1675 Watkins Road | Seal # 25994571  Trailer # 4317-5  Pick Up Date/Time: 7/3119 |  |
| Columbus, OH 43207                                                      |                                                              |  |
| Sold To: Novotech Recyling 39/04 (Small)                                | Booking/PO #                                                 |  |

CTPAIGHT BILL OF LADING (ORIGINAL NON NECOTIADLE)

Columbus 43232

**Special Instructions:** 

Phone: Contact:

| No. of Pkgs. | Kind of<br>Package    | Description of Product | Shipping<br>Weight Lbs. |                      |
|--------------|-----------------------|------------------------|-------------------------|----------------------|
| - Zs         | GAYLORD<br>CONTAINERS | tubes/projectionshers  |                         | NET<br>TARE<br>GROSS |
|              |                       |                        |                         |                      |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

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| SHIPPER: Closed Loop Refining and Recovery, Inc        | Carrier:   | TIME OUT: |
|--------------------------------------------------------|------------|-----------|
| Signature*: EC R                                       | Signature: | DATE:     |
| C. V. Carrier Supplied                                 | N. W.      | f = f     |
| As an authorized agent of Garrison Southfield Park LLC | :          |           |

| Carrier:           |                                  |                        |                                                             |             | 1     |
|--------------------|----------------------------------|------------------------|-------------------------------------------------------------|-------------|-------|
| 1675 Wa            |                                  | d Recovery, Inc        | Seal # 2599 452  Trailer # 5       9 ()  Pick Up Date/Time: | Ζ<br>ΦΦ     |       |
| Phone:<br>Contact: | Novotech<br>3960 G<br>olumbus, c | onves Pa               | Booking/PO #                                                |             |       |
| Special Instru     | ctions:                          |                        |                                                             |             |       |
| No. of Pkgs.       | Kind of                          | Description o          | f Product                                                   | Shipping    |       |
| 1                  | Package                          |                        |                                                             | Weight Lbs. | NET   |
| 23                 | GAYLORD<br>CONTAINERS            | CRT- used<br>Ray tobes | cathode                                                     | 1,725       | TARE  |
| 9-1                | -11245-112                       | Ray tobes              |                                                             | 36,016      | GROSS |

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE)

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

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|                                                         |            | 4         |
|---------------------------------------------------------|------------|-----------|
| SHIPPER: Closed Loop Refining and Recovery, Inc         | Carrier:   | TIME OUT: |
| Signature*: El Roger                                    | Signature: | DATE:     |
| *As an authorized agent of Garrison Southfield Park LLC | 4          |           |

| Carrier:                                                                                             | E) 294                         |
|------------------------------------------------------------------------------------------------------|--------------------------------|
| BOL# (DO 1 (2)  Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207 | Seal # 5994523  Trailer #51119 |
| Sold To: Novotec 3960 (Troves Rd                                                                     | Booking/PO #                   |

**Special Instructions:** 

Phone: Contact:

Columbus, 43232, OH

| No. of Pkgs. | Kind of Package    | Description of Product                                 | Shipping<br>Weight Lbs. |                      |
|--------------|--------------------|--------------------------------------------------------|-------------------------|----------------------|
| 76           | GAYLORD CONTAINERS | CRT - Leed cathode<br>Ray tubes I projection<br>lenser | A Chestaurista          | NET<br>TARE<br>GROSS |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

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| SHIPPER: Closed Loop Refining and Recovery, Inc         | Carrier:   | TIME OUT: |  |
|---------------------------------------------------------|------------|-----------|--|
| Signature*: EQ. Pugag-                                  | Signature: | DATE:     |  |
| *As an authorized agent of Garrison Southfield Park LLC | Alisa      | 1 the 1   |  |

### Attachment III

Certificates of Recycling



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/27/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

22,120 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062719-1

B.O.L. 0001



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/27/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

18,015 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062719-2

B.O.L. 0002



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/28/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

19,320 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062819-5

B.O.L. 0003



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/28/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

21,910 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062819-1

B.O.L. 0004



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/28/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

17,965 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062819-2

B.O.L. 0005



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/28/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

18,615 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062819-3

B.O.L. 0006



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/28/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

15,570 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062819-4

B.O.L. 0007



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 7/3/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

19,840 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT070319-1

B.O.L. 0008



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 7/3/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

13,115 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

## List of Lots Recycled

Lot Number WAT070319-2

B.O.L. 0009



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 7/3/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

19,505 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT070319-3

B.O.L. 0010

### Attachment IV

Ohio EPA Interpretive Letter



John R. Kasich, Governor Mary Taylor, Lt. Governor Craig W. Butler, Director

December 5, 2018

Garrison Southfield Park LLC c/o Mr. Karl Heisler Katten Muchin Rosenman LLP 525 West Monroe Street Chicago, IL 60661

Re: Closed Loop Refining and Recovery, Inc. General Correspondence RCRA C – Hazardous Waste Franklin County OHR000167718

Subject: Garrison Projection Lens Project

Dear Mr. Heisler:

On September 28, 2018, the Ohio Attorney General's Office (AGO) received a proposed plan (Plan) and scope of work from you via e-mail on behalf of your client, Garrison Southfield Park LLC (Garrison) for the proposed projection lens project at the former Closed Loop Refining and Recovery, Inc. (Closed Loop) facilities located at 1655 and 1675 Watkins Road, Columbus, Ohio. The Ohio AGO subsequently forwarded a copy of this plan to Ohio EPA for review.

During a follow-up conversation, Garrison requested that Ohio EPA provide an interpretative letter regarding the regulatory status of the projection lenses currently being stored at the former Closed Loop facilities if they were to be managed in accordance with the Plan. It is our understanding that the projection lenses are used, intact cathode ray tubes (CRTs), as defined in Ohio Administrative Code (OAC) rule 3745-50-10(A), which will be sent downstream to a CRT glass processor for CRT processing.

Pursuant to OAC rule 3745-51-04(A)(22)(a), used, intact CRTs are not wastes within the United States unless they are disposed, or unless they are "accumulated speculatively" by CRT collectors or glass processors. Thus, Ohio EPA concurs if the projection lenses are sent downstream to a CRT glass processor that manages them in accordance with the Plan the projection lenses would not meet the definition of a waste and therefore would not be subject to Ohio's hazardous waste requirements, including manifesting the CRTs (projection lenses) from the former Closed Loop facilities to the downstream CRT glass processor. However, please note that this only applies to the used, intact CRTs (projection lenses) described in the Plan and not to any processed glass.

If you have any additional questions or concerns, please contact me at (614) 644-2953 or mitchell.mathews@epa.ohio.gov.

Sincerely

Mitch Mathews, Manager

Division of Environmental Response and Revitalization, CAS Hazardous Waste Program

ec: Sarah Miles, Legal

Melissa Storch, DERR/CDO Elizabeth Ewing, Ohio AGO

## Attachment V

Ohio EPA Disbursement Approvals

From: Melissa.Storch@epa.ohio.gov

To: jay.easterling@ohioattorneygeneral.gov

Cc: Ian F Gaunt; ELIZABETH.EWING@OHIOATTORNEYGENERAL.GOV; Mitchell.Mathews@epa.ohio.gov;

Sarah.Miles@epa.ohio.gov; Peter.Maneff@epa.ohio.gov; Heisler, Karl R.

Subject: FW: Closed Loop Projection Lens Project - Disbursement Request (AKT Peerless)

**Date:** Thursday, August 22, 2019 12:19:19 PM

Attachments: Closed Loop Projection Lens Escrow Agreement.PDF

AKT Invoice 55650.pdf

AKT Invoice 55650 - backup.pdf 13753e-55754.pdf 13753E-BACK UP.pdf

### EXTERNAL EMAIL – EXERCISE CAUTION

Mr. Easterling.

I have reviewed the attached invoices that were generated for the work performed for the projection lenses project at 1655/1675 Watkins Road, Columbus, Ohio. I have determined that these expenditures are necessary costs consistent with Section 4(e) of the June 6, 2019 Escrow Agreement. Therefore, Ohio EPA approves disbursement to **AKT Peerless** in the amount of \$36,992.73 from the Escrow Account, as requested by Garrison (\$24,405.82 for June 2019 & \$12,586.91 for July 2019). Please let me know if you have any questions.

Thanks.

Melissa M. Storch

**Environmental Manager** 

Ohio EPA, Division of Environmental Response & Revitalization

Central District Office

50 West Town Street, Suite 700

Columbus, OH 43215

(614) 728-3887

melissa.storch@epa.ohio.gov



Melissa M. Storch

**Environmental Manager** 

Ohio EPA, Division of Environmental Response & Revitalization

Central District Office

50 West Town Street, Suite 700

Columbus, OH 43215

(614) 728-3887

melissa.storch@epa.ohio.gov



From: Heisler, Karl R.

**Sent:** Thursday, August 22, 2019 11:47 AM

To: Storch, Melissa

Cc: Ewing, Elizabeth; Ian F. Gaunt

Subject: Closed Loop Projection Lens Project - Disbursement Request (AKT Peerless)

Melissa, on behalf of Garrison Southfield Park LLC ("Garrison"), and pursuant to Section 4(e) of the attached Escrow Agreement, the purpose of this e-mail is to request a disbursement from the Escrow Account to pay AKT Peerless for work performed for the removal and recycling of projection lenses at 1655/1675 Watkins Road. Garrison respectfully requests that the Ohio Environmental Protection Agency approve this request, as the expenditures were necessary costs consistent with the U.S. Environmental Protection Agency National Contingency Plan in 40 C.F.R. Part 300. Please also forward your approval and the attached invoice to the Escrow Agent with instructions to pay the invoice by mailing a check to AKT Peerless at the address set forth on the invoice. Please let me know if you have any questions, concerns, or require additional information.

### Karl R. Heisler

Partner

### Katten Muchin Rosenman LLP

525 W. Monroe Street / Chicago, IL 60661-3693 p / +1.312.902.5430 f / +1.312.902.1061

karl.heisler@kattenlaw.com / www.kattenlaw.com

\_\_\_\_\_\_

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message without making any copies.

NOTIFICATION: Katten Muchin Rosenman LLP is an Illinois limited liability partnership that has

elected to be governed by the Illinois Uniform Partnership Act (1997).

\_\_\_\_\_



**Did You Know:** Children of parents who talk to their teens about drugs are up to 50% less likely to use. Start the conversation: StartTalking.Ohio.Gov

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214 JANES AVE SAGINAW, MI 48607 P: 989-754-9896 F: 989-754-3804

# Invoice

July 31, 2019

Invoice No: 55754

Please reference this invoice no. on your remittance.

Karl Heisler Katten Muchin Rosenman LLP 525 West Monroe Street Chicago, IL 60661

Project Manager

Karl Primdahl

| 70 . 1 10  | /FIT • | <b>.</b> | /    | 7 7     | 7        | 7 7 \ |   |
|------------|--------|----------|------|---------|----------|-------|---|
| Total Due  | hic    | INVAICA  | (coo | hroak   | down     | holow |   |
| I Olul Due | 11111  | lilville | 1066 | iii eun | u() W IL | newn  | • |

\$12,586.91

**Project** 13753000 1655 & 1675 Watkins Rd Columbus, OH

Professional Services for the Period: July 01, 2019 to July 31, 2019

Billing Group: Projection Lens Remediation

Professional services rendered and project costs incurred to conduct Project Lens Remediation for the property located at 1655-1675 Watkins Road, (Former Closed Loop site), Columbus, Ohio. Reference AKT Peerless' revised Work Plan dated March 21, 2019 for details.

Phase 70 Projection Lens Remediation

**Professional Personnel** 

|                                     | Hours | Amount    |
|-------------------------------------|-------|-----------|
| Project Management                  | 18.00 | 2,250.00  |
| Site Investigation & Field activity | 54.50 | 6,680.00  |
| Report Activity/Production          | 15.00 | 1,500.00  |
|                                     | 87.50 | 10,430.00 |
| Totals                              | 87.50 | 10,430.00 |

**Total Labor** 10,430.00

**Reimbursable Expenses** 

| Travel Expenses | 984.79 |
|-----------------|--------|
| Mileage         | 792.36 |
| Meals           | 225.96 |
| Field Supplies  | 153.80 |

**Total Reimbursables** 2,156.91 2,156.91

> **Total Phase** \$12,586.91

**Total Billing Group** \$12,586.91

**Invoice Amount** \$12,586.91

AKTPeerless Environmental Services, LLC.



| Project    | 13753000   | 1655 & 1675 Watkin | ns Rd Columbus, OH | Invoice | 55754 |  |
|------------|------------|--------------------|--------------------|---------|-------|--|
| Outstandin | g Invoices |                    |                    |         |       |  |
|            | Number     | Date               | Balance            |         |       |  |
|            | 54931      | 4/30/2019          | 720.00             |         |       |  |
|            | 55258      | 5/31/2019          | 920.00             |         |       |  |
|            | 55650      | 7/23/2019          | 24,405.82          |         |       |  |
|            | Total      |                    | 26,045.82          |         |       |  |

All invoices shall be payable within 30 days of the invoice date. Any payments not received within that period shall bear interest at the rate of 1.5% per month. A surcharge of 3% will be applied for credit card transactions.

**ACH Payments:**Beneficiary Account: AKT Peerless Environmental Services, LLC; Huntington Bank; 101 N WASHINGTON STREET, SAGINAW MI 48607; ABA ROUTING #072403473; ACCOUNT #01388362854

Remittance advice: lewisk@aktpeerless.com



Project 13753O00 1655 & 1675 Watkins Rd Columbus, OH Invoice 55754

Billing Backup

AKTPeerless Environmental Services, LLC.

Invoice 55754 Dated 7/31/2019

10:44:16 AM

Wednesday, August 07, 2019

Project 13753O00 1655 & 1675 Watkins Rd Columbus, OH

Billing Group: 3 Projection Lens Remediation

Phase 70 Projection Lens Remediation

Professional Personnel

|                  |                                    |                                                             | Hours              |                | Amount   |
|------------------|------------------------------------|-------------------------------------------------------------|--------------------|----------------|----------|
| 3                | Management (                       |                                                             |                    |                |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/1/2019                                                    | 2.00               | 125.00         | 250.00   |
|                  | Project Lens Remediati             | on - Project Management as                                  | sociated with the  | e scheduling   |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/2/2019                                                    | 2.25               | 125.00         | 281.25   |
|                  | Project Lens Remediati             | on - Project Management as                                  | sociated with the  | e scheduling   |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/3/2019                                                    | 2.00               | 125.00         | 250.00   |
|                  | Project Management as              | sociated with scheduling an                                 | d Remediation a    | ctivities      |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/8/2019                                                    | 2.00               | 125.00         | 250.00   |
|                  | Project Management                 |                                                             |                    |                |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/10/2019                                                   | 1.50               | 125.00         | 187.50   |
|                  | Project Management an              | nd communication with staff                                 | / Scheduling       |                |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/17/2019                                                   | 1.25               | 125.00         | 156.25   |
|                  | Communication with M discrepencies | like K. regarding the schedu                                | le, report, weigh  | t              |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/18/2019                                                   | 2.50               | 125.00         | 312.50   |
|                  | Review and Edit Summ               | nary Letter                                                 |                    |                |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/19/2019                                                   | .75                | 125.00         | 93.75    |
|                  | Report Review                      |                                                             |                    |                |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/25/2019                                                   | 2.50               | 125.00         | 312.50   |
|                  | Preparation and review invoice     | of summary report, review,                                  | revision and sub   | omittal of     |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                     | 7/30/2019                                                   | 1.25               | 125.00         | 156.25   |
|                  | Summary report & sche              | edule                                                       |                    |                |          |
| Site Inve        | stigation & Field activity         | <b>y</b>                                                    |                    |                |          |
| KOENIGMO<br>01   | Koenig, Mike                       | 7/1/2019                                                    | 5.25               | 160.00         | 840.00   |
|                  |                                    | th site team, coordination of<br>T, EMS, and Novotec, estab |                    |                |          |
| KOENIGMO<br>01   | Koenig, Mike                       | 7/2/2019                                                    | 1.75               | 160.00         | 280.00   |
|                  | field work status with to loads    | eam, container count, schedu                                | uling for finish a | nd final truck |          |
| KOENIGMO<br>01   | Koenig, Mike                       | 7/3/2019                                                    | 13.50              | 160.00         | 2,160.00 |

On-site - Final day of process, loading out 3 trucks, discovery of additoinal 26 containers, and arranging trucking for last additoinal load to Novotec, close up facility, and demob for AKT and EMS

 ${\sf AKTPeerless\ Environmental\ Services,\ LLC}.$ 



| Project        | 137530                 | 000                              | 1655 & 1675 Watkins                                  | s Rd Columbus, (   | ЭH                  | Iı               | nvoice | 55754 |
|----------------|------------------------|----------------------------------|------------------------------------------------------|--------------------|---------------------|------------------|--------|-------|
| ROGATZEO       | Rogatz, I              | Elias                            | 7/1/2019                                             | 12.50              | 100.00              | 1,250.00         |        |       |
| 01             | D : .:                 | I D P                            |                                                      | CL L LOUL          |                     |                  |        |       |
|                |                        |                                  | ion - Mobilization from<br>n lens material for shipn |                    | Columbus,           |                  |        |       |
| ROGATZEO       |                        |                                  | 7/2/2019                                             | 9.00               | 100.00              | 900.00           |        |       |
| 01             |                        |                                  |                                                      |                    |                     |                  |        |       |
|                |                        | n Lens Remediati<br>oop facility | ion - Process and ship pr                            | rojection lens ma  | terial from         |                  |        |       |
| ROGATZEO       |                        |                                  | 7/3/2019                                             | 12.50              | 100.00              | 1,250.00         |        |       |
| 01             |                        |                                  |                                                      |                    |                     |                  |        |       |
|                |                        |                                  | ion - Mobilization from<br>as material for shipment  |                    | o Cleveland,        |                  |        |       |
| Report A       | Activity/Pro           |                                  | is material for simplificati                         | •                  |                     |                  |        |       |
| ROGATZEO       |                        |                                  | 7/9/2019                                             | 4.00               | 100.00              | 400.00           |        |       |
| 01             |                        |                                  |                                                      |                    |                     |                  |        |       |
|                | Project L<br>inventory |                                  | - Establish inventory da                             | atabase for shipme | ent and staged      |                  |        |       |
| ROGATZEO       | -                      | -                                | 7/10/2019                                            | 3.50               | 100.00              | 350.00           |        |       |
| 01             |                        |                                  | ,,                                                   |                    |                     |                  |        |       |
|                |                        |                                  | - Establish inventory da                             | atabase for shipme | ent and staged      |                  |        |       |
| ROGATZEO       | inventory              | -                                | 7/15/2019                                            | 1.50               | 100.00              | 150.00           |        |       |
| 01             | Rogatz, 1              | Ziias                            | 1/13/2017                                            | 1.50               | 100.00              | 130.00           |        |       |
|                |                        |                                  | ion - Compile resources                              |                    | delivery            |                  |        |       |
| DOC ATTEO      | _                      | •                                | s and shipping documen                               |                    | 100.00              | 400.00           |        |       |
| ROGATZEO<br>01 | Rogatz, E              | Elias                            | 7/16/2019                                            | 4.00               | 100.00              | 400.00           |        |       |
|                | Projectio              | n Lens Remediati                 | ion - Draft letter to clien                          | nt summarizing th  | e field event       |                  |        |       |
|                |                        | for the first phas               |                                                      |                    |                     |                  |        |       |
| ROGATZEO<br>01 | Rogatz, I              | Elias                            | 7/19/2019                                            | 2.00               | 100.00              | 200.00           |        |       |
| 01             | Projectio              | n Lens Remediat                  | ion - Finialize report lan                           | iguage and assem   | ble final PDF       |                  |        |       |
|                | documen                | t for client delive              | ry.                                                  |                    |                     |                  |        |       |
|                |                        | Totals                           |                                                      | 87.50              |                     | 10,430.00        | 10.4   | 20.00 |
|                |                        | Total Labor                      |                                                      |                    |                     |                  | 10,4   | 30.00 |
| Reimbursab     | le Expense             | es                               |                                                      |                    |                     |                  |        |       |
| Travel Expen   |                        |                                  |                                                      |                    |                     |                  |        |       |
|                | 00011604               | 6/24/2019                        | Rogatz, Elias / holida                               | 2                  |                     | 567.85           |        |       |
| 63410          | 00011604               | 7/1/2019<br>7/9/2019             | Rogatz, Elias / holida<br>Karl Primdahl / Invoi      | •                  | 010                 | 301.46<br>115.48 |        |       |
| Mileage        | ,                      | 1/9/2019                         | Kari i iiiidaiii / iiivor                            | ce. 070419, 7/4/2  | 019                 | 113.46           |        |       |
| _              | 00011604               | 6/24/2019                        | Rogatz, Elias / site vis                             | sit                |                     | 92.00            |        |       |
|                | 00011604               | 6/25/2019                        | Rogatz, Elias / hotel t                              |                    |                     | 11.50            |        |       |
| 00000          | 00011604               | 6/26/2019                        | Rogatz, Elias / hotel t                              |                    |                     | 11.50            |        |       |
| 00000          | 00011604               | 6/27/2019                        | Rogatz, Elias / hotel t                              | o site             |                     | 11.50            |        |       |
| 00000          | 00011586               | 6/27/2019                        | Koenig, Mike / site vi                               | isit               |                     | 189.18           |        |       |
| 00000          | 00011604               | 6/28/2019                        | Rogatz, Elias / back to                              | o cleveland        |                     | 92.00            |        |       |
| 00000          | 00011604               | 7/1/2019                         | Rogatz, Elias / site vis                             | sit                |                     | 92.00            |        |       |
| 00000          | 00011604               | 7/2/2019                         | Rogatz, Elias / hotel t                              | o site             |                     | 11.50            |        |       |
| 00000          | 00011604               | 7/3/2019                         | Rogatz, Elias / back to                              | o cleveland        |                     | 92.00            |        |       |
| 00000          | 00011586               | 7/3/2019                         | Koenig, Mike / site vi                               | isit               |                     | 189.18           |        |       |
| Meals          |                        |                                  |                                                      |                    |                     |                  |        |       |
|                | 00011604               | 6/24/2019                        | Rogatz, Elias / meal                                 |                    |                     | 31.38            |        |       |
|                | 00011604               | 6/25/2019                        | Rogatz, Elias / meal                                 |                    |                     | 25.89            |        |       |
|                | 00011604               | 6/26/2019                        | Rogatz, Elias / meal                                 |                    |                     | 38.03            |        |       |
|                | 00011604               | 6/27/2019                        | Rogatz, Elias / meal                                 |                    |                     | 26.08            |        |       |
|                | 00011586               | 6/27/2019                        | Koenig, Mike / lunch                                 |                    |                     | 10.15            |        |       |
| 00000          | 00011604               | 7/1/2019                         | Rogatz, Elias / meal                                 |                    |                     | 34.82            |        |       |
|                |                        |                                  | AK-                                                  | TPearless Environ  | mental Services 110 | _                |        |       |

AKTPeerless Environmental Services, LLC.



| Project   | 137530      | 000                | 1655 & 1675 Watkins Rd Columbus, OH       | Iı                  | nvoice 55754 |
|-----------|-------------|--------------------|-------------------------------------------|---------------------|--------------|
| 00        | 00000011604 | 7/2/2019           | Rogatz, Elias / meal                      | 34.82               |              |
| 63        | 3410        | 7/9/2019           | Karl Primdahl / Invoice: 070419, 7/4/2019 | 10.96               |              |
| 63        | 3410        | 7/9/2019           | Karl Primdahl / Invoice: 070419, 7/4/2019 | 13.83               |              |
| Field Sup | plies       |                    |                                           |                     |              |
| 00        | 00000011604 | 6/22/2019          | Rogatz, Elias / packing tape etc          | 34.76               |              |
| 00        | 00000011604 | 6/24/2019          | Rogatz, Elias / water                     | 14.93               |              |
| 00        | 00000011604 | 6/30/2019          | Rogatz, Elias / supplies for field event  | 104.11              |              |
|           |             | <b>Total Reimb</b> | ursables                                  | 2,156.91            | 2,156.91     |
|           |             |                    |                                           | <b>Total Phase</b>  | \$12,586.91  |
|           |             |                    |                                           | Total Billing Group | \$12,586.91  |
|           |             |                    |                                           | Project Total       | \$12,586.91  |
|           |             |                    |                                           | Total this Report   | \$12,586.91  |



Project 13753O00 1655 & 1675 Watkins Rd Columbus, OH

Billing Group: 3 Project Lens Remediation

Phase 70 Project Lens Remediation

### **Professional Personnel**

| Professional 1   | Personnel                                                                                                          |                            |                |              |          |
|------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------|----------------|--------------|----------|
|                  |                                                                                                                    |                            | Hours          |              | Amount   |
| Project M        | <b>I</b> anagement                                                                                                 |                            |                |              |          |
| KOENIGMO<br>01   | Koenig, Mike                                                                                                       | 6/10/2019                  | .75            | 160.00       | 120.00   |
|                  | Projection Lens Remediation - oproject                                                                             | coord with client and inte | ernal to sched | ule start of |          |
| KOENIGMO<br>01   | Koenig, Mike                                                                                                       | 6/11/2019                  | 4.25           | 160.00       | 680.00   |
|                  | Projection Lens Remediation - and coord with client, Bolon, ar mobilization efforts                                |                            |                |              |          |
| KOENIGMO<br>01   | Koenig, Mike                                                                                                       | 6/12/2019                  | .50            | 160.00       | 80.00    |
|                  | Projection Lens Remediation - 1                                                                                    | project bill of lading and | load sheet pr  | ер           |          |
| KOENIGMO<br>01   | Koenig, Mike                                                                                                       | 6/17/2019                  | 5.50           | 160.00       | 880.00   |
|                  | scheduling and prep with EMS, equipment and supplies, confirm                                                      |                            |                |              |          |
| KOENIGMO<br>01   | Koenig, Mike                                                                                                       | 6/18/2019                  | 3.25           | 160.00       | 520.00   |
|                  | project kick off meeting at site                                                                                   | with EMS                   |                |              |          |
| KOENIGMO<br>01   | Koenig, Mike                                                                                                       | 6/19/2019                  | 2.75           | 160.00       | 440.00   |
|                  | scheduling and prep with EMS,<br>equipment and supplies, confirr<br>review of EMS revised quote for<br>RE schedule | n Shipper entity and sign  | ing as agent   | of garrison, |          |
| KOENIGMO<br>01   | Koenig, Mike                                                                                                       | 6/21/2019                  | 1.75           | 160.00       | 280.00   |
|                  | scheduling and prep with EMS,<br>equipment and supplies, call wi<br>with Bolon and Kuus                            |                            |                |              |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                                                                                                     | 6/10/2019                  | 1.50           | 125.00       | 187.50   |
|                  | Project Prep                                                                                                       |                            |                |              |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                                                                                                     | 6/12/2019                  | 1.50           | 125.00       | 187.50   |
|                  | Project Prep                                                                                                       |                            |                |              |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                                                                                                     | 6/24/2019                  | 17.00          | 125.00       | 2,125.00 |
|                  | Project Lens Remediation - Mo                                                                                      | blization and Remediati    | on Oversight   |              |          |
| PRIMDAHL<br>KS01 | Primdahl, Karl                                                                                                     | 6/25/2019                  | 1.50           | 125.00       | 187.50   |

Projection Lens Remediation - Project Management

AKTPeerless Environmental Services, LLC.



| Project          | 13753000                            | 1655 & 1675 Watkins Rd                                                 | Columbus,    | OH         |           | Invoice | 55650 |  |
|------------------|-------------------------------------|------------------------------------------------------------------------|--------------|------------|-----------|---------|-------|--|
| PRIMDAHL<br>KS01 | Primdahl, Karl                      | 6/26/2019                                                              | 1.50         | 125.00     | 187.50    |         |       |  |
|                  | Project Management                  |                                                                        |              |            |           |         |       |  |
| PRIMDAHL<br>KS01 | Primdahl, Karl                      | 6/27/2019                                                              | 16.00        | 125.00     | 2,000.00  |         |       |  |
|                  | •                                   | ation - Moblization and Oversi                                         | ght of Field | Activities |           |         |       |  |
| PRIMDAHL<br>KS01 | Primdahl, Karl                      | 6/28/2019                                                              | 1.25         | 125.00     | 156.25    |         |       |  |
|                  |                                     | tion - 4 hours moblization on $\epsilon$ rsight, project management in |              |            |           |         |       |  |
|                  | ration Activity                     |                                                                        |              |            |           |         |       |  |
| GELLETLYJ<br>F01 | Gelletly, Jennifer                  | 6/19/2019                                                              | .50          | 55.00      | 27.50     |         |       |  |
|                  | New BG                              |                                                                        |              |            |           |         |       |  |
|                  | stigation & Field activity          |                                                                        |              |            |           |         |       |  |
| KOENIGMO<br>01   | Koenig, Mike                        | 6/24/2019                                                              | 12.75        | 160.00     | 2,040.00  |         |       |  |
|                  | Day 1 - Projection lens r           |                                                                        |              |            |           |         |       |  |
| KOENIGMO<br>01   | Koenig, Mike                        | 6/25/2019                                                              | 2.50         | 160.00     | 400.00    |         |       |  |
|                  | Day 2 - Projection lens r           | emediation - remote managem                                            | ent and stat | us         |           |         |       |  |
| MOENIGA 10       | 77 ' 34'1                           | C/2 C/2010                                                             | 1.50         | 160.00     | 240.00    |         |       |  |
| KOENIGMO<br>01   | Koenig, Mike                        | 6/26/2019                                                              | 1.50         | 160.00     | 240.00    |         |       |  |
|                  |                                     | emediation - remote status and                                         | _            |            | 4 = 40 00 |         |       |  |
| KOENIGMO<br>01   | Koenig, Mike                        | 6/27/2019                                                              | 10.75        | 160.00     | 1,720.00  |         |       |  |
|                  | Day 4 - Projection lens r           |                                                                        |              |            |           |         |       |  |
| KOENIGMO<br>01   | Koenig, Mike                        | 6/28/2019                                                              | 1.50         | 160.00     | 240.00    |         |       |  |
|                  | Day 5 - Projection lens r           | emediation - remote status and                                         | l manageme   | nt         |           |         |       |  |
| PRIMDAHL<br>KS01 | Primdahl, Karl                      | 6/17/2019                                                              | 2.00         | 125.00     | 250.00    |         |       |  |
|                  | Projection Lens Remedia             | ation - Prep for mobilization ar                                       | nd site meet | ing        |           |         |       |  |
| PRIMDAHL<br>KS01 | Primdahl, Karl                      | 6/18/2019                                                              | 13.00        | 125.00     | 1,625.00  |         |       |  |
|                  | Project Lens Remediatio contractore | n - On-site pre-remediation an                                         | d safety me  | eting with |           |         |       |  |
| PRIMDAHL<br>KS01 | Primdahl, Karl                      | 6/20/2019                                                              | 3.00         | 125.00     | 375.00    |         |       |  |
| 11001            | Order and Pick up H&S               | supplies                                                               |              |            |           |         |       |  |
| PRIMDAHL<br>KS01 | Primdahl, Karl                      | 6/21/2019                                                              | 3.00         | 125.00     | 375.00    |         |       |  |
|                  | Projection Lens Remedia             | ation - Prep for projt start up                                        |              |            |           |         |       |  |
| ROGATZEO<br>01   | Rogatz, Elias                       | 6/17/2019                                                              | 3.25         | 100.00     | 325.00    |         |       |  |
|                  | transport documents, dis-           | n - Prepare field documents, b<br>cuss mobilization and site wal       |              |            |           |         |       |  |
|                  | necessary supplies and e            |                                                                        | 0.25         | 100.00     | 007.00    |         |       |  |
| ROGATZEO<br>01   | Rogatz, Elias                       | 6/18/2019                                                              | 9.25         | 100.00     | 925.00    |         |       |  |
|                  |                                     | ation - Site visit and site walk values and equipment requirements     |              |            |           |         |       |  |
| ROGATZEO<br>01   | Rogatz, Elias                       | 6/19/2019                                                              | 1.50         | 100.00     | 150.00    |         |       |  |
|                  |                                     | ation - Prepare field forms for                                        |              |            |           |         |       |  |

Projection Lens Remediation - Prepare field forms for field activity, discuss quote changes and project scheduling to determine mobilization activities.



| Project        | 137530                                | 00                                                    | 1655 & 1675 Watkin                                                                                            | s Rd Columbus, 0                        | OH .          |                          | Invoice    | 55650 |
|----------------|---------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------|--------------------------|------------|-------|
| ROGATZEO       | Rogatz, El                            | lias                                                  | 6/20/2019                                                                                                     | 1.50                                    | 100.00        | 150.00                   |            |       |
| 01             | Projection                            | I ens Remediat                                        | ion - Finialize mobilizat                                                                                     | ion tasks equinm                        | nent and H+S  |                          |            |       |
|                |                                       |                                                       | Finish field form drafts                                                                                      |                                         |               |                          |            |       |
| ROGATZEO       | Rogatz, El                            | lias                                                  | 6/21/2019                                                                                                     | 3.50                                    | 100.00        | 350.00                   |            |       |
| 01             |                                       |                                                       | ion - Finialize field mob                                                                                     |                                         |               |                          |            |       |
|                | project.                              | Tint and process                                      | s all necessary field doci                                                                                    | iments for first pi                     | hase of the   |                          |            |       |
| ROGATZEO<br>01 | Rogatz, El                            | lias                                                  | 6/24/2019                                                                                                     | 11.50                                   | 100.00        | 1,150.00                 |            |       |
|                | OH. Begir                             |                                                       | ion - Mobilization to Co<br>s field remediation activi<br>al.                                                 |                                         |               |                          |            |       |
| ROGATZEO<br>01 |                                       | -                                                     | 6/25/2019                                                                                                     | 9.00                                    | 100.00        | 900.00                   |            |       |
|                |                                       | Lens Remediat<br>out of Closed Lo                     | ion - Process projection                                                                                      | lens material for                       | staging and   |                          |            |       |
| ROGATZEO<br>01 | •                                     |                                                       | 6/26/2019                                                                                                     | 9.00                                    | 100.00        | 900.00                   |            |       |
|                |                                       | Lens Remediat<br>out of Closed Lo                     | ion - Process projection oop facility.                                                                        | lens material for                       | staging and   |                          |            |       |
| ROGATZEO<br>01 | -                                     |                                                       | 6/27/2019                                                                                                     | 9.50                                    | 100.00        | 950.00                   |            |       |
|                | shipment of                           |                                                       | ion - Process projection<br>oop facility. Ship 2 truck<br>ling.                                               |                                         |               |                          |            |       |
| ROGATZEO<br>01 |                                       | -                                                     | 6/28/2019                                                                                                     | 12.00                                   | 100.00        | 1,200.00                 |            |       |
| Report A       | shipment of<br>lenses to N            | out of Closed Lo<br>Novotech Recyc<br>week. Drive fro | ion - Process projection<br>oop facility. Ship 5 truck<br>ling. 190 containers of p<br>om Columbus, OH to Clo | loads of processe<br>rojection lenses p | ed projection |                          |            |       |
| CARRJS01       | Carr, Jeffr                           |                                                       | 6/11/2019                                                                                                     | 1.00                                    | 140.00        | 140.00                   |            |       |
| 0.11110001     | · · · · · · · · · · · · · · · · · · · | -                                                     | e I projection lens remed                                                                                     |                                         |               | 1.0.00                   |            |       |
|                |                                       | Totals                                                | 1 ·J····                                                                                                      | 180.50                                  |               | 22,463.75                |            |       |
|                |                                       | Total Labor                                           |                                                                                                               |                                         |               |                          | 22,463.7   | 5     |
| Reimbursabl    | e Expenses                            | ;                                                     |                                                                                                               |                                         |               |                          |            |       |
| Mileage        |                                       |                                                       |                                                                                                               |                                         |               |                          |            |       |
|                | 0011566                               | 6/18/2019                                             | Koenig, Mike / site vi                                                                                        |                                         |               | 136.85                   |            |       |
|                | 0011566                               | 6/24/2019                                             | Koenig, Mike / site vi                                                                                        | sit                                     |               | 189.18                   |            |       |
| Field Supplies |                                       | < /17/2010                                            | D . D!' /6'11                                                                                                 | 1.                                      |               | 20.75                    |            |       |
|                | 0011547                               | 6/17/2019                                             | Rogatz, Elias / field s                                                                                       |                                         |               | 28.75                    |            |       |
|                | 0011547                               | 6/18/2019                                             | Rogatz, Elias / field s                                                                                       | • •                                     |               | 19.55                    |            |       |
|                | 0011547                               | 6/19/2019                                             | Rogatz, Elias / field s                                                                                       |                                         |               | 52.88                    |            |       |
|                | 0011547                               | 6/20/2019                                             | Rogatz, Elias / field s                                                                                       |                                         | . 426101      | 40.24                    |            |       |
| 63214          |                                       | 6/21/2019                                             | Accurate Safety Distr<br>6/20/2019                                                                            |                                         | oice: 426101, | 1,437.81                 |            |       |
| 00000          | 0011547                               | 6/21/2019<br><b>Total Reimbu</b>                      | Rogatz, Elias / field s<br>rsables                                                                            | uppnes                                  |               | 36.81<br><b>1,942.07</b> | 1,942.0    | 7     |
|                |                                       |                                                       |                                                                                                               |                                         | Tota          | al Phase                 | \$24,405.8 | 32    |
|                |                                       |                                                       |                                                                                                               |                                         | Total Billing | g Group                  | \$24,405.8 | 2     |
|                |                                       |                                                       |                                                                                                               |                                         | Proje         | ect Total                | \$24,405.8 | 32    |
|                |                                       |                                                       |                                                                                                               |                                         | Total this    | s Report                 | \$24,405.8 | 32    |

AKTPeerless Environmental Services, LLC.

ACCEPTS:





214 JANES AVE SAGINAW, MI 48607 P: 989-754-9896 F: 989-754-3804

Karl Heisler Katten Muchin Rosenman LLP 525 West Monroe Street Chicago, IL 60661

Project Manager Mike Koenig

## Invoice

July 23, 2019

Invoice No: 55650

Please reference this invoice no. on your remittance.

Total Due This Invoice (see breakdown below):

\$24,405.82

Project 13753O00 1655 & 1675 Watkins Rd Columbus, OH

Professional Services for the Period: June 01, 2019 to June 30, 2019

Billing Group: 3 Project Lens Remediation

Professional services rendered and project costs incurred to conduct Project Lens Remediation for the property located at 1655-1675 Watkins Road, (Former Closed Loop site), Columbus, Ohio. Reference AKT Peerless' revised Work Plan dated March 21, 2019 for details.

\_\_\_\_\_\_

Phase 70 Project Lens Remediation

### **Professional Personnel**

|                                     | Hours  | Amount    |
|-------------------------------------|--------|-----------|
| Project Management                  | 59.00  | 8,031.25  |
| Administration Activity             | .50    | 27.50     |
| Site Investigation & Field activity | 120.00 | 14,265.00 |
| Report Activity/Production          | 1.00   | 140.00    |
|                                     | 180.50 | 22,463.75 |
| Totals                              | 180.50 | 22,463.75 |

Total Labor 22,463.75

 ${\sf AKTPeerless\ Environmental\ Services,\ LLC.}$ 



| Project    | 13753000          | 1655 & 1675 W            | atkins Rd Columbus, OH | In                         | voice 556   | 50 |
|------------|-------------------|--------------------------|------------------------|----------------------------|-------------|----|
| Reimbursal | ble Expenses      |                          |                        |                            |             |    |
| Mileage    | =                 |                          |                        |                            |             |    |
|            | Koenig, M         | ike                      | site visit             | 136.85                     |             |    |
|            | Koenig, M         | ike                      | site visit             | 189.18                     |             |    |
| Field S    | upplies           |                          |                        |                            |             |    |
|            | Rogatz, Eli       | as                       | field supplies         | 28.75                      |             |    |
|            | Rogatz, Eli       | as                       | field supplies         | 19.55                      |             |    |
|            | Rogatz, Eli       | as                       | field supplies         | 52.88                      |             |    |
|            | Rogatz, Eli       | as                       | field supplies         | 40.24                      |             |    |
| 6/20       | 0/2019 Accurate S | afety Distributors, Inc. | field supplies         | 1,437.81                   |             |    |
|            | Rogatz, Eli       | as                       | field supplies         | 36.81                      |             |    |
|            | Total Rein        | nbursables               |                        | 1,942.07                   | 1,942.07    |    |
|            |                   |                          |                        | <b>Total Phase</b>         | \$24,405.82 |    |
|            |                   |                          |                        | <b>Total Billing Group</b> | \$24,405.82 |    |
|            |                   |                          |                        | Invoice Amount             | \$24,405.82 |    |

### **Outstanding Invoices**

| Number | Date      | Balance |
|--------|-----------|---------|
| 54931  | 4/30/2019 | 720.00  |
| 55258  | 5/31/2019 | 920.00  |

All invoices shall be payable within 30 days of the invoice date. Any payments not received within that period shall bear interest at the rate of 1.5% per month. A surcharge of 3% will be applied for credit card transactions.

**ACH Payments:** Beneficiary Account: AKT Peerless Environmental Services, LLC; Huntington Bank; 101 N WASHINGTON STREET, SAGINAW MI 48607; ABA ROUTING #072403473; ACCOUNT #01388362854

Remittance advice: lewisk@aktpeerless.com



From: Melissa.Storch@epa.ohio.gov

To: <u>jay.easterling@ohioattorneygeneral.gov</u>

Cc: Ian F Gaunt; ELIZABETH.EWING@OHIOATTORNEYGENERAL.GOV; Mitchell.Mathews@epa.ohio.gov;

Sarah.Miles@epa.ohio.gov; Peter.Maneff@epa.ohio.gov; Heisler, Karl R.

Subject: FW: Closed Loop Projection Lens Project - Disbursement Request (EMS)

**Date**: Tuesday, July 23, 2019 1:36:50 PM

Attachments: Closed Loop Projection Lens Escrow Agreement.PDF

EMS Invoice No 20410.pdf

### EXTERNAL EMAIL – EXERCISE CAUTION

Mr. Easterling,

I have reviewed the attached invoice that was generated for the work performed for the projection lenses project at 1655/1675 Watkins Road, Columbus, Ohio. I have determined that these expenditures are necessary costs consistent with Section 4(e) of the June 6, 2019 Escrow Agreement. Therefore, Ohio EPA approves disbursement to **Environmental Management Specialists (EMS)** in the amount of \$49,020.00 from the Escrow Account, as requested by Garrison. EMS's address as stated in the invoice is 6909 Engle Road, Suite C-31, Cleveland, Ohio 44130. Please let me know if you have any questions.

Thanks,

Melissa M. Storch

**Environmental Manager** 

Ohio EPA, Division of Environmental Response & Revitalization

Central District Office

50 West Town Street, Suite 700

Columbus, OH 43215

(614) 728-3887

melissa.storch@epa.ohio.gov



**From:** Heisler, Karl R.

**Sent:** Tuesday, July 23, 2019 11:15 AM

To: Storch, Melissa

Cc: Ewing, Elizabeth; Ian F Gaunt

**Subject:** Closed Loop Projection Lens Project - Disbursement Request (EMS)

Melissa, on behalf of Garrison Southfield Park LLC ("Garrison"), and pursuant to Section 4(e) of the attached Escrow Agreement, the purpose of this e-mail is to request a disbursement from the Escrow Account to pay Environmental Management Specialists for work performed for the removal and recycling of projection lenses at 1655/1675 Watkins Road. Garrison respectfully requests that the Ohio Environmental Protection Agency approve this request, as the expenditures were necessary costs consistent with the U.S. Environmental Protection Agency National Contingency Plan in 40 C.F.R. Part 300. Please also forward your approval and the attached invoice to the Escrow Agent with instructions to pay the invoice by mailing a check to Environmental Management Specialists at the address set forth on the invoice. Please let me know if you have any questions, concerns, or require additional information.

Karl R. Heisler

Partner

#### Katten Muchin Rosenman LLP

525 W. Monroe Street / Chicago, IL 60661-3693

p/+1.312.902.5430 f/+1.312.902.1061

karl.heisler@kattenlaw.com / www.kattenlaw.com

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NOTIFICATION: Katten Muchin Rosenman LLP is an Illinois limited liability partnership that has

elected to be governed by the Illinois Uniform Partnership Act (1997).



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## **Environmental Mgmt Specialists**

6909 Engle Road Suite C-31

Cleveland

OH 44130-

**INVOICE** 

Invoice No: 20410 Date: 7/16/2019 Due Date: 9/14/2019

Job No: 54483

Description: IS - Gaylord Bx Rmvl Columbu

PO #:

Bill To: Garrison Southfield Park LLC Katten Muchin Rosenmann LLC 525 W Monroe Street Chicago IL 60661-3693

Quantity **Description Unit Price Extended Price** Job Site: 1655/1675 Watkins Road

June 24, 2019 - July 3, 2019

Columbus, OH 43207

1.00 49,020.00 49,020.00 Quoted Work: Projection Lens Project

| Environmental Services Project Billing Summary  EMS Project Manager: Frank Clark  Prepared By: Frank Clark  Project Information  EMS Job Name: Projection Lens Project Income Type: Industrial Services ID: 506 Rate Sheet: 2019 Preferred  Customer Information |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |               |                    |                  |                |              |       |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------------|------------------|----------------|--------------|-------|-----------|
| <b>EMS</b>                                                                                                                                                                                                                                                       | EMS Project Manager: Prepared By:  EMS Job Name: Projection Lens Projection Le |               |               | Frank Clark        |                  | Date:          | 7/:          | 17/20 | 19        |
| TM                                                                                                                                                                                                                                                               | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |               |                    |                  | _              | -7-          | ,     |           |
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | 5             |                    |                  | -              |              |       |           |
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |               | mation             |                  |                |              |       |           |
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | •             |                    |                  | ob Number:     | 2010.5       |       | 54483     |
| Income Type:                                                                                                                                                                                                                                                     | Industrial Services                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ID:           | 506           | Rate               | Sheet:           |                | 2019 Preferi | ed    |           |
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | Customer Info | ormation           |                  |                |              |       |           |
| Bill To Company:                                                                                                                                                                                                                                                 | Garris                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | on Southfiel  | d Park        | Purchas            | e Order:         |                | Signed Cont  | ract  |           |
| Client Contact                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Karl Heisler  |               |                    |                  |                |              |       |           |
| Client Email                                                                                                                                                                                                                                                     | karl.heis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | sler@katten   | law.com       | Doc. Type:         |                  | Partial        | Invoice      |       |           |
| Billing Email                                                                                                                                                                                                                                                    | koenign                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | n@aktpeerle   | ess.com       | Billing Range:     | From:            | 6/24/19        | To:          | 7/3/  | 19        |
| Not                                                                                                                                                                                                                                                              | es:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |               |                    |                  |                |              |       |           |
| CC: Mik                                                                                                                                                                                                                                                          | e Koening - koeningm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | @aktpeerle    | ss.com        | Site:              | 1655/1675 Wa     | tkins Rd. Colı | umbus, OH    | 4320  | 7         |
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | Attached Docu | mentation          |                  |                |              |       |           |
| Service Summa                                                                                                                                                                                                                                                    | ary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               | IV            | lanifests/Weight   | Tickets          |                |              |       |           |
| Spill Summary Re                                                                                                                                                                                                                                                 | eport                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |               | Subcontractor In   | voices           |                |              |       |           |
| Site Photos                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |               | Other Document     | ation:           |                | Yes          |       |           |
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | Summa         | ıry                |                  |                |              |       |           |
| Equipment, Exper                                                                                                                                                                                                                                                 | ndables, and Perso                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | onnel         |               |                    |                  |                |              |       |           |
| Item Description                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |               | Unit of<br>Measure | Quantity         | Ra             | te           |       | Total     |
|                                                                                                                                                                                                                                                                  | Quoted Worl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | k             |               |                    |                  |                |              |       |           |
|                                                                                                                                                                                                                                                                  | Original Contract signe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ed 6/20/19    |               | LS                 | 1                | \$             | 38,170.00    | \$    | 38,170.00 |
|                                                                                                                                                                                                                                                                  | Change Order Signed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | d 7/1/19      |               |                    |                  |                |              | \$    |           |
| Labor ar                                                                                                                                                                                                                                                         | nd equipment to load an a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | additional 12 | 7 boxes       | Day                | 2                | \$             | 5,425.00     | \$    | 10,850.00 |
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |               |                    |                  | Subt           | otal:        | \$    | 49,020.00 |
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |               | Equipme            | ent, Expendables | , and Personn  | el Subtotal: | \$    | 49,020.00 |
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |               |                    | Labor and        | Equipment      | Subtotal:    | \$    | 49,020.00 |

Environmental Management Specialists, Inc. · 6909 Engle Road Suite C-31, Cleveland, Ohio 44130 Phone: 440-816-1107 · Fax: 440-816-2504 · www.EMSonsite.com

\$ 49,020.00

Invoice Total

## **CHANGE ORDER**



### Environmental Management Specialists, Inc.

DATE: 7/1/19

6909 Engle Road Suite C-31 Cleveland, OH 44130 Phone - 440-816-1107 Fax - 440-816-2504

CUSTOMER Garrison Southfield Park LLC/CO Katten, Muchin, Roseman

LLP

SITE "Projection Lens Project" 1655/1675 Watkins Road Columbus, Ohio 43207

| CONTRACT DATE | CONTRACT NUMBER       |
|---------------|-----------------------|
| 6/20/19       | Per Service Agreement |

|    | CHANGE ORDER DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | QTY           | UNIT PRICE  | LINE TOTAL  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|-------------|
| 1. | Labor and Equipment for approximately 127 additional projection lens containers and load out to Novotec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2 days        | \$ 5,425.00 | \$10,850.00 |
| 2. | Staff and materials mobe-demobe for Kussakoski loads                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1 LS          | \$1,075.00  | \$ 1,075.00 |
| 3. | Tow Motors mobe-demobe for Kuusakoski loads                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1 LS          | \$ 750.00   | \$ 750.00   |
| 4. | Labor and Equipment for return load out for Kuusakowski                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1 LS          | \$ 4,925.00 | \$ 4,925.00 |
|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | 5           |             |
|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |             |             |
|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |             |             |
|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |             |             |
| 1. | Invoices will be based on actual quantities at the unit prices of All Change Order line items listed above are hereby added to contract and will be paid according to the payment terms of the payment | the original  | SUBTOTAL    | \$17,600.0  |
| 3. | Please sign below as approval of the Change Order.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | nat contract. |             |             |
| 4. | Please send all correspondence to: Environmental Management Specialists, Inc. 6909 Engle Road Suite C-31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               | SALES TAX   | N/          |

Cleveland, OH 44130

Fax: 440-816-2504

On blhalf of Gamsh SalhGuld

Authorized Signature

Park UC

TOTAL

\$ 17,600.0



Customer: Garrison Southfield Park LLC-CO/Katten Muchin Roseman LLP

Address: 525 Monroe Street

Chicago, Illinois 60661-3693

"Projection Lens Project" 1655/1675 Watkins Road

Columbus, Ohio 43207

Contact: Mr. Karl R. Heisler

Phone: (312) 902-5430

Email: karl.heisler@kattenlaw.com

Bid Date: 6/19/2019

Bid Type: **Industrial Services** 

### Scope of Work

Project Name:

Project Address:

- EMS will provide labor and equipment to segregate, stage, repack, clean and load approximately 190 Gaylord Boxes of projection lenses.
- Crew Size and Equipment- 1 Supervisor, 2-Operators, 3-Technicians, 1-HEPA Vac, 2-Forklifts, 2-Service Trucks
- All work to be conducted in Level "C" PPE and in accordance with the onsite Health and Safety Plan prepared by AKT Peerless.
- EMS will install a Contamination Reduction Zone at the loading dock with a negative air machine to reduce the release of fugitive dust.
- All dust and PPE collected will be drummed and left on site. Disposal by others.

| Item#  | Description                                              | Estimated<br>Quantity | Units       | 1     | Unit Cost | Lir | ne Item Cost              |
|--------|----------------------------------------------------------|-----------------------|-------------|-------|-----------|-----|---------------------------|
| 1.0    | Mobilization-Demobilization of Equipment                 | 1                     | LS          | Ś     | 750.00    | Ś   | 750.00                    |
| 2.0    | Labor & Equipment                                        | 6                     | Day         | Ś     | 5,425.00  | \$  | 32,550.00                 |
| 3.0    | Poly Sheeting                                            | 4                     | Roll        | \$    | 100.00    | 5   | 400.00                    |
| 4.0    | Misc. Materials for construction of the CRZ              | 1                     | LS          | \$    | 1,350.00  | 5   | 1,350.00                  |
| 5.0    | Negative/Positive Air Machines                           | 5                     | Day         | 5     | 160.00    | 4   | 800.00                    |
| 5.0    | 55 Gallon Steel Drum                                     | 2                     | Each        | 5     | 45.00     | Š   | 90.00                     |
| 7.0    | Gaylord Boxes and Pallets                                | 25                    | Each        | 5     | 85.00     | 4   | 2,125.00                  |
| 3.0    | Shrink Wrap                                              | 3                     | Roll        | \$    | 35.00     | \$  | 105.00                    |
|        |                                                          |                       | Estimated ' | Total |           | \$  | 38,170.00                 |
| Option | Demobilization of Equipment (forklifts and air machines) | 0                     | Each        | \$    | 1,075.00  | \$  | Designation of the second |
| Option | Equipment left idle on site                              | 0                     | Day         | \$    | 1,280.00  | \$  |                           |

#### Conditions

- This proposal is contingent upon credit approval and valid for thirty (30) days.
- EMS assumes that all work will be completed in one mobilization unless otherwise noted above.
- All disposal costs are based on disposal facility approval of the waste as profiled by EMS.
- For any additional work beyond the original scope of work, Time & Material (T&M) rates will apply according to the EMS Preferred Rate Sheet.
- With the exception of minimums, all billing will be based on actual quantities at the above noted Unit Costs.
- Above costs include a standard recovery fee.
- All Unit Costs quoted by the hour apply portal-to-portal with a four (4) hour minimum per day.
- Unit Costs quoted by the day will be billed at the full day rate for any work. There will be no partial billing for partial work days except for labor.
- Unit Costs quoted by the day apply up to eight (8) hours per day. After eight (8) hours per day, the day rate will be pro-rated for additional hours.
- Above Unit Costs are based on a non-union work force, no prevailing wages, no overtime work and no performance bond.

Additional costs related to unexpected or concealed conditions or any delays at the project site shall be incurred by Customer to the extent approved in advance, in writing, by Customer. In the event that underground or above ground structures, cables, conduit, Site features, materials, or equipment are destroyed, damaged, or rendered inoperable during the project, neither Hepaco or EMS will be held responsible, unless Hepaco's negligent acts or omissions or willful misconduct contributed to such conditions. Additionally, neither Hepaco or EMS shall be liable for any consequential damages. The terms of this agreement are effective and binding on Customer and EMS upon written execution or initiation of performance of this Agreement. Thank you for the opportunity to assist with your environmental service needs. If you require any additional information, please contact us at the below.

Unless otherwise agreed to in writing, payment terms are net sixty (60) days from the invoice date. Interest will accrue on any unpaid balances at the rate of one and one half percent (1.5%) per month or the maximum amount allowed by law, whichever is greater.

### Authorization To Proceed

The above prices, specifications and conditions are satisfactory and hereby accepted and EMS is authorized to proceed.

Signature:

Buyer:

Date of Acceptance:

RETURN ACCEPTANCE TO:

**Environmental Management Specialists** 

4601 Homer Ohio Lane

Groveport, Ohio 43125 Estimator: Bruce Markey LPG

Phone: Email:

(614) 610-4559 bmarkey@emsonsite.com From:

Melissa.Storch@epa.ohio.gov

To:

lay easterling@ohioattorneygeneral.gov

Cc:

Tan F Gaunt; ELIZABETH.EWING@OHIOATTORNEYGENERAL.GOV; Mitchell.Mathews@epa.ohio.gov;

Sarah.Miles@epa.ohio.gov; Peter.Maneff@epa.ohio.gov; Heisler, Karl R.

Subject:

FW: Closed Loop Projection Lens Project - Disbursement Request (Novotec)

Date:

Tuesday, July 23, 2019 10:48:12 AM

Attachments:

Closed Loop Projection Lens Escrow Agreement, PDF

Invoices.zip

### EXTERNAL EMAIL - EXERCISE CAUTION

Mr. Easterling,

I have reviewed the attached invoices that were generated for the work performed for the projection lenses project at 1655/1675 Watkins Road, Columbus, Ohio. I have determined that these expenditures are necessary costs consistent with Section 4(e) of the June 6, 2019 Escrow Agreement. Therefore, Ohio EPA approves disbursement to Novotec Recycling, LLC in the amount of \$34,405.40 from the Escrow Account, as requested by Garrison. Novotec's address as stated in the invoice is 3960 Groves Road, Columbus, Ohio 43232. Please let me know if you have any questions. Thanks,

Melissa M. Storch

**Environmental Manager** 

Ohio EPA, Division of Environmental Response & Revitalization

Central District Office

50 West Town Street, Suite 700

Columbus, OH 43215

(614) 728-3887

melissa.storch@epa.ohio.gov



From: Heisler, Karl R.

Sent: Tuesday, July 23, 2019 10:57 AM

To: Storch, Melissa

Cc: Ewing, Elizabeth; Ian F Gaunt

Subject: Closed Loop Projection Lens Project - Disbursement Request (Novotec)

Melissa, on behalf of Garrison Southfield Park LLC ("Garrison"), and pursuant to Section 4(e) of the attached Escrow Agreement, the purpose of this e-mail is to request a disbursement from the Escrow Account to pay Novotec Recycling, LLC for work performed for the removal and recycling of projection lenses at 1655/1675 Watkins Road. Garrison respectfully requests that the Ohio Environmental Protection Agency approve this request, as the expenditures were necessary costs consistent with the U.S. Environmental Protection Agency National Contingency Plan in 40 C.F.R. Part 300. Please also forward your approval and the attached invoices to the Escrow Agent with instructions to pay the invoices by mailing a check to Novotec Recycling, LLC at the address set forth on the invoices. Please let me know if you have any questions, concerns, or require additional information. Please also confirm receipt. This is a large file.

| Pro | jection | on  | Lens |  |
|-----|---------|-----|------|--|
|     |         | 100 | -    |  |

| Invoice# | Weight  | Invoice Amount |
|----------|---------|----------------|
| 22793    | 22,120  | \$4,092.20     |
| 22794    | 18,015  | \$3,332.78     |
| 22795    | 21,910  | \$4,053.35     |
| 22796    | 17,965  | \$3,323.53     |
| 22797    | 18,615  | \$3,443.78     |
| 22798    | 19,320  | \$3,574.20     |
| 22799    | 15,570  | \$2,880.45     |
| 22844    | 19,505  | \$3,608.43     |
| 22849    | 19,840  | \$3,670.40     |
| 22863    | 13,115  | \$2,426.28     |
| ~        | 185,975 | \$34,405.40    |

### Karl R. Heisler

Partner

### Katten Muchin Rosenman LLP

525 W. Monroe Street / Chicago, IL 60661-3693 p/+1.312.902.5430 f/+1.312.902.1061

kart hesses all attenta woods / www.kattentaw.com

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\*\*\*\*\*\*\*\*\*\*\*\*\*

NOTIFICATION: Katten Muchin Rosenman LLP is an Illinois limited liability partnership that has elected to be governed by the Illinois Uniform Partnership Act (1997).



Did You Know: Children of parents who talk to their teens about drugs are up to 50% less likely to use. Start the conversation: Start Lalking, Ohio, Cov.

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## Invoice

| Date      | Invoice # |
|-----------|-----------|
| 6/27/2019 | 22793     |

| Bill To                               |  |
|---------------------------------------|--|
| Garrison Southfield Park LLC          |  |
| 290 Avenue of the Americas, Suite 914 |  |
| New York, NY 10104                    |  |
|                                       |  |

Location

Closed Loop Refining & Recovery, Inc
1675 Watkins Road
Columbus, OH 43207

| Terms           | Due Date      | Received                   | BOL            |                            | Lot No.           | Appt. No.                    |  |                            |  |                            |  |       |
|-----------------|---------------|----------------------------|----------------|----------------------------|-------------------|------------------------------|--|----------------------------|--|----------------------------|--|-------|
| Net 30          | 7/27/2019     | 6/27/2019 0001 WAT062719-1 |                | 6/27/2019 0001 WAT062719-1 |                   | 6/27/2019 0001 WAT062719-1   |  | 6/27/2019 0001 WAT062719-1 |  | 6/27/2019 0001 WAT062719-1 |  | 18356 |
| Quantity (lbs.) | Item Code     |                            | Description    |                            | Rate Per lb.      | Amount                       |  |                            |  |                            |  |       |
|                 | UNP-PRO-LMP-W | Unprocessed - Proje<br>WAT | ection CRT Lam | np Assy (w/Tubes) -        | 0.18              | 5 4,092,20                   |  |                            |  |                            |  |       |
|                 |               |                            |                |                            | Total<br>Payments | \$ <b>4,092.20</b><br>\$0.00 |  |                            |  |                            |  |       |
|                 |               |                            | Phone #        | 614-236-2222               | Balance           | \$4,092.20                   |  |                            |  |                            |  |       |

| STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL<br>Carrier: | E) DOCK 1100 12.3  |
|-------------------------------------------------------------|--------------------|
| BOL# OPPI                                                   | Soult To COCILIO   |
| Shipper:                                                    | Seal # 25994501    |
| Closed Loop Refining and Recovery, Inc<br>1675 Watkins Road | Trailer # 1031     |
| Columbus, OH 43207                                          | Pick Up Date/Time: |

Sold To: Novotech 3960 Groves Road Columbus, OH 43232 Phone:

Booking/PO#

\$6/27/19/21s

Pick Up Date/Time:

### Special Instructions:

Contact:

| No. of Pkgs. | Kind of<br>Package    | Description of Product      | Shipping<br>Weight Lbs.  |                     |
|--------------|-----------------------|-----------------------------|--------------------------|---------------------|
| 26           | GAYLORD<br>CONTAINERS | CRT- used cathode ray tubes | 22,031<br>4950<br>23,931 | NET<br>TARE<br>GROS |
|              |                       | RHIAN P.                    |                          |                     |

Carrier acknowledges receipt of packages and required placards. Packages are marked inconsigned, and destined as indicated above, which the carrier agrees to carry and to deliver to the consignee at the said destination if on its route or otherwise to deliver to another carner on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested, in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading but prohibited by law, whether printed or written, which are hereby agreed. to by the shipper and accepted for himself and his assigns

NOTICE Freight moving under this Birr of Lading is subject to classifications and tanffs established by the carrier and are available to shipper upon request. This indice supersizes and negates any claimed draft or written contract, promised, representation, or understanding between parties, except to the extent of any written contract. signed by both parties to the contract

I HEREBY declare that the contents of this consumment are fully accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthorized alteration or use of this bill of lading in the tendering of this shipment to any carrier other than that designated by company analy VOID company's pobligations to make any payments relating to this shipment are VOID air rate quotes

| SHIPPER: Closed Loop Refining and Recovery, Inc.        | Carrier: SANHO | TIME OUT:      |
|---------------------------------------------------------|----------------|----------------|
| Signature':                                             | Signature:     | DATE: 06 28/19 |
| *As an authorized agent of Garrison Southfield Park LLC |                |                |

DOCK # 2

NovoTec

JENKINS

Scale Checked \_\_\_\_

|         | recycling   | DOCK # 2 HPPI                 |      |
|---------|-------------|-------------------------------|------|
|         |             | RECEIVING                     |      |
| Date: _ | 6/27/2019   | Rec'd By: K+IAM P             |      |
| B/L: _  |             | Truck In: 12:50 Time Start:   | 100  |
| Lot #:  | WAT062719-1 | Truck Out: 1: 45 Time Finish: | 1:40 |

| Stack # | Item Code | Weight |
|---------|-----------|--------|
| 1       | PROSETOR  | 825    |
| 2       | CENS      | 650    |
| 3       | BOX       | 1265   |
| 4       |           | 630    |
| 5       |           | 660    |
| 2       |           | 1250   |
| 7       |           | 1125   |
| 8       |           | 600    |
| 9       |           | 815    |
| 10      |           | 940    |
| 11      | 22,120    | 800    |
| 12      |           | 1055   |
| 13      |           | 725    |
| 14      |           | 1110   |
| 15      |           | 1145   |
| 16      |           | 1080   |
| 17      |           | 1440   |
| 18      |           | 885    |
| 19      |           | 1150   |
| 20      |           | 280    |
| 21      |           | 415    |
| 22      |           | 575    |
| 23      |           | 1170   |
| 24      |           | 400    |
| 25      |           | 465    |
| 26      |           | 665    |
|         |           |        |
|         |           |        |
|         |           |        |
|         |           |        |
|         | Nutr-     |        |
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| Stack # | Item Code | Weight |
|---------|-----------|--------|
|         |           | 1      |
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|         | 1.700     |        |
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|         |           |        |
|         |           |        |

**TOTAL BOL WEIGHT** 

22.031

**TOTAL RECEIVED WEIGHT** 

22,120



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/27/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs. or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

22.120 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address
3960 Groves Road
Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062719-1

B.O.L. 0001



## Invoice

| Date      | Invoice # |
|-----------|-----------|
| 6/27/2019 | 22794     |

| Bill To                               |  |
|---------------------------------------|--|
| Garrison Southfield Park LLC          |  |
| 290 Avenue of the Americas, Suite 914 |  |
| New York, NY 10104                    |  |

Location

Closed Loop Refining & Recovery, Inc
1675 Watkins Road

Columbus, OH 43207

| Terms           | Due Date      | Received                    | BOL               | L)            | ot No.           | Appt. No. |
|-----------------|---------------|-----------------------------|-------------------|---------------|------------------|-----------|
| Net 30          | 7/27/2019     | 6/27/2019                   | 0002              | WAT           | AT062719-2 18357 |           |
| Quantity (lbs.) | Item Code     |                             | Description       |               | Rate Per lb.     | Amount    |
| 18,015          | UNP-PRO-LMP-W | Unprocessed - Projec<br>WAT | tion CRT Lamp Ass | y (w/Tubes) - | 0.               | 3,332.78  |
|                 |               |                             |                   |               | Total Payments   | \$3,332.7 |
|                 |               |                             | Phone # 61        | 4-236-2222    | Balance          | \$3.332.7 |

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE)

WATO62719-2

| Seal # 259945 02        |
|-------------------------|
|                         |
| Trailer # 1042   536065 |
|                         |
| Pick Up Date/Time:      |
| 6/27/19 1420            |
|                         |

Sold To:

Novotec 3960 broves Rd Columbusi OH Booking/PO#

22794

13. CV 12.

Phone: Contact:

### Special Instructions:

| No. of Pkgs. | Kind of<br>Package    | Description of Product                                | Shipping<br>Weight Lbs.   |                      |
|--------------|-----------------------|-------------------------------------------------------|---------------------------|----------------------|
| 26           | GAYLORD<br>CONTAINERS | CRT - Used cathode<br>Ray tubes, projection<br>lenses | 17,932<br>1,950<br>19,802 | NET<br>TARE<br>GROSS |
|              |                       | KHAM. 6/27/19                                         |                           |                      |

Carrier acknowledges receipt of packages and required placards. Packages are marked consigned and destined as indicated above, which the carrier agrees to carry and to deliver to the consgrice at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested, in all or any of the goods. That every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

NOTICE. Freight moving under this Bill of Lading is subject to classifications and fanfts established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed drail or written contract promised representation or understanding between parties except to the extent of any written contract signed by both parties to the contract.

I HEREBY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified packed imarked and labeled and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthorized alteration or use of this bill of lading or the tendering of this shipment to any carrier other than that designated by company. They VOID company's obligations to make altry payments relating to this shipment are VOID all rate guotes.

| SHIPPER: Closed Loop Refining and Recovery, Inc.        | Carrier:   | TIME OUT: |
|---------------------------------------------------------|------------|-----------|
| Signature*:                                             | Signature: | 06/21/19  |
| *As an authorized agent of Garrison Southfield Park LLC | un y       | 2.25 84   |
|                                                         |            | L 0 - 1/1 |

SHIPMENT LOG/INVENTORY

Projection Lens
Truck # 536065

F(19 Seal # 25994502

Skids: 76 Material: CRT Projection Lens 6/27/19 MIDION DO

BOL#

| BOL#     | OUXP2                                   | Skids:                                   | 76              |
|----------|-----------------------------------------|------------------------------------------|-----------------|
| #        | Gross Weight (lb)                       | Tare Weight (lb)                         | Net Weight (lb) |
| 1        | PAP1-821                                | <b>十</b> 5                               | 746             |
| 2        | 10/21-428                               | 7-5                                      | 353             |
| 3        | 139-527                                 | 75                                       | 452             |
| 4        | OCP90-1354                              | 175                                      | 1279            |
| 5        | DOP89-517                               | 75                                       | 442             |
| 6        | OO88-319                                | 75                                       | 244             |
| 7        | COCP87 - 734                            | 7-5                                      | 659             |
| 8        | pp86-411                                | 75                                       | 336             |
| 9        | 10160-754                               | 7-5                                      | 689             |
| 10       | Φ158-785<br>Φ157-1246                   | 75                                       | HO              |
| 11       | Q(S7-1206                               | 75                                       | 1711            |
| 12       | (DIS6-1375                              | 75                                       | 1300            |
| 13       | ΦΦ3Φ -897                               | 75                                       | 822             |
| 14       | DQ31-528                                | 75                                       | 453             |
| 15       | PP32-1177                               | 75                                       | 1102            |
| 16       | PP33-1102                               | 75                                       | 1027            |
| 17       | ΦΦ77-583                                | 175                                      | 548             |
| 18       | (D13Z-648                               | 7-5                                      | 573             |
| 19       | (DP81-499                               | 175                                      | 424             |
| 20       | Q117-296                                | 75                                       | 424<br>221      |
| 21       | P137-642                                | 7.5                                      | 567             |
| 22       | 0153-933                                | 75                                       | 838             |
| 23       | Q139-679                                | 75                                       | 604             |
| 24       | Ø131 - 315                              | 75                                       | 240             |
| 25       | 0142-490                                | 7-5                                      | 415             |
| 26       | P141-1867                               | 7-5                                      | 1787            |
| 27       |                                         |                                          |                 |
| 28       |                                         |                                          |                 |
| 29       |                                         | 4-14-14-14-14-14-14-14-14-14-14-14-14-14 |                 |
| 30       |                                         |                                          |                 |
| 31       | *************************************** |                                          |                 |
| 32       |                                         |                                          | VA              |
| 33       |                                         |                                          |                 |
| 34       |                                         |                                          |                 |
| 35       |                                         |                                          |                 |
| 36       |                                         |                                          |                 |
| 37       |                                         |                                          |                 |
| 38       |                                         |                                          |                 |
| 39<br>40 |                                         |                                          |                 |
| 40       |                                         |                                          |                 |
| TOTALS:  | (9,882)                                 | (1,950)                                  | (17,932)        |

| NIO | VA  | Tor    |
|-----|-----|--------|
| NO  | V0  | ICL    |
| -   | rer | veling |

| j | E | N | K | IN | S |
|---|---|---|---|----|---|
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Scale Checked

|         | recycling   | 300 AM | CEIVING    | #2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Page         | P      |
|---------|-------------|--------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------|
|         |             | REC    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| Date:   | 6/27/2019   |        | Rec'd By:  | KHAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | P. T         | 1000   |
| B/L:    |             |        | Truck In:  | 300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Time Start:  | 3:05   |
| Lot #:  | WAT062719-2 |        | Truck Out: | 3:45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Time Finish: | 3:30   |
| Stack # | Item Code   | Weight | Stack #    | Item C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Code         | Weight |
|         | PROSECTOR   | 420    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | _            |        |
| 2       | cens        | 600    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| _>_     | Boxes       | 230    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 4       | 0.00        | 860    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -            |        |
| 5       |             | 1150   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 6       |             | 412    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| -6      |             | 770    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 0       |             | 570    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -            |        |
| 10      |             | 1040   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 11      | 110,275     | 460    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              | 40     |
| 12      | 1010.0      | 1105   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 13      |             | 810    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 14      |             | 1215   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 15      |             | 1300   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 16      |             | 715    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| H       |             | 680    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 18      |             | 676    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 19      |             | 345    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 20      |             | 255    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 21      |             | 450    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 22      |             | 1280   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 2.3     |             | 455    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 24      |             | 360    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 15      |             | 733    | -          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
|         |             |        |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| -       |             |        |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
|         |             |        |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
| 21.     | ANTECTOR    | 1740   |            | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |        |
|         | PROJECTOR   |        |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
|         |             |        |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |        |
|         |             |        |            | - Control of the Cont |              |        |



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/27/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs. or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

18,015 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number

WAT062719-2

B.O.L.

0002

Invoice #

22794



### Invoice

| Date      | Invoice # |
|-----------|-----------|
| 6/28/2019 | 22795     |

| -   |      |
|-----|------|
| Bi  | 11/  |
| 101 | 1 10 |

Garrison Southfield Park LLC 290 Avenue of the Americas, Suite 914 New York, NY 10104 Location

Closed Loop Refining & Recovery, Inc 1675 Watkins Road Columbus, OH 43207

| Terms           | Due Date      | Received                  | BOL               | Lo             | ot No.         | Appt. No.           |
|-----------------|---------------|---------------------------|-------------------|----------------|----------------|---------------------|
| Net 30          | 7/28/2019     | 6/28/2019                 | 0004              | WATO           | 062819-1       | 18358               |
| Quantity (lbs.) | Item Code     |                           | Description       |                | Rate Per lb.   | Amount              |
| 21,910          | UNP-PRO-LMP-W | Unprocessed - Project WAT | ction CRT Lamp As | sy (w/Tubes) - | 0.185          | 4,053.35            |
|                 |               |                           |                   |                | Total Payments | \$ <b>4,053.3</b> 5 |
|                 |               |                           | Phone # 6         | 14-236-2222    | Balance        | \$4.053.35          |

| Carrier:                                                                | MA1062019-1        |
|-------------------------------------------------------------------------|--------------------|
| BOL# DOOD4                                                              | Seal # 5 25994597  |
| Shipper:<br>Closed Loop Refining and Recovery, Inc<br>1675 Watkins Road |                    |
| Columbus, OH 43207                                                      | Pick Up Date/Time: |

Sold To:

Novotech 3960 Groves Road Columbus, OH 43232 Booking/PO#

22795

Phone: Contact:

#### Special Instructions:

| No. of Pkgs. | Kind of<br>Package    | Description of Product                            | Shipping<br>Weight Lbs.   |                    |
|--------------|-----------------------|---------------------------------------------------|---------------------------|--------------------|
| 26           | GAYLORD<br>CONTAINERS | CRT-Used cathode Ray<br>tubes / Projection lenses | 21,630<br>1,930<br>23,600 | NET<br>TARE<br>GRO |
|              |                       | K+IAM. P                                          |                           |                    |

Carrier anknowledges receipt of packages and required placards. Packages are marked consigned and destined as indicated above, which the carrier agrees to carry and to deriver to the consignee at the said destination, it is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested, in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

NOTICE Freight moving under this Bill of Lading is subject to classifications and fariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract promised representation or understanding between parties, except to the extent of any written contract signed by both parties to the contract.

I HEREBY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthorized alteration or use of this bill of lading or the tendering of this shipment to any carrier other than that designated by company, may VOID company's obligations to make any payments relating to this shipment are VOID all rate quotes.

| SHIPPER: Closed Loop Refining and Recovery, Inc.        | Carrier:   | TIME OUT: |  |
|---------------------------------------------------------|------------|-----------|--|
| Signature": El Roga                                     | Signature: | DATE:     |  |
| *As an authorized agent of Garrison Southfield Park LLC | The Yel    | Lund      |  |

## SHIPMENT LOG/INVENTORY

 Material:
 CRT Projection Lens
 Truck #

 Date:
 (a 18 11
 Seal #

 BOL #
 CD (D (D 4)
 Skids:
 3 (a)

| BOL#     | $\Box$            | Skids:           | 26              |
|----------|-------------------|------------------|-----------------|
| #        | Gross Weight (lb) | Tare Weight (lb) | Net Weight (lb) |
| 1        | DU46-898          | 75               | <u> </u>        |
| 2        | DOP70-663         | 75               | 588             |
| 3        | POP104-1129       | 73               |                 |
| 4        | 10066-1187        | 75               | 10.54           |
| 5        | φφ73-463          | 45               | 388             |
| 6        | 10065-696         | 7.5              | 621             |
| 7        | 9055-1620         | 75               | 1885            |
| 8        | CXXX63-683        | 75               | <b>6</b> Φ8     |
| 9        | 100045-836        | 7-5              | 761             |
| 10       | 100060-1405       | 7-5              | 1334            |
| 11       | Q2962-19098       | 7-5              | 933             |
| 12       | DOD61-292         | 75               | 217             |
| 13       | CDCD49 - 1(DCD9   | 75               | 934             |
| 14       | 0044-1191         | 75               | 1116            |
| 15       | OXP42-1174        | 75               | 1499            |
| 16       | DO41-1019         | 75               | 935             |
| 17       | CX138-513         | 75               | 438             |
| 18       | 004p-892          | 75               | 817             |
| 19       | 0039-1289         | 75               | 1214            |
| 20       | 0029-734          | 75               | 659             |
| 21       | 0034-1259         | 75<br>75         | 184             |
| 22       | 9935-1197         | 7-5              | 1/22            |
| 23       | PP27-776          | 45<br>75         | 701             |
| 24       | 9076-822          |                  | 747             |
| 25       | QUZ8-359          | 15               | 284             |
| 26       | 10025 - 495       | 75               | 420             |
| 27       |                   |                  |                 |
| 28<br>29 |                   |                  |                 |
| 30       |                   |                  |                 |
| 31       |                   |                  |                 |
| 32       |                   |                  |                 |
| 33       |                   |                  |                 |
| 34       |                   |                  |                 |
| 35       |                   |                  |                 |
| 36       |                   |                  |                 |
| 37       |                   |                  |                 |
| 38       |                   |                  |                 |
| 39       |                   |                  |                 |
| 40       |                   |                  |                 |
|          |                   | <del></del>      |                 |

TOTALS:

23,600

1,950

21,659



### **JENKINS**

DOCK #3

Scale Checked \_\_\_\_

|         |                | REC    | EIVING     | 1400    |              |        |
|---------|----------------|--------|------------|---------|--------------|--------|
| Date:   | 6/28/2019      |        | Rec'd By:  | KHAM    | P.           |        |
| B/L:    |                |        | Truck In:  | 12:30   | Time Start:  | 12:40  |
| Lot #:  | WAT062819-1    |        | Truck Out: | 12:30   | Time Finish: | 1:25   |
| Stack # | Item Code      | Weight | Stack #    | Item Co | ode          | Weight |
|         | PROJECTOR LENS |        |            |         |              |        |
| 3       | BOYED          | 300    |            |         |              |        |
| 3       |                | 760    |            |         |              |        |
| 4       |                | 715    |            |         |              |        |
| 5       |                | 1135   |            |         |              |        |
| 6       |                | 1185   | -          |         |              |        |
| 7       |                | 660    |            |         |              |        |
| 8       |                | 825    |            |         |              |        |
| 10      |                | 925    |            |         |              |        |
| 11      | 21 910         | 440    |            |         |              |        |
| 12      | All the        | 1090   |            |         |              |        |
| 13      |                | 1120   |            |         |              |        |
| 14      |                | 930    |            |         |              |        |
| 15      |                | 925    |            |         |              |        |
| 16      |                | 220    |            |         |              |        |
| 17      |                | 1320   |            |         |              | ×.     |
| 18      |                | 760    |            |         |              |        |
| 19      |                | 610    |            |         |              |        |
| 20      |                | 1540   |            |         |              |        |
| 21      |                | 630    |            |         |              |        |
| 22      |                | 390    | -          |         |              |        |
| 23      |                | 1115   |            | -       |              |        |
| 29      |                | 1260   |            | 1000    |              |        |
| 63      |                | 815    |            |         |              |        |
|         |                | 0.3    |            |         |              |        |
|         |                |        |            |         |              |        |
|         |                |        |            |         |              |        |
|         |                |        |            |         |              |        |
|         |                |        |            |         |              |        |
|         |                |        |            |         |              |        |
|         |                |        |            |         |              |        |



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/28/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs. or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

21,910 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062819-1

B.O.L. 0004

Invoice # 22795



### Invoice

| Date      | Invoice # |
|-----------|-----------|
| 6/28/2019 | 22796     |

| Bill | To |
|------|----|
|      |    |

Garrison Southfield Park LLC 290 Avenue of the Americas, Suite 914 New York, NY 10104

| n |
|---|
| n |
|   |

Closed Loop Refining & Recovery, Inc 1675 Watkins Road Columbus, OH 43207

| Terms           | Due Date      | Received                   | BOL           |                    | Lot No.        | Appt. No.            |
|-----------------|---------------|----------------------------|---------------|--------------------|----------------|----------------------|
| Net 30          | 7/28/2019     | 6/28/2019 0005 WATE        |               | T062819-2          | 18359          |                      |
| Quantity (lbs.) | Item Code     |                            | Description   |                    | Rate Per lb.   | Amount               |
| 17,965          | UNP-PRO-LMP-W | Unprocessed - Proje<br>WAT | ction CRT Lam | p Assy (w/Tubes) - | 0.             | 185 3,323.53         |
|                 |               |                            |               |                    | Total Payments | \$3,323.53<br>\$0.00 |
|                 |               |                            | Phone #       | 614-236-2222       | Balance        | \$3,323.53           |

| Carrier:                                        | WAT DURKIN-                          |
|-------------------------------------------------|--------------------------------------|
| BOL# PPD5                                       | Soul #                               |
| Shipper: Closed Loop Refining and Recovery, Inc | Seal # 2599 459 3<br>Trailer # 42631 |
| 1675 Watkins Road<br>Columbus, OH 43207         | Pick Up Date/Time:                   |

Sold To:

Phone: Contact: Novotech 39606 brows Rd Columbus, OH 43232

STRAIGHT BILL OF LADING (ORIGINAL MON-NEGOTIARLE)

Booking/PO#

22796

Special Instructions:

| No. of Pkgs. | Kind of<br>Package    | Description of Product                               | Shipping<br>Weight Lbs.    |                     |
|--------------|-----------------------|------------------------------------------------------|----------------------------|---------------------|
| 24           | GAYLORD<br>CONTAINERS | cet - Used cathoole Ray<br>tubes / Projection lenses | 17,700<br>11800<br>119,570 | NET<br>TARE<br>GROS |
|              |                       |                                                      |                            |                     |

Carrier acknowledges receipt of packages and required placards. Packages are marked consigned and destined as indicated above which the carrier agrees to carry and to deliver to the consigned at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually, agreed as to each carrier of all or any of the goods over all or any option of the route to destination, and as to each party of any time interested, in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law whether printed or written, which are neroby agreed to by the shipper and accepted for himself and his assigns.

NOTICE. Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract arguments are representation, or understanding between parties, except to the extent of any written contract signed by both parties to the contract.

I HERERY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified packed marked and labeled and are in all respects in proper condition for transport according to applicable international and national government requisitors. Any unauthorized afteration or use of this bill of lading or the lendening of this shipment to any carrier other than that designated by company, may VOID company's obligations to make any payments retaining to this shipment are VOID all rate quotes.

| SHIPPER: Closed Loop Refining and Recovery, Inc.        | Carrier:      | TIME OUT: |
|---------------------------------------------------------|---------------|-----------|
| Signature*: 50 Rogal                                    | Signature:    | DATE:     |
| *As an authorized agent of Garrison Southfield Park LLC | of the soft ! | ساس       |



### **JENKINS**

Scale Checked \_\_\_\_

|         |                | REC    | CEIVING    |                                          |             |        |
|---------|----------------|--------|------------|------------------------------------------|-------------|--------|
| Date:   | 6/28/2019      |        | Rec'd By:  | KHAM                                     | P.          |        |
| B/L:    |                |        | Truck In:  | 2:20                                     | Time Start: | 2:25   |
| Lot #:  | WAT062819-2    |        | Truck Out: | 2=25                                     | Time Finish | 3:00   |
| Stack # | Item Code      | Weight | Stack #    | Item C                                   | ode         | Weight |
|         | PROJECTOR LENS | Sos    |            |                                          |             | 30.30  |
| 2       | Bot30.         | 965    |            |                                          |             |        |
| 3       |                | 615    |            |                                          |             |        |
| 4       |                | 1200   |            |                                          |             |        |
| 5       |                | 560    |            |                                          |             |        |
| 5       |                | 1080   |            | -                                        |             |        |
| 4       |                | 75755  |            |                                          |             |        |
| 9       |                | 625    |            |                                          |             |        |
| 10      | 17,965         | 500    |            | 14-14-14-14-14-14-14-14-14-14-14-14-14-1 |             |        |
| 11      |                | 1110   |            |                                          |             | 4      |
| 12      |                | 1270   |            |                                          |             |        |
| 13      |                | 1495   |            |                                          |             |        |
| 14      |                | 360    |            |                                          |             |        |
| 15      | -              | 840    |            |                                          |             |        |
| 10      | 10.000         | 75     |            |                                          |             |        |
| 18      |                | 350    | 1          |                                          |             |        |
| 19      |                | 440    |            | 1100                                     |             |        |
| 20      |                | 1200   |            |                                          |             |        |
| ZI      |                | 590    |            |                                          |             |        |
| 22      |                | 380    |            |                                          |             |        |
| 23      |                | 680    |            |                                          |             |        |
| 24      |                | 470    |            |                                          |             |        |
| -       |                |        |            |                                          |             |        |
| -       |                |        |            |                                          | -           |        |
|         |                |        |            |                                          |             |        |
|         |                | · ·    |            |                                          |             |        |
|         |                | -      |            |                                          |             |        |
|         |                |        |            | -                                        |             |        |
|         |                |        |            |                                          |             |        |
|         |                |        |            |                                          |             |        |
|         |                |        |            |                                          |             |        |



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\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

17,965 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address
3960 Groves Road
Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062819-2

B.O.L. 0005

Invoice # 22796



### Invoice

| Date      | Invoice # |
|-----------|-----------|
| 6/28/2019 | 22797     |

| Bill To                                                                                     |  |
|---------------------------------------------------------------------------------------------|--|
| Garrison Southfield Park LLC<br>290 Avenue of the Americas, Suite 914<br>New York, NY 10104 |  |

Location

Closed Loop Refining & Recovery, Inc
1675 Watkins Road
Columbus, OH 43207

| Terms           | Due Date      | Received                  | BOL                    | Lot No.    | A       | ppt. No.             |
|-----------------|---------------|---------------------------|------------------------|------------|---------|----------------------|
| Net 30          | 7/28/2019     | 6/28/2019                 | 6/28/2019 0006 WAT0628 |            |         | 18360                |
| Quantity (lbs.) | Item Code     |                           | Description            | Rate       | Per lb. | Amount               |
| 18,615          | UNP-PRO-LMP-W | Unprocessed - Project WAT | tion CRT Lamp Assy (   | w/Tubes) - | 0.185   | 3,443.78             |
|                 |               |                           |                        | Total      |         | \$3,443.78<br>\$0.00 |
|                 |               |                           |                        |            |         |                      |

| STRAIGHT | BILL | OF | LADING | (ORIGINAL | NON-NEGOTIABLE) |
|----------|------|----|--------|-----------|-----------------|
| -        |      |    |        |           |                 |

WATOU2819-3

| BOL# OPPO                                          | Seal# 25994594                  |  |  |
|----------------------------------------------------|---------------------------------|--|--|
| shipper:<br>Closed Loop Refining and Recovery, Inc |                                 |  |  |
| 1675 Watkins Road<br>Columbus, OH 43207            | Pick Up Date/Time: 6/28/19 1420 |  |  |

Sold To:

Novotech 3960 Groves Road Columbus, OH 43232

Phone: Contact: Booking/PO#

22797

#### Special Instructions:

| No. of Pkgs. | Kind of<br>Package    | Description of Product                            | Shipping<br>Weight Lbs.   |                      |
|--------------|-----------------------|---------------------------------------------------|---------------------------|----------------------|
| 26           | GAYLORD<br>CONTAINERS | crt-used cathode<br>Ruy tobe / projection<br>jens | 18,501<br>1,950<br>20,431 | NET<br>TARE<br>GROSS |
|              |                       | KHAN P                                            |                           |                      |

Carrier acknowledges receipt of packages and required placards. Packages are marked consigned and destinad as indicated above, which the carrier agrees to carry and to deliver to the consigned at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is multiply agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hareby agreed to by the shipper and accepted for himself and his assigns.

NOTICE: Frequir moving under this Bit of Lading is subject to classifications and familis established by the carrier and are available to shipper upon request. This notice subjected and negates any claimed drespring written contract promised representation of unconstanding tratween parties, except to the extent of any written contract signed by both parties to the contract.

I HEREBY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified, packed, marked and latered and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthorized alteration of use of this bit of lading or the tendening of this shipment to any carrier other than that designated by company, may VOID company is obligations to make any payments relating to this shipment are VOID at rate quotes.

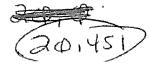
| SHIPPER: Closed Loop Refining and Recovery, Inc.        | Carrier:   |     |      | TIME OUT: |
|---------------------------------------------------------|------------|-----|------|-----------|
| Signature*: El Rogas                                    | Signature: | *   | v    | DATE:     |
| 'As an authorized agent of Garrison Southfield Park LLC |            | 1 1 | S.A. | [r]       |

SHIPMENT LOG/INVENTORY

Projection Lens
Seal # 2599 4594 Material: CRT Projection Lens 6/28/19

| BOL#     | ΦΦΦ6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Skids:                                | 26                                    |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------|
| #        | Gross Weight (lb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Tare Weight (lb)                      | Net Weight (lb)                       |
| 1        | CPCP83-721                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 75                                    | 646                                   |
| 2        | CXP80-601                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75                                    | 526                                   |
| 3        | Q135-377                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75                                    | 342                                   |
| 4        | O122-1038                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75                                    | 963                                   |
| 5        | 0118-332                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                       | 254                                   |
| 6        | 0138-1049                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75                                    | 974                                   |
| 7        | 0143 -594                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7-5                                   | 519                                   |
| 8        | D182-1182                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75                                    | 107                                   |
| 9        | OCP92-1328                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 75                                    | 253                                   |
| 10       | (DIS1-912                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75                                    | 837                                   |
| 11       | Q116-324                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7-5                                   | 251                                   |
| 12       | φφ9s-534                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75                                    | 459                                   |
| 13       | DOP94-654                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75                                    | 575                                   |
| 14       | CDCD48-589                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 75                                    | 514                                   |
| 15       | Ф184-102Z                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75                                    | 947                                   |
| 16       | Q183-816                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75                                    | 741                                   |
| 17       | PP93-989                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75                                    | 914                                   |
| 18       | 0091-1336                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75                                    | 1261                                  |
| 19       | PP96-641                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7-5                                   | 566                                   |
| 20       | P187-678                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75                                    | 643                                   |
| 21       | 0097-787                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75                                    | 712                                   |
| 22       | PP58-1133                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75                                    | 1458                                  |
| 23       | Q185-569                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75                                    | 494                                   |
| 24       | Ф188-268                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75                                    | 193                                   |
| 25       | CPUST-1231                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 75                                    | 1156                                  |
| 26       | 19054-750P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 75                                    | 675                                   |
| 27       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |                                       |
| 28       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | · · · · · · · · · · · · · · · · · · · |                                       |
| 29       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |                                       |
| 30       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |                                       |
| 31<br>32 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |                                       |
| 33       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       | · · · · · · · · · · · · · · · · · · · |
| 34       | and the second s | ž                                     |                                       |
| 35       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |                                       |
| 36       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |                                       |
| 37       | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                       |                                       |
| 38       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       | 2) (4)                                |
| 39       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |                                       |
| 40       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |                                       |
|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |                                       |

TOTALS:



1,95P



### DOCK 3

#### **JENKINS**

Scale Checked \_\_\_\_

|         |                | REC    | EIVING    |          |              |        |
|---------|----------------|--------|-----------|----------|--------------|--------|
| Date:   | 6/28/2019      |        | Rec'd By: | KHAM     | P            |        |
| B/L:    |                |        | Truck In: | 3:30     |              | 3:35   |
| Lot #:  | WAT062819-3    |        |           | 3:35     | Time Finish: | 4:10   |
| Stack # | Item Code      | Weight | Stack #   | Item C   | Code         | Weight |
|         | PROJECTOR LENS | 45     |           |          |              |        |
| 3       | POYED          | 1160   |           |          |              |        |
|         |                | 200    |           |          |              |        |
| 52      |                | 480    | -         |          |              |        |
| 6       |                | 1050   |           |          |              |        |
| 7       |                | 550    |           |          |              |        |
| 8       |                | 675    |           |          |              |        |
| 9       |                | 925    |           |          |              |        |
| 10      | 18,615         | 1250   |           |          |              |        |
| 11      |                | 740    |           |          |              |        |
| 12      |                | 970    |           |          |              |        |
| 13      |                | 520    |           |          |              |        |
| 14      |                | 580    |           |          |              |        |
| 15      |                | 260    |           |          |              |        |
| 16      |                | 400    |           |          |              |        |
| 10      |                | 1270   |           | - trans- |              |        |
| 19      |                | 840    |           |          |              |        |
| 19      |                | 1120   |           |          |              |        |
| 21      |                | 255    |           |          |              |        |
| 22      |                | 960    |           |          |              |        |
| 23      |                | 960    |           |          |              |        |
| 24      |                | 305    |           |          |              |        |
| 25      |                | 635    |           |          |              | ***    |
| 26      |                | 525    |           |          |              |        |
|         |                |        |           |          |              |        |
|         |                |        |           |          |              |        |
|         |                |        |           |          |              |        |
|         |                |        |           |          |              |        |
| -       |                |        |           |          |              |        |
|         |                |        |           |          |              |        |
|         |                |        |           |          |              |        |



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/28/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

18,615 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address
3960 Groves Road
Columbus, Ohio 43232

List of Lots Recycled

Lot Number

WAT062819-3

B.O.L.

0006

Invoice #

22797



### Invoice

| Date      | Invoice # |
|-----------|-----------|
| 6/28/2019 | 22798     |

| Bill To                               |  |
|---------------------------------------|--|
| Garrison Southfield Park LLC          |  |
| 290 Avenue of the Americas, Suite 914 |  |
| New York, NY 10104                    |  |
|                                       |  |

| Location                                                                        |  |
|---------------------------------------------------------------------------------|--|
| Closed Loop Refining & Recovery, Inc<br>1675 Watkins Road<br>Columbus, OH 43207 |  |

| Terms            | Due Date      | Received                    | BOL           | 1                | ot No.         | Appt. No.            |
|------------------|---------------|-----------------------------|---------------|------------------|----------------|----------------------|
| Net 30 7/28/2019 |               | 6/28/2019 0003 WAT          |               | 062819-5         | 18361          |                      |
| Quantity (lbs.)  | Item Code     |                             | Description   |                  | Rate Per lb.   | Amount               |
| 19,320           | unp-pro-lmp-w | Unprocessed - Projec<br>WAT | tion CRT Lamp | Assy (w/Tubes) - | 0.             | 185 3,574.20         |
|                  |               |                             |               |                  | Total Payments | \$3,574.20<br>\$0,00 |
|                  |               |                             | Phone #       | 614-236-2222     | Balance        | \$3.574.20           |

| STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE Carrier:   | LE WIATOLO 2819-5  |
|-------------------------------------------------------------|--------------------|
| BOL# CDOPOP3                                                | Seal # 25994591    |
| Shipper:                                                    |                    |
| Closed Loop Refining and Recovery, Inc<br>1675 Watkins Road | Trailer # 59/1/90  |
| Columbus, OH 43207                                          | Pick Up Date/Time: |

Sold To:

Novotec 3960 Groves Road Columbus, OH 43232 Booking/PO#

18361

Phone: Contact:

Special Instructions:

| No. of Pkgs. | Kind of<br>Package    | Description of Product          | Shipping<br>Weight Lbs.    |                     |
|--------------|-----------------------|---------------------------------|----------------------------|---------------------|
| 26           | GAYLORD<br>CONTAINERS | CRT - Used cathode<br>Ray Tiles | 19.815<br>L191 P<br>21,265 | NET<br>TARE<br>GROS |
|              |                       | KHAM! P                         |                            |                     |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually, agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested, in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

NOTICE Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract, promised representation or understanding between parties, except to the extent of any written contract signed by both parties to the contract.

I HEREBY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified packed, marked and labeled and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthorized alteration or use of this bill of lading or the tendening of this shipment to any same other than that dissignated by company may VOID company's obligations to make any payments relating to this shipment are VOID all rate quotes.

| SHIPPER: Closed Loop Refining and Recovery, Inc.        | Carrier:   | TIME OUT: |
|---------------------------------------------------------|------------|-----------|
| Signature*: E2. Rogar                                   | Signature: | DATE:     |
| "As an authorized agent of Garrison Southfield Park LLC | JA 32      | 1,1       |

## SHIPMENT LOG/INVENTORY

Material: CRT Projection Lens Date:

| BOL#     | (DOD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Skids:           | 26              |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------|
| #        | Gross Weight (lb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Tare Weight (lb) | Net Weight (lb) |
| 1        | Ø173-942                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <u> </u>         | 867             |
| 2        | 0172-935                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | 860             |
| 3        | U171-560                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | 485             |
| 4        | OP43 -1254                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7-5              | 1179            |
| 5        | 0169-541                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | may be           | 466             |
| 6        | Ф168-953                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | 878             |
| 7        | (PO47-107P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 75               | 995             |
| 8        | (0052-757                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75               | 682             |
| 9        | OCD69-552                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7-5              | 477             |
| 10       | 0071-467                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75 E             | 392             |
| 11       | 0167-621                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | 546             |
| 12       | 00967-438                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75               | 363             |
| 13       | ΦΦ68-314                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | 239             |
| 14       | OCP53-1272                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 75               | 1197            |
| 15       | exp72-412                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7.5              | 337             |
| 16       | ΦΦ76-S18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | 443             |
| 17       | Ø165-1324                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7-5              | 1251            |
| 18       | 0166-1243                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7.5              | 1168            |
| 19       | 0120-935                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | 860             |
| 20       | OP74-734                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | 659             |
| 21       | 0079-612                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | S37             |
| 22       | 0170-720                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75               | 645             |
| 23       | DOS6-719                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <u> </u>         | 644             |
| 24       | 0175-1689                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75               | 1614            |
| 25       | (0140-467                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75               | 392             |
| 26       | D176-1216                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75               | 1141            |
| 27       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 28<br>29 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 30       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 31       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 32       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 33       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 34       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 35       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 36       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 37       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 38       | And the state of t |                  |                 |
| 39       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
| 40       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |
|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |

**TOTALS:** 

at, 265) (1,950) (9,315)

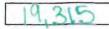




### **JENKINS**

Scale Checked \_\_\_\_

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | REC    | CEIVING    |        |              |        |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------|--------|--------------|--------|
| Date:   | 6/28/2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        | Rec'd By:  | KHAM.  | P            |        |
| B/L:    | A SALES CANADA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        | Truck In:  | 10:40  | Time Start:  | 10:45  |
| Lot #:  | WAT062819-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        | Truck Out: | 2:35   | Time Finish: | 11:30  |
| Stack # | Item Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Weight | Stack #    | Item C | ode          | Weight |
| 1       | PROJECTORLENS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1115   |            |        |              |        |
| 2       | BOXED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 385    |            |        |              |        |
| 3       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 610    |            |        |              |        |
| 4       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1600   |            |        |              |        |
| 5       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 560    |            |        | -io-         |        |
| 4       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 645    |            |        |              |        |
| 46      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 860    |            |        |              |        |
| 9       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1260   |            | -      |              |        |
| 10      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1175   |            |        |              |        |
| 11      | HALL STATE OF THE | 455    |            |        |              |        |
| 12      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 340    |            |        |              |        |
| 13      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 260    |            |        |              |        |
| 14      | 19,320                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1190   |            |        |              |        |
| 15      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 375    |            |        |              | #***   |
| 16      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 545    |            |        |              |        |
| 17      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 390    |            |        |              |        |
| 18      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 475    |            |        |              |        |
| 19      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 475    |            |        |              |        |
| 20      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 680    |            |        |              |        |
| 22      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 880    |            |        |              |        |
| 23      | ***************************************                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1185   |            |        |              |        |
| 24      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 500    |            |        |              |        |
| 25      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 865    |            |        |              |        |
|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 875    |            |        |              |        |
|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |            |        |              |        |
|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |            |        |              |        |
|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |            | 15.05  |              |        |
|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |            |        |              |        |
|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |            |        |              |        |
|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |            |        |              | nere-  |
| L       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |            | 1954   |              |        |





This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/28/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs. or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

19,320 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address
3960 Groves Road
Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062819-5

B.O.L. 0003

Invoice # 22798



### Invoice

| Date      | Invoice # |
|-----------|-----------|
| 6/28/2019 | 22799     |

| Bill To                                                                                     |  |
|---------------------------------------------------------------------------------------------|--|
| Garrison Southfield Park LLC<br>290 Avenue of the Americas, Suite 914<br>New York, NY 10104 |  |

Closed Loop Refining & Recovery, Inc 1675 Watkins Road Columbus, OH 43207

| Terms           | Due Date      | Received            | BOL           |                    | ot No.         | Appt. No.            |
|-----------------|---------------|---------------------|---------------|--------------------|----------------|----------------------|
| Net 30          | 7/28/2019     | 6/28/2019           | 0007          | WA <sup>-</sup>    | T062819-4      | 18362                |
| Quantity (lbs.) | Item Code     |                     | Description   |                    | Rate Per lb.   | Amount               |
| 15.570          | INP-PRO-LMP-W | Unprocessed - Proje | ction CRT Lam | o Assy (w/Tubes) - | 0.185          | 2,880,45             |
|                 |               |                     |               |                    | Total Payments | \$2,880.45<br>\$0.00 |
|                 |               | 1                   |               |                    | Balance        |                      |

| STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL Carrier:                | E) WATO62819-1     |
|-------------------------------------------------------------------------|--------------------|
| BOL # OXPOPT                                                            | Seal# 25994595     |
| Shipper:<br>Closed Loop Refining and Recovery, Inc<br>1675 Watkins Road |                    |
| Columbus, OH 43207                                                      | Pick Up Date/Time: |

Sold To:

Novotech 396 p Groves, Road Columbus, OH, 43232

Booking/PO#

Phone: Contact:

Special Instructions:

| No. of Pkgs. | Kind of<br>Package    | Description of Product                             | Shipping<br>Weight Lbs.  |                     |
|--------------|-----------------------|----------------------------------------------------|--------------------------|---------------------|
| 26           | GAYLORD<br>CONTAINERS | CRT - Cathode ray tuber-<br>used / projection lens | 15,400<br>1950<br>17,350 | NET<br>TARE<br>GROS |
|              |                       | KHIAM P                                            |                          |                     |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consigned at the said destination, it on its route or otherwise to deliver to another carrier on the muse to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested, in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by raw, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns

NOTICE. Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shoper upon request. This notice supersedes and negates any claimed oral or written contract promised, reprosentation, or understanding between parties, except to the extent or any written contract

I HEREBY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthorized alteration or use of this bill of lading or the tendening of this shipment to any carrier other than that designated by corneany imay vOID company's obligations to

make any payments relating to this stipment are VOID all rate quotes

| SHIPPER: Closed Loop Refining and Recovery, Inc.        | Carrier:   | TIME OUT: |
|---------------------------------------------------------|------------|-----------|
| Signature*: EQ. Rose                                    | Signature: | DATE:     |
| *As an authorized agent of Garrison Southfield Park LLC | Mrs DU     |           |

SHIPMENT LOG/INVENTORY
Projection Lens
Truck # 43175
Seal # 25994595 Material: CRT Projection Lens

Date: 6/28/17

| Date: | 6/20/11                 | Skids:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7(2                |
|-------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| BOL#  | ODOP7                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Net Weight (lb)    |
| #     | Gross Weight (lb)       | Tare Weight (lb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |
| 1     | ΦΙΦΙ-321                | <u> </u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 246                |
| 2     | (b124 -574)             | 7-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 495                |
| 3     | p127-655                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 58P                |
| 4     | 10126-524<br>10128-1334 | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 449                |
| 5     | P128-1334               | 75<br>75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1264               |
| 6     | P125-545                | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 47P<br>85P         |
| . 7   | Φ123-925                | 75<br>75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 754                |
| 8     | 0113-571<br>O111-1251   | +5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 496                |
| 9     | Φ111-1251               | <del>7</del> 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1176               |
| 10    | ФПФ - 864               | 7-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 789                |
| 11    | 0108-491                | 75<br>75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 416                |
| 12    | D109-493                | <u> </u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 418<br>1098<br>577 |
| 13    | Φ133 - 117-3            | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1048               |
| 14    | Q104-652                | ナS<br>ナS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 547                |
| 15    | DIO3-617                | +5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 379                |
| 16    | ΦΙΦ2-454                | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |
| 17    | 0100 - 393              | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 318                |
| 18    | 00099-769               | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 694                |
| 19    | 0098-531                | 7.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 456                |
| 20    | の112-788                | 7-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 713                |
| 21    | 0107-668                | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 593                |
| 22    | DIQS-443                | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 348<br>521         |
| 23    | ΦIΦ6 -596               | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |
| 24    | (p134-378               | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 303                |
| 25    | 0129-639                | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 564                |
| 26    | 0159-7ps                | <u> 7</u> S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 63¢                |
| 27    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 28    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 29    |                         | # 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |
| 30    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 31    |                         | ×                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | *                  |
| 32    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 33    | * **                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 34    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 35    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 36    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 37    |                         | A STATE OF THE STA |                    |
| 38    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 39    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |
| 40    |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                  |

TOTALS:

1,950

(15,400)



### **JENKINS**

DCK# [
Scale Checked \_

|         |                | REC    | CEIVING    |        |              |        |
|---------|----------------|--------|------------|--------|--------------|--------|
| Date:   | 6/28/2019      |        | Rec'd By:  | KHAM   | P.           |        |
| B/L:    |                |        |            | 4:00   |              | 11:35  |
| Lot #:  | WAT062819-4    |        | Truck Out: | 405    | Time Finish: | 12:10  |
| Stack # | Item Code      | Weight | Stack #    | Item C |              | Weight |
| 1       | PROJECTOR LENS |        |            |        |              |        |
| 2       | (BOLED)        | 600    |            |        |              |        |
| 3       |                | 310    |            |        |              |        |
| 4       |                | 525    |            |        |              |        |
| 5       |                | 600    |            |        |              |        |
| 6       |                | 380    |            |        |              |        |
| 7 8     |                | 470    |            |        |              |        |
| 8       |                | 715    |            |        |              |        |
| 9       | 15,570         | 330    |            |        |              |        |
| 10      |                | 700    |            |        |              |        |
| 11      |                | 545    |            |        |              |        |
| 12      |                | 385    |            |        |              |        |
| 13      |                | 570    |            |        | -            |        |
| 14      |                | 1120   |            |        |              |        |
| 15      |                | 415    |            |        |              |        |
| 14      |                | 415    |            |        |              |        |
| 17      |                | 1165   |            |        |              |        |
| 18      |                | 800    |            |        |              |        |
| 19      |                | 505    |            |        |              |        |
| 20      |                | 850    |            |        |              |        |
| 21      |                | 580    |            |        |              |        |
| 22      |                | 470    |            |        |              |        |
| 23      |                | 500    |            |        |              |        |
| 運動      |                | 1265   |            |        |              |        |
| 25      |                | 460    |            |        |              |        |
| 26      |                | 255    |            |        |              |        |
|         |                |        |            |        |              | -      |
|         |                |        |            |        |              |        |
| -       |                |        |            |        |              |        |
|         |                |        |            |        |              |        |
|         |                |        |            |        |              |        |
|         |                |        |            |        |              |        |
|         |                |        |            |        |              |        |
|         |                |        |            |        |              |        |



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 6/28/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

15,570 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address

3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT062819-4

B.O.L. 0007

Invoice # 22799



### Invoice

| Date     | Invoice # |
|----------|-----------|
| 7/3/2019 | 22844     |

|  |  | C |
|--|--|---|
|  |  |   |
|  |  |   |

Garrison Southfield Park LLC 290 Avenue of the Americas, Suite 914 New York, NY 10104 Location

Closed Loop Refining & Recovery, Inc 1675 Watkins Road Columbus, OH 43207

| Terms           | Due Date      | Received                 | BOL           |                   | Lot No.   | A     | opt. No.   |
|-----------------|---------------|--------------------------|---------------|-------------------|-----------|-------|------------|
| Net 30          | 8/2/2019      | 7/3/2019                 | 0010          | ) WA              | T070319-3 |       | 18418      |
| Quantity (lbs.) | Item Code     |                          | Description   | on                | Rate Per  | rlb.  | Amount     |
| 19,505          | UNP-PRO-LMP-W | Unprocessed - P<br>- WAT | rojection CRT | Lamp Assy (w/Tube | es)       | 0.185 | 3,608.43   |
|                 |               |                          |               |                   | Total     |       | \$3,608.43 |
|                 |               |                          |               |                   | Paymer    | nts   | \$0.00     |
|                 |               |                          | Phone #       | 614-236-2222      | Balance   |       | \$3,608.43 |

| STRAIGHT | BILL | OF LADING | (ORIGINAL | NON-NEGOTIABLE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|----------|------|-----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Camilani |      |           |           | and the second s |  |

WAT070319-3

| BOL# CDOID                                                             | Seal # 7 CGO V CO 7                    |  |  |
|------------------------------------------------------------------------|----------------------------------------|--|--|
| Shipper:<br>Closed Loop Refining and Recovery, In<br>1675 Watkins Road | Seal # $75994573$ C Trailer # $511199$ |  |  |
| Columbus Oll 42007                                                     | Pick Up Date/Time: 713/19 1539         |  |  |

Sold To:

Novotec 3960 Groves Rd Columbus, 43232, OH 18418

Booking/PO#

Phone: Contact:

#### **Special Instructions:**

| No. of Pkgs. | Kind of                                        | Description of Product                                     | Shipping    | 1           |
|--------------|------------------------------------------------|------------------------------------------------------------|-------------|-------------|
|              | Package                                        |                                                            | Weight Lbs. |             |
| 26           | GAYLORD<br>CONTAINERS                          | CRT - used cathode<br>Ray tubes 1 projection<br>a-3 lenser | 19,457      | NET<br>TARE |
|              |                                                | Ray tubes 1 projection                                     | 1,950       | GROSS       |
|              |                                                | longer                                                     | 21,407      |             |
| Lot          | WAT 07031                                      | 9-3 141114                                                 |             |             |
|              | OCK#15                                         |                                                            |             |             |
|              | locked 4:0                                     | 5 pm                                                       |             |             |
| carrier:     | & WAT 07031<br>)OCK#15<br>)OCKED 4:0<br>5 Sart |                                                            |             |             |
|              | w) je                                          | 7/03/2019                                                  |             |             |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns

NOTICE: Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract, promised, representation, or understanding between parties, except to the extent of any written contract signed by both parties to the contract

I HEREBY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified, packed, marked and tabeled, and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthorized alteration or use of this bill of lading or the tendering of this shipment to any carrier other than that designated by company, may VOID company's obligations to make any payments relating to this shipment are VOID all rate quotes

| SHIPPER: Closed Loop Refining and Recovery, Inc                                   | Carrier:   | T                                     | IME OUT: |  |
|-----------------------------------------------------------------------------------|------------|---------------------------------------|----------|--|
| Signature*: Egg Rugger<br>*As an authorized agent of Garrison Southfield Park LLC | Signature: | Shh                                   | DATE:    |  |
| As all authorized agent of Garrison Southlield Park LLC                           | 4 / 5 / 1  | · · · · · · · · · · · · · · · · · · · |          |  |

SHIPMENT LOG/INVENTORY
Projection Lens Truck # 51119 ()
Seal # 25994523 Material: CRT Projection Lens 7/03/19

| BOL#        | ΦΦΙΦ'             | Skids:                                              | 76              |
|-------------|-------------------|-----------------------------------------------------|-----------------|
| <i>"</i> [# | Gross Weight (lb) | Tare Weight (lb)                                    | Net Weight (lb) |
| 1           | Ф338-1232         | 7.5                                                 | IISI            |
| 2           | Φ324-1029         | 75                                                  | 954             |
| 3           | 0337-510          | 75                                                  | 435             |
| 4           | 0325-946          | 7-5                                                 | 871             |
| - 5         | 0326-627          | #5<br>#2                                            | 552             |
| 6           | O328-727          |                                                     | 652             |
| 7           | Φ327-549          | 75                                                  | 474             |
| 8           | Q329-927          | 75                                                  | 85Z             |
| 9           | φ33φ-1213         | 75                                                  | 1138            |
| 10          | O331-123 13 PU    | 75                                                  | 1225            |
| 11          | Ф332-S32          | 75                                                  | 457             |
| 12          | Φ353-832          | 75                                                  | 757             |
| 13          | 9336-846          |                                                     | 731             |
| 14          | 0335-864          | 75                                                  | 789             |
| 15          | φ334-515          | 7-5                                                 | 440             |
| 16          | 0323-1344         | 45                                                  | 1269            |
| 17          | Ф3227-1114        | 75                                                  | 1039            |
| 18          | 0321-1319         | 75                                                  | 1244            |
| 19          | 0306-670          | 子5                                                  | .595°           |
| 20          | 4307-361          | 75                                                  | 286             |
| 21          | Φ314-SΦ8          | 75                                                  | 433             |
| 22          | OZ69-497          | 75                                                  | 422             |
| 23          | φ287 - 757        | 75                                                  | 682             |
| 24          | QZ71-322          | 75<br>75                                            | 247             |
| 25          | 4261-327          |                                                     | 252             |
| 26          | ΦZS9-1579         | 75                                                  | 1504            |
| 27          |                   |                                                     |                 |
| 28          |                   |                                                     |                 |
| 29          |                   |                                                     |                 |
| 30          |                   |                                                     |                 |
| 31          |                   |                                                     |                 |
| 32          |                   |                                                     |                 |
| 33          |                   |                                                     |                 |
| 34          |                   |                                                     |                 |
| 35          |                   | OPPM:                                               |                 |
| 36          |                   |                                                     |                 |
| 37          |                   |                                                     |                 |
| 38          |                   |                                                     |                 |
| 39<br>40    |                   |                                                     |                 |
| 40          |                   | $\leftarrow$ $\downarrow$ $\downarrow$ $\downarrow$ |                 |

19,457



Doch = 15

Scale Checked \_

|         |                  | REC    | CEIVING    |           |              |        |
|---------|------------------|--------|------------|-----------|--------------|--------|
| Date:   | 7/3/2019         |        | Rec'd By:  |           | JOH -        | CS (mr |
| B/L:    |                  |        | Truck In:  | 405       | Time Start:  | 4.30   |
| Lot #:  | WAT070319-3      |        | Truck Out: | 505       | Time Finish: | 501    |
| Stack # | Item Code        | Weight | Stack #    | Item      | Code         | Weight |
|         | Projector lung   | 260    |            |           |              |        |
| 2       | UNP-PRO-LIMP-WAT |        |            |           |              |        |
| - 3     |                  | 690    |            |           |              |        |
| 4       |                  | 255    |            |           |              |        |
| 5       |                  | 435    |            |           |              |        |
| 7       |                  | 280    |            |           |              |        |
| 8       |                  | 600    |            |           |              |        |
| a       | 19.505           | 1055   |            |           |              |        |
| 10      |                  | 1235   |            |           |              |        |
| " 11    |                  | 1265   |            |           |              |        |
| 12      |                  | 440    |            |           |              |        |
| 13      |                  | 720    |            |           |              |        |
| 14      |                  | 785    | -          |           |              |        |
| 15      |                  | 745    |            |           | -            |        |
| 16      |                  | 1220   |            |           |              |        |
| 18      |                  | 1130   |            |           |              |        |
| 10      |                  | 4180   |            | -         |              |        |
| 20      |                  | 520    |            |           |              |        |
| 21      |                  | 955    |            |           |              |        |
| 22      |                  | 645    |            |           |              |        |
| 23      |                  | 2130   |            |           |              |        |
| 24      |                  | 875    |            |           |              | -      |
| 25      |                  | 1140   | -          |           |              |        |
| 76      | 1                | 147    |            |           |              |        |
|         |                  |        | -          |           |              |        |
|         |                  |        |            |           |              |        |
|         |                  |        |            |           |              |        |
|         |                  |        |            |           |              |        |
|         |                  |        |            |           |              |        |
|         |                  |        |            |           |              |        |
|         |                  | MANCH  | 1          |           | Г            | 10 405 |
| TOTAL I | BOL WEIGHT       | 19,457 | TOTAL RE   | CEIVED WE | IGHT         | 19,505 |



This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 7/3/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

19,505 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address
3960 Groves Road
Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT070319-3

B.O.L. 0010

Invoice # 22844



### Invoice

| Date     | Invoice # |
|----------|-----------|
| 7/3/2019 | 22849     |

| Bill To |  |  |
|---------|--|--|
| 2000    |  |  |

Garrison Southfield Park LLC 290 Avenue of the Americas, Suite 914 New York, NY 10104 Location

Closed Loop Refining & Recovery, Inc 1675 Watkins Road Columbus, OH 43207

| Terms           | Due Date       | Received               | BOL            | Lo                 | ot No.       | Appt. No. |
|-----------------|----------------|------------------------|----------------|--------------------|--------------|-----------|
| Net 30          | 8/2/2019       | 7/3/2019               |                | WATO               | 070319-1     | 18416     |
| Quantity (lbs.) | Item Code      |                        | Descriptio     | on .               | Rate Per lb. | Amount    |
| 19,840          | UNP-PRO-LMP-W. | Unprocessed -<br>- WAT | Projection CRT | Lamp Assy (w/Tubes | ) 0.185      | 3,670.40  |
|                 |                |                        |                |                    | Total        | \$3,670.4 |
|                 |                |                        |                |                    | Payments     | \$0.00    |
|                 |                |                        | Phone #        | 614-236-2222       | Balance      | \$3,670.4 |

| STRAIGHT BILL<br>Carrier: | OF LADING (ORIGINAL | NON-NEGOTIABLE) |
|---------------------------|---------------------|-----------------|
|---------------------------|---------------------|-----------------|

WIAT070319-1

| BOL # COODS                                                             | WATU 10319-                       |
|-------------------------------------------------------------------------|-----------------------------------|
| Shipper:<br>Closed Loop Refining and Recovery, Inc<br>1675 Watkins Road | Seal# 25994521<br>Trailer# 4217<  |
| Columbus, OH 43207                                                      | Pick Up Date/Time:<br>7/3/19 0945 |

Sold To:

Novotech Keayling 3960 Groves Road

Booking/PO#

Phone: Contact:

### Special Instructions:

| No. of Pkgs.     | Kind of<br>Package    | Description of Product                                                   | Shipping                         | 7                 |
|------------------|-----------------------|--------------------------------------------------------------------------|----------------------------------|-------------------|
| 25               | GAYLORD<br>CONTAINERS | cer-used cathode Run<br>tubes/projection herbs                           | Weight Lbs. 19, 149 1875 21, 024 | NET<br>TAR<br>GRO |
| ier acknowledger |                       | RHAM (P = 7/3/19)  Diacards. Packages are marked consinued and destinate |                                  |                   |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

NOTICE: Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract, promised, representation, or understanding between parties, except to the extent of any written contract

I HEREBY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthorized alteration or use of this bill of lading or the tendering of this shipment to any carrier other than that designated by company, may VOID company's obligations to make any payments relating to this shipment are VOID all rate quotes.

| SHIPPER: Closed Loop Refining and Recovery, Inc.        | Carrier:                                       | ME OUT: |
|---------------------------------------------------------|------------------------------------------------|---------|
| Signature*: SO                                          | Signature:                                     | DATE:   |
| Ch Muzy                                                 | \ \alpha \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | )       |
| *As an authorized agent of Garrison Southfield Park LLC | Joe Superity                                   |         |
|                                                         | /                                              |         |

# SHIPMENT LOG/INVENTORY Projection Lens Truck # 43 45

Material: CRT Projection Lens Date:

Skids: BOL#

| BOL#     | QUUB              | Skias:           | - 45            |
|----------|-------------------|------------------|-----------------|
| #        | Gross Weight (lb) | Tare Weight (lb) | Net Weight (lb) |
| 1        | 0144-1115         | 75               | 1040            |
| 2        | Q145-693          | 75               | 618             |
| 3        | P146-526          | 75               | 451             |
| 4        | Q147- 986         | 75               | 911             |
| 5        | OH8-879           | 75               | 754             |
| 6        | OISO - 767        | 75<br>75         | 692             |
| 7        | Q149-335          |                  | 760             |
| 8        | Q151-1298         | <u> 75</u>       | 1133            |
| 9        | 0161-544          | 75               | 469             |
| 10       | OISS-1308         | 75               | 12-33           |
| 11       | 0257-647          | 75               | 572             |
| 12       | 003cps-135cp      | 7-5              | 12.75<br>473    |
| 13       | OZSS-548          | 75               | 473             |
| 14       | OZS6- 434         | 7-5              | 359             |
| 15       | CD253-537         | 75               | 462-            |
| 16       | (0231-1676        | 75               | 1601<br>448     |
| 17       | O752-483          | 75               |                 |
| 18       | O232-1255         | 15               | 118P            |
| 19       | Ø304-1196         | 7-5              | 1931            |
| 20       | 0303-827          | 75               | 752             |
| 21       | (p3:072-1058      | 75               | 983             |
| 22       | Q3Q1-577          | 75               | 5φ2             |
| 23       | OZ54-542          | 75               | 467             |
| 24       | O248-799          | 75               | 724             |
| 25       | 0251-874          | 75               | 799             |
| 26       | -0259-46-6        |                  | 391             |
| 27<br>28 |                   |                  |                 |
| 29       |                   |                  |                 |
| 30       |                   |                  |                 |
| 31       |                   |                  |                 |
| 32       |                   |                  |                 |
| 33       |                   |                  |                 |
| 34       |                   |                  |                 |
| 35       |                   |                  |                 |
| 36       |                   |                  |                 |
| 37       |                   |                  |                 |
| 38       |                   |                  |                 |
| 39       |                   |                  |                 |
| 40       |                   |                  |                 |
|          |                   |                  |                 |

TOTALS:

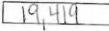
(18,75) (19,149)



DOCH #15

Scale Checked M

|         | recycling       | REC    | CEIVING    |         |              |        |
|---------|-----------------|--------|------------|---------|--------------|--------|
| Date:   | 7/3/2019        |        |            | NORBERT | 0            |        |
| B/L:    |                 |        | Truck In:  | 10:30   | Time Start:  | 10:20  |
| Lot #:  | WAT070319-1     |        | Truck Out: | 11:10   | Time Finish: | 11:10  |
| Stack # | Item Code       | Weight | _Stack #   | Item    |              |        |
| L       | PROJECTION      | 795    |            | T. Hom  | Oue          | Weight |
| 2       | LAMP            | 730    |            |         |              |        |
| 3       | UNP-PRO-LMP WAT | 475    |            |         |              |        |
| 4       |                 | 210    |            |         |              |        |
| 5       |                 | 995    |            |         |              |        |
| 6       |                 | 760    |            |         |              |        |
| 7       | Mari            | 1040   |            |         |              |        |
| 8       | 14,890          | 1190   |            |         |              |        |
| 9       |                 | 415    |            |         |              |        |
| 10      |                 | 1615   |            |         |              |        |
| 1       |                 | 765    |            |         |              |        |
| 12      |                 | 370    |            |         |              |        |
| 3       |                 | 175    |            |         |              |        |
| 14      |                 | 1285   |            |         |              |        |
| 15      |                 | 580    |            |         |              |        |
| 16      |                 | 1295   |            |         |              |        |
| 7       |                 | 525    |            |         |              |        |
| 18      |                 | 1190   |            |         |              |        |
| 9       |                 | 330    |            |         |              |        |
| 20      |                 | 750    |            |         |              |        |
| 21      |                 | 805    |            |         |              |        |
| 22      |                 | 960    |            |         |              |        |
| 3       |                 | 510    |            |         |              |        |
| 124     |                 | 1105   |            |         |              |        |
| 2       |                 | 670    |            |         |              |        |
|         |                 |        | 4 = 1      |         |              |        |
|         |                 |        |            |         |              |        |
| -       |                 |        |            |         |              |        |
|         |                 |        |            |         |              |        |
|         |                 |        |            |         |              |        |
|         |                 |        |            |         |              |        |
|         |                 |        |            | 01104   |              |        |
|         |                 |        |            |         |              |        |





This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 7/3/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs, or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

19,840 Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address
3960 Groves Road
Columbus, Ohio 43232

List of Lots Recycled

Lot Number

WAT070319-1

B.O.L.

Invoice #

22849



## Invoice

| Date     | Invoice # |
|----------|-----------|
| 7/3/2019 | 22863     |

| Bill To                                                     |  |
|-------------------------------------------------------------|--|
| Garrison Southfield Park LLC                                |  |
| 290 Avenue of the Americas, Suite 914<br>New York, NY 10104 |  |
|                                                             |  |

Location

Closed Loop Refining & Recovery, Inc
1675 Watkins Road

Columbus, OH 43207

| Terms           | Due Date        | Received                   | BOL       |                   | Lot No.   | Α     | ppt. No.   |
|-----------------|-----------------|----------------------------|-----------|-------------------|-----------|-------|------------|
| Net 30          | 8/2/2019        | 7/3/2019                   | 0009      | WA                | T070319-2 |       | 18417      |
| Quantity (lbs.) | Item Code       |                            | Descripti | on                | Rate Per  | rlb.  | Amount     |
|                 | UNP-PRO-LMP-W., | . Unprocessed - P<br>- WAT |           | Lamp Assy (w/Tube |           | 0.185 | 2,426.28   |
|                 |                 |                            |           |                   | Total     |       | \$2,426.28 |
|                 |                 |                            |           |                   | Paymer    | nts   | \$0.00     |
|                 |                 |                            | Phone #   | 614-236-2222      | Balance   |       | \$2,426.28 |

| STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL Carrier:                                                         | E) WATO70319-2                                                      |
|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| BOL# DOD9  Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207  DOCK#15 (12:23) | Seal# 2599 4522 Trailer# 5/1/9 () Pick Up Date/Time: (7/3/19 12.00) |
| Sold To: Novo tech                                                                                               | Booking/PO # 18417                                                  |

Phone: Contact:

#### Special Instructions:

| No. of Pkgs.         | Kind of<br>Package    | Description of Product        | Shipping<br>Weight Lbs.     |                      |
|----------------------|-----------------------|-------------------------------|-----------------------------|----------------------|
| 23                   | GAYLORD<br>CONTAINERS | CRT-Used cathode<br>Ray tubes | 34, 52 1<br>1,725<br>36,246 | NET<br>TARE<br>GROSS |
| Carrier colons de la |                       | KHAM P 7/3/19                 |                             |                      |

Carrier acknowledges receipt of packages and required placards. Packages are marked, consigned, and destined, as indicated above, which the carrier agrees to carry and to deliver to the consginee at the said destination, if on its route or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods. that every service to be performed hereunder shall be subject to all the conditions of this bill of lading not prohibited by law, whether printed or written, which are hereby agreed to by the shipper and accepted for himself and his assigns.

NOTICE: Freight moving under this Bill of Lading is subject to classifications and tariffs established by the carrier and are available to shipper upon request. This notice supersedes and negates any claimed oral or written contract, promised, representation, or understanding between parties, except to the extent of any written contract signed by both parties to the contract.

I HEREBY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified, packed, marked and labeled. and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthorized alteration or use of this bill of lading or the tendering of this shipment to any carrier other than that designated by company, may VOID company's obligations to make any payments relating to this shipment are VOID all rate quotes.

| SHIPPER: Closed Loop Refining and Recovery, Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Carrier;   | TIME OUT: |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| Signature*:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Signature: | DATE:     |
| L. July State of the state of t |            |           |
| *As an authorized agent of Garrison Southfield Park LLC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            | j<br>j    |
| *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |           |

SHPMENT LOG/INVENTORY
Projection Lens
Truck # 5119 Projection Lens
Truck # 5119 Projection Lens
Seal # 25994522 Material: CRT Projection Lens Date: BOL#

| BOL#     | 0009              | Skids:                          | 23              |
|----------|-------------------|---------------------------------|-----------------|
| #        | Gross Weight (lb) | Tare Weight (lb)                | Net Weight (lb) |
| 1        | DZSQ-466          | 75                              | 391             |
| 2        | DZ49-1051         | 75                              | 476             |
| 3        | 0247-686          |                                 | 606             |
| 4        | 10246-525         | - <del>25</del> - <del>25</del> | 450             |
| 5        | O242-784          | 7-5                             | 709             |
| 6        | D244-1176         | 75                              | 1101            |
| 7        | 4233-388          | 75                              | 313             |
| 8        | 19245-498         | した                              | 423             |
| 9        | O234-1764         | 75                              | 1689            |
| 10       | JU13-848          | 75                              | 77-3            |
| 11       | O235-1048         | 75                              | 973             |
| 12       | 0241-828          | 75                              | 753             |
| 13       | 0239-1131         | 75                              | 1056            |
| 14       | OZ40-1049         | 75                              | 974             |
| 15       | 0238-739          | 75                              | 1064            |
| 16       | 07.37 -624        | 75                              | 549             |
| 17       | O236-72P          | 75                              | 645             |
| 18       | Ø315- Z952        | 75                              | 7877            |
| 19       | 1316-4493         | 7-5                             | 418             |
| 20       | 0317-4072         | 75                              | 3997            |
| 21       | 0318-3066         | 75                              | 2991            |
| 22       | P319-4252         | 175                             | 4177            |
| 23       | Ø329 - 2986       | 75                              | 2911            |
| 24<br>25 |                   |                                 |                 |
| 26       |                   |                                 |                 |
| 27       |                   |                                 |                 |
| 28       | 7-                |                                 |                 |
| 29       | <u> </u>          |                                 |                 |
| 30       |                   |                                 |                 |
| 31       |                   |                                 |                 |
| 32       |                   |                                 |                 |
| 33       |                   |                                 |                 |
| 34       |                   |                                 |                 |
| 35       |                   |                                 |                 |
| 36       |                   |                                 |                 |
| 37       |                   |                                 |                 |
| 38       |                   |                                 |                 |
| 39       |                   |                                 |                 |
| 40       |                   |                                 |                 |
| OTALS:   | 7, (1)            |                                 |                 |

TOTALS: (36,246) (1,725) (34,521)

## Novolec

# TAKE OUT Time: 1:10 DOCK # 1815 Scale Checked \_\_\_\_

|                 |               | KE(                                   | JEIVING    |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------|---------------|---------------------------------------|------------|---------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date:           | 7/3/2019      |                                       | Rec'd By:  | hham    |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| B/L:            |               |                                       | Truck In:  | 12:30   | Time Start   | 12=40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Lot #:          | WAT070319-2   |                                       | Truck Out: | 1:15    | Time Finish: | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Stack #         | Item Code     | Weight                                | Stack #    | item C  | ode          | Weight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 7               | PROTECIONLENS | 580                                   |            |         | lass         | 2925                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 8               |               | 660                                   | 3 4 5      |         |              | 2990                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 9               |               | 665                                   | 3          |         | . ^          | 4170                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 16              |               | 1690                                  | 4          | 21      | 200          | 3930                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <u> </u>        |               | 980                                   | _2_        |         |              | 4/370                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 12              | 12-115        | 1390                                  | 6          |         |              | 2865                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 13              | 10/10         | 965                                   |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 14              |               | 620                                   |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               | 700                                   |            | UPP-GLS | -MIX-WAT     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 16              |               | 700<br>450<br>320                     |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 18              |               | 320                                   |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 19              |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 20              |               | 425                                   |            | 74      |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <del>-311</del> |               | 1680                                  |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 77              |               | 770                                   |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 23              |               | 760                                   |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               | 160                                   |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              | ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               | , , , , , , , , , , , , , , , , , , , |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              | *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            | 70 Min  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                 |               |                                       |            |         |              | and the second s |



## Certificate of Recycling

This document certifies that the accepted materials received and processed by Novotec Recycling, LLC on behalf of Garrison Southfield Park LLC (Agency) on 7/3/2019 have been handled in accordance with all applicable state and federal guidelines and have been recycled properly, completely, and in an environmentally responsible manner. All intellectual property contained on disk, CDs. or other electronic media has been destroyed.

\* Non-Accepted materials shall be disposed of in a manner acceptable to Novotec.

Amount of material processed:

13,115 Unprocessed - Projection CRT Lamp Assy (w/Tubes)
- WAT

Certified By:

Roland Inthisarn/ Operations Manager

Printed Name/ Title

Agency Address
3960 Groves Road
Columbus, Ohio 43232

List of Lots Recycled

Lot Number WAT070319-2

B.O.L. 0009

Invoice # 22863

## WAL LOG AND DRILLING REPET

State of Ohio

DEPARTMENT OF NATURAL RESOURCES

Division of Water 1500 Dublin Road Columbus, Ohio

No. 187906

| CONSTRUCTION DETAILS                                         | <b>.</b>      | BAILING OR PUMPING TEST                                                        | ## ********************* |
|--------------------------------------------------------------|---------------|--------------------------------------------------------------------------------|--------------------------|
|                                                              |               | Pumping rate G.P.M. Duration of test Drawdown ft. Date                         |                          |
| Type of pump                                                 |               | Developed capacity                                                             |                          |
| Capacity of pump                                             |               | Static level—depth to water                                                    | ft.                      |
| Depth of pump setting  Date of completion                    | 1957          | Pump installed by                                                              |                          |
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State of Ohio
DEPARTMENT OF NATURAL RESOURCES

Division of Water 1500 Dublin Road Columbus, Ohio

No. 187946

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## State of Ohio DEPARTMENT OF NATURAL RESOURCES

Division of Water

65 S. Front St., Rm. 815 Phone (614) 469-2646

Columbus Ohio 43215

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## Appendix C Health and Safety Plan

#### **COVID-19 RIDER**

Before on-site project activities commence, an addendum to the Health & Safety Plan will be prepared that incorporates guidance and best practices set forth in the attached OSHA *Guidance on Preparing Workplaces for COVID-19* (March 2020), the attached *CDC Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19)* (March 2020), and other federal, state, and local government law and guidance related to COVID-19, which is current as of that time, as applicable, appropriate, updated, and amended.

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## Coronavirus Disease 2019 (COVID-19)

# Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19)

Plan, Prepare and Respond to Coronavirus Disease 2019

Older adults and people who have severe underlying chronic medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness. Find more information here.

## Summary of Changes to the Guidance:

Below are changes as of March 21, 2020

- Updated cleaning and disinfection guidance
- Updated best practices for conducting social distancing
- Updated strategies and recommendations that can be implemented now to respond to COVID-19

## **CDC Industry Guidance**

- Resources for Airlines
- Resources for the Ship Industry

## OSHA/HHS Guidance

Guidance on Preparing
 Workplaces for COVID-19 ►

## Purpose

This interim guidance is based on what is currently known about the coronavirus disease 2019 (COVID-19). COVID-19 is a respiratory illness that can spread from person to person. The outbreak first started in China, but the virus continues to spread internationally and in the United States. The Centers for Disease Control and Prevention (CDC) will update this interim guidance as additional information becomes available.

The following interim guidance may help prevent workplace exposures to COVID-19, in non-healthcare settings. (CDC has provided separate guidance for healthcare settings.) This guidance also provides planning considerations for community spread of COVID-19.

To prevent stigma and discrimination in the workplace, use only the guidance described below to determine risk of COVID-19 infection. Do not make determinations of risk based on race or country of origin and be sure to maintain confidentiality of people with confirmed coronavirus infection. There is much more to learn about the transmissibility, severity, and other features of COVID-19 and investigations are ongoing. Updates are available on CDC's web page.

## Preparing Workplaces for a COVID-19 Outbreak

Businesses and employers can prevent and slow the spread of COVID-19. Employers should plan to respond in a flexible way to varying levels of disease transmission in the community and be prepared to refine their business response plans as needed. According to the Occupational Safety and Health Administration (OSHA), most American workers will likely experience low (caution) or medium exposure risk levels at their job or place of employment (see OSHA guidance for employers \( \bigcirc\) for more information about job risk classifications).

Businesses are strongly encouraged to coordinate with state  $\square$  and local  $\square$  health officials so timely and accurate information can guide appropriate responses. Local conditions will influence the decisions that public health officials make regarding community-level strategies. CDC has guidance for mitigation strategies  $\square$  according to the level of community transmission or impact of COVID-19.

All employers need to consider how best to decrease the spread of COVID-19 and lower the impact in their workplace. This may include activities in one or more of the following areas:

- a. reduce transmission among employees,
- b. maintain healthy business operations, and
- c. maintain a healthy work environment.

## Reduce Transmission Among Employees

#### Actively encourage sick employees to stay home:

- Employees who have symptoms (i.e., fever, cough, or shortness of breath) should notify their supervisor and stay home.
- Sick employees should follow CDC-recommended steps. Employees should not return to work until the criteria to discontinue home isolation are met, in consultation with healthcare providers and state and local health departments.
- Employees who are well but who have a sick family member at home with COVID-19 should notify their supervisor and follow CDC recommended precautions.

#### Identify where and how workers might be exposed to COVID-19 at work:

- See OSHA COVID-19 webpage for more information on how to protect workers from potential exposures and guidance for employers including steps to take for jobs according to exposure risk.
- Be aware that some employees may be at higher risk for serious illness, such as older adults and those with chronic medical conditions. Consider minimizing face-to-face contact between these employees or assign work tasks that allow them to maintain a distance of six feet from other workers, customers and visitors, or to telework if possible.

#### Separate sick employees:

- Employees who appear to have symptoms (i.e., fever, cough, or shortness of breath) upon arrival at work or who
  become sick during the day should immediately be separated from other employees, customers, and visitors and sent
  home.
- If an employee is confirmed to have COVID-19 infection, employers should inform fellow employees of their possible exposure to COVID-19 in the workplace but maintain confidentiality as required by the Americans with Disabilities Act (ADA). The fellow employees should then self-monitor for symptoms (i.e., fever, cough, or shortness of breath).

### Educate employees about how they can reduce the spread of COVID-19:

- Employees can take steps to protect themselves at work and at home. Older people and people with serious chronic medical conditions are at higher risk for complications.
- Follow the policies and procedures of your employer related to illness, cleaning and disinfecting, and work meetings and travel.
- Stay home if you are sick, except to get medical care. Learn what to do if you are sick.
- Inform your supervisor if you have a sick family member at home with COVID-19. Learn what to do if someone in your house is sick.
- Wash your hands often with soap and water for at least 20 seconds. Use hand sanitizer with at least 60% alcohol if soap and water are not available.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. Throw used tissues in the track and immediately wash bands with soon and water for at least 20 seconds. If soon and water are not

available, use hand sanitizer containing at least 60% alcohol. Learn more about coughing and sneezing etiquette on the CDC website.

- Clean AND disinfect frequently touched objects and surfaces such as workstations, keyboards, telephones, handrails, and doorknobs. Dirty surfaces can be cleaned with soap and water prior to disinfection. To disinfect, use products that meet EPA's criteria for use against SARS-CoV-2 . the cause of COVID-19, and are appropriate for the surface.
- Avoid using other employees' phones, desks, offices, or other work tools and equipment, when possible. If necessary, clean and disinfect them before and after use.
- Practice social distancing by avoiding large gatherings and maintaining distance (approximately 6 feet or 2 meters) from others when possible.

## Maintain Healthy Business Operations

**Identify a workplace coordinator** who will be responsible for COVID-19 issues and their impact at the workplace.

Implement flexible sick leave and supportive policies and practices.

- Ensure that sick leave policies are flexible and consistent with public health guidance and that employees are aware of and understand these policies.
- Maintain flexible policies that permit employees to stay home to care for a sick family member or take care of children due to school and childcare closures. Additional flexibilities might include giving advances on future sick leave and allowing employees to donate sick leave to each other.
- Employers that do not currently offer sick leave to some or all of their employees may want to draft non-punitive "emergency sick leave" policies.
- Employers should not require a positive COVID-19 test result or a healthcare provider's note for employees who are sick to validate their illness, qualify for sick leave, or to return to work. Healthcare provider offices and medical facilities may be extremely busy and not able to provide such documentation in a timely manner.
- Review human resources policies to make sure that policies and practices are consistent with public health recommendations and are consistent with existing state and federal workplace laws (for more information on employer responsibilities, visit the Department of Labor's and the Equal Employment Opportunity Commission's websites).
- Connect employees to employee assistance program (EAP) resources (if available) and community resources as needed. Employees may need additional social, behavioral, and other services, for example, to cope with the death of a loved one.

**Assess your essential functions** and the reliance that others and the community have on your services or products.

- Be prepared to change your business practices if needed to maintain critical operations (e.g., identify alternative suppliers, prioritize existing customers, or temporarily suspend some of your operations if needed).
- Identify alternate supply chains for critical goods and services. Some good and services may be in higher demand or unavailable.
- Talk with companies that provide your business with contract or temporary employees about the importance of sick employees staying home and encourage them to develop non-punitive leave policies.
- Talk with business partners about your response plans. Share best practices with other businesses in your communities
  (especially those in your supply chain), chambers of commerce, and associations to improve community response
  efforts.

**Determine how you will operate if absenteeism spikes** from increases in sick employees, those who stay home to care for sick family members, and those who must stay home to watch their children if dismissed from childcare programs and K-12 schools.

- Plan to monitor and respond to absenteeism at the workplace.
- Implement plans to continue your essential business functions in case you experience higher than usual absenteeism.
- Prepare to institute flexible workplace and leave policies.
- Cross-train employees to perform essential functions so the workplace can operate even if key employees are absent.

Consider establishing policies and practices for social distancing. Social distancing should be implemented if recommended by state and local health authorities. Social distancing means avoiding large gatherings and maintaining distance (approximately 6 feet or 2 meters) from others when possible (e.g., breakrooms and cafeterias). Strategies that business could use include:

- Implementing flexible worksites (e.g., telework)
- Implementing flexible work hours (e.g., staggered shifts)
- Increasing physical space between employees at the worksite
- Increasing physical space between employees and customers (e.g., drive through, partitions)
- Implementing flexible meeting and travel options (e.g., postpone non-essential meetings or events)
- Downsizing operations
- Delivering services remotely (e.g. phone, video, or web)
- Delivering products through curbside pick-up or delivery

**Employers with more than one business location** are encouraged to provide local managers with the authority to take appropriate actions outlined in their COVID-19 response plan based on local conditions.

## Maintain a healthy work environment

Consider improving the engineering controls using the building ventilation system. This may include some or all of the following activities:

- Increase ventilation rates.
- Increase the percentage of outdoor air that circulates into the system.

#### Support respiratory etiquette and hand hygiene for employees, customers, and worksite visitors:

- Provide tissues and no-touch disposal receptacles.
- Provide soap and water in the workplace. If soap and water are not readily available, use alcohol-based hand sanitizer that is at least 60% alcohol. If hands are visibly dirty, soap and water should be chosen over hand sanitizer. Ensure that adequate supplies are maintained.
- Place hand sanitizers in multiple locations to encourage hand hygiene.
- Place posters that encourage hand hygiene to help stop the spread at the entrance to your workplace and in other workplace areas where they are likely to be seen.
- Discourage handshaking encourage the use of other noncontact methods of greeting.
- Direct employees to visit the coughing and sneezing etiquette and clean hands webpage for more information.

### Perform routine environmental cleaning and disinfection:

 Routinely clean and disinfect all frequently touched surfaces in the workplace, such as workstations, keyboards, telephones, handrails, and doorknobs.

- o If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.
- ∘ For disinfection, most common EPA-registered household disinfectants should be effective. A list of products that are EPA-approved for use against the virus that causes COVID-19 is available here ▶ ☑ . Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.).
- Discourage workers from using other workers' phones, desks, offices, or other work tools and equipment, when possible. If necessary, clean and disinfect them before and after use.
- Provide disposable wipes so that commonly used surfaces (for example, doorknobs, keyboards, remote controls, desks, other work tools and equipment) can be wiped down by employees before each use. To disinfect, use products that meet EPA's criteria for use against SARS-Cov-2 . the cause of COVID-19, and are appropriate for the surface.

#### Perform enhanced cleaning and disinfection after persons suspected/confirmed to have COVID-19 have been in the facility:

• If a sick employee is suspected or confirmed to have COVID-19, follow the CDC cleaning and disinfection recommendations.

#### Advise employees before traveling to take additional preparations:

- Check the CDC's Traveler's Health Notices for the latest guidance and recommendations for each country to which you will travel. Specific travel information for travelers going to and returning from countries with travel advisories, and information for aircrew, can be found on the CDC website.
- Advise employees to check themselves for symptoms of COVID-19 (i.e., fever, cough, or shortness of breath) before starting travel and notify their supervisor and stay home if they are sick.
- Ensure employees who become sick while traveling or on temporary assignment understand that they should notify their supervisor and promptly call a healthcare provider for advice if needed.
- If outside the United States, sick employees should follow company policy for obtaining medical care or contact a healthcare provider or overseas medical assistance company to assist them with finding an appropriate healthcare provider in that country. A U.S. consular officer can help locate healthcare services. However, U.S. embassies, consulates, and military facilities do not have the legal authority, capability, and resources to evacuate or give medicines, vaccines, or medical care to private U.S. citizens overseas.

#### Take care when attending meetings and gatherings:

- Carefully consider whether travel is necessary.
- Consider using videoconferencing or teleconferencing when possible for work-related meetings and gatherings.
- Consider canceling, adjusting, or postponing large work-related meetings or gatherings that can only occur in-person.
- When videoconferencing or teleconferencing is not possible, hold meetings in open, well-ventilated spaces.

## Resources for more information:

## CDC Guidance

- COVID-19 Website
- What You Need to Know About COVID-19
- What to Do If You Are Sick With COVID-19
- Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease 2019 (COVID-19) Exposure in Travel-associated or Community Settings

- Health Alert Network
- Travelers' Health Website
- National Institute for Occupational Safety and Health's 🔼
- Small Business International Travel Resource Travel Planner
- Coronavirus Disease 2019 Recommendations for Ships
- Coronavirus Disease 2019 Recommendations for Airlines and Airline crew
- Persons at Higher Risk of Severe Illness

## Other Federal Agencies and Partners

- OSHA COVID-19 Website ☑
- OSHA Guidance for Preparing Workplaces for COVID-19

Page last reviewed: March 22, 2020





# Guidance on Preparing Workplaces for COVID-19



#### Occupational Safety and Health Act of 1970

"To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health."

This guidance is not a standard or regulation, and it creates no new legal obligations. It contains recommendations as well as descriptions of mandatory safety and health standards. The recommendations are advisory in nature, informational in content, and are intended to assist employers in providing a safe and healthful workplace. The Occupational Safety and Health Act requires employers to comply with safety and health standards and regulations promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, the Act's General Duty Clause, Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm.

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This information will be made available to sensoryimpaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: 1-877-889-5627.

# **Guidance on Preparing Workplaces for COVID-19**

U.S. Department of Labor Occupational Safety and Health Administration

OSHA 3990-03 2020



U.S. Department of Labor

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#### Introduction

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 virus. It has spread from China to many other countries around the world, including the United States. Depending on the severity of COVID-19's international impacts, outbreak conditions—including those rising to the level of a pandemic—can affect all aspects of daily life, including travel, trade, tourism, food supplies, and financial markets.

To reduce the impact of COVID-19 outbreak conditions on businesses, workers, customers, and the public, it is important for all employers to plan now for COVID-19. For employers who have already planned for influenza pandemics, planning for COVID-19 may involve updating plans to address the specific exposure risks, sources of exposure, routes of transmission, and other unique characteristics of SARS-CoV-2 (i.e., compared to pandemic influenza viruses). Employers who have not prepared for pandemic events should prepare themselves and their workers as far in advance as possible of potentially worsening outbreak conditions. Lack of continuity planning can result in a cascade of failures as employers attempt to address challenges of COVID-19 with insufficient resources and workers who might not be adequately trained for jobs they may have to perform under pandemic conditions.

The Occupational Safety and Health Administration (OSHA) developed this COVID-19 planning guidance based on traditional infection prevention and industrial hygiene practices. It focuses on the need for employers to implement engineering, administrative, and work practice controls and personal protective equipment (PPE), as well as considerations for doing so.

This guidance is intended for planning purposes. Employers and workers should use this planning guidance to help identify risk levels in workplace settings and to determine any appropriate control measures to implement. Additional guidance may be needed as COVID-19 outbreak conditions change, including as new information about the virus, its transmission, and impacts, becomes available.

The U.S. Department of Health and Human Services' Centers for Disease Control and Prevention (CDC) provides the latest information about COVID-19 and the global outbreak: www.cdc.gov/coronavirus/2019-ncov.

The OSHA COVID-19 webpage offers information specifically for workers and employers: www.osha.gov/covid-19.

This guidance is advisory in nature and informational in content. It is not a standard or a regulation, and it neither creates new legal obligations nor alters existing obligations created by OSHA standards or the *Occupational Safety and Health Act* (OSH Act). Pursuant to the OSH Act, employers must comply with safety and health standards and regulations issued and enforced either by OSHA or by an OSHA-approved State Plan. In addition, the OSH Act's General Duty Clause, Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. OSHA-approved State Plans may have standards, regulations and enforcement policies that are different from, but at least as effective as, OSHA's. Check with your State Plan, as applicable, for more information.

#### **About COVID-19**

#### **Symptoms of COVID-19**

Infection with SARS-CoV-2, the virus that causes COVID-19, can cause illness ranging from mild to severe and, in some cases, can be fatal. Symptoms typically include fever, cough, and shortness of breath. Some people infected with the virus have reported experiencing other non-respiratory symptoms. Other people, referred to as *asymptomatic cases*, have experienced no symptoms at all.

According to the CDC, symptoms of COVID-19 may appear in as few as 2 days or as long as 14 days after exposure.

#### **How COVID-19 Spreads**

Although the first human cases of COVID-19 likely resulted from exposure to infected animals, infected people can spread SARS-CoV-2 to other people.

The virus is thought to spread mainly from personto-person, including:

- Between people who are in close contact with one another (within about 6 feet).
- Medium exposure risk jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) other people who may be infected with SARS-CoV-2.
- Through respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

It may be possible that a person can get COVID-19 by touching a surface or object that has SARS-CoV-2 on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the primary way the virus spreads.

People are thought to be most contagious when they are most symptomatic (i.e., experiencing fever, cough, and/or shortness of breath). Some spread might be possible before people show symptoms; there have been reports of this type of asymptomatic transmission with this new coronavirus, but this is also not thought to be the main way the virus spreads.

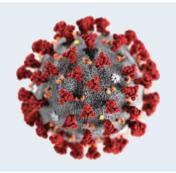
Although the United States has implemented public health measures to limit the spread of the virus, it is likely that some person-to-person transmission will continue to occur.

The CDC website provides the latest information about COVID-19 transmission: www.cdc.gov/coronavirus/2019-ncov/about/transmission.html.

## How a COVID-19 Outbreak Could Affect Workplaces

Similar to influenza viruses, SARS-CoV-2, the virus that causes COVID-19, has the potential to cause extensive outbreaks. Under conditions associated with widespread person-to-person spread, multiple areas of the United States and other countries may see impacts at the same time. In the absence of a vaccine, an outbreak may also be an extended event. As a result, workplaces may experience:

- Absenteeism. Workers could be absent because they are sick; are caregivers for sick family members; are caregivers for children if schools or day care centers are closed; have at-risk people at home, such as immunocompromised family members; or are afraid to come to work because of fear of possible exposure.
- Change in patterns of commerce. Consumer demand for items related to infection prevention (e.g., respirators) is likely to increase significantly, while consumer interest in other goods may decline. Consumers may also change shopping patterns because of a COVID-19 outbreak. Consumers may try to shop at off-peak hours to reduce contact with other people, show increased interest in home delivery services, or prefer other options, such as drive-through service, to reduce person-to-person contact.
- Interrupted supply/delivery. Shipments of items from geographic areas severely affected by COVID-19 may be delayed or cancelled with or without notification.



This illustration, created at the Centers for Disease Control and Prevention (CDC), reveals ultrastructural morphology exhibited by the 2019 Novel Coronavirus (2019-nCoV). Note the spikes that adorn the outer surface of the virus, which impart the look of a corona surrounding the virion, when viewed electron microscopically. This virus was identified as the cause of an outbreak of respiratory illness first detected in Wuhan. China.

Photo: CDC / Alissa Eckert & Dan Higgins

# Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2

This section describes basic steps that every employer can take to reduce the risk of worker exposure to SARS-CoV-2, the virus that causes COVID-19, in their workplace. Later sections of this guidance—including those focusing on jobs classified as having low, medium, high, and very high exposure risks—provide specific recommendations for employers and workers within specific risk categories.

## **Develop an Infectious Disease Preparedness and Response Plan**

If one does not already exist, develop an infectious disease preparedness and response plan that can help guide protective actions against COVID-19.

Stay abreast of guidance from federal, state, local, tribal, and/or territorial health agencies, and consider how to incorporate those recommendations and resources into workplace-specific plans.

Plans should consider and address the level(s) of risk associated with various worksites and job tasks workers perform at those sites. Such considerations may include:

- Where, how, and to what sources of SARS-CoV-2 might workers be exposed, including:
  - O The general public, customers, and coworkers; and
  - Sick individuals or those at particularly high risk of infection (e.g., international travelers who have visited locations with widespread sustained (ongoing) COVID-19 transmission, healthcare workers who have had unprotected exposures to people known to have, or suspected of having, COVID-19).
- Non-occupational risk factors at home and in community settings.

- Workers' individual risk factors (e.g., older age; presence of chronic medical conditions, including immunocompromising conditions; pregnancy).
- Controls necessary to address those risks.

Follow federal and state, local, tribal, and/or territorial (SLTT) recommendations regarding development of contingency plans for situations that may arise as a result of outbreaks, such as:

- Increased rates of worker absenteeism.
- The need for social distancing, staggered work shifts, downsizing operations, delivering services remotely, and other exposure-reducing measures.
- Options for conducting essential operations with a reduced workforce, including cross-training workers across different jobs in order to continue operations or deliver surge services.
- Interrupted supply chains or delayed deliveries.

Plans should also consider and address the other steps that employers can take to reduce the risk of worker exposure to SARS-CoV-2 in their workplace, described in the sections below.

## Prepare to Implement Basic Infection Prevention Measures

For most employers, protecting workers will depend on emphasizing basic infection prevention measures. As appropriate, all employers should implement good hygiene and infection control practices, including:

- Promote frequent and thorough hand washing, including by providing workers, customers, and worksite visitors with a place to wash their hands. If soap and running water are not immediately available, provide alcohol-based hand rubs containing at least 60% alcohol.
- Encourage workers to stay home if they are sick.
- Encourage respiratory etiquette, including covering coughs and sneezes.

- Provide customers and the public with tissues and trash receptacles.
- Employers should explore whether they can establish policies and practices, such as flexible worksites (e.g., telecommuting) and flexible work hours (e.g., staggered shifts), to increase the physical distance among employees and between employees and others if state and local health authorities recommend the use of social distancing strategies.
- Discourage workers from using other workers' phones, desks, offices, or other work tools and equipment, when possible.
- Maintain regular housekeeping practices, including routine cleaning and disinfecting of surfaces, equipment, and other elements of the work environment. When choosing cleaning chemicals, employers should consult information on Environmental Protection Agency (EPA)-approved disinfectant labels with claims against emerging viral pathogens. Products with EPA-approved emerging viral pathogens claims are expected to be effective against SARS-CoV-2 based on data for harder to kill viruses. Follow the manufacturer's instructions for use of all cleaning and disinfection products (e.g., concentration, application method and contact time, PPE).

## Develop Policies and Procedures for Prompt Identification and Isolation of Sick People, if Appropriate

- Prompt identification and isolation of potentially infectious individuals is a critical step in protecting workers, customers, visitors, and others at a worksite.
- Employers should inform and encourage employees to self-monitor for signs and symptoms of COVID-19 if they suspect possible exposure.
- Employers should develop policies and procedures for employees to report when they are sick or experiencing symptoms of COVID-19.

- Where appropriate, employers should develop policies and procedures for immediately isolating people who have signs and/or symptoms of COVID-19, and train workers to implement them. Move potentially infectious people to a location away from workers, customers, and other visitors. Although most worksites do not have specific isolation rooms, designated areas with closable doors may serve as isolation rooms until potentially sick people can be removed from the worksite.
- Take steps to limit spread of the respiratory secretions of a person who may have COVID-19. Provide a face mask, if feasible and available, and ask the person to wear it, if tolerated. Note: A face mask (also called a surgical mask, procedure mask, or other similar terms) on a patient or other sick person should not be confused with PPE for a worker; the mask acts to contain potentially infectious respiratory secretions at the source (i.e., the person's nose and mouth).
- If possible, isolate people suspected of having COVID-19 separately from those with confirmed cases of the virus to prevent further transmission—particularly in worksites where medical screening, triage, or healthcare activities occur, using either permanent (e.g., wall/different room) or temporary barrier (e.g., plastic sheeting).
- Restrict the number of personnel entering isolation areas.
- Protect workers in close contact with (i.e., within 6 feet of) a sick person or who have prolonged/repeated contact with such persons by using additional engineering and administrative controls, safe work practices, and PPE. Workers whose activities involve close or prolonged/repeated contact with sick people are addressed further in later sections covering workplaces classified at medium and very high or high exposure risk.

## **Develop, Implement, and Communicate about Workplace Flexibilities and Protections**

- Actively encourage sick employees to stay home.
- Ensure that sick leave policies are flexible and consistent with public health guidance and that employees are aware of these policies.
- Talk with companies that provide your business with contract or temporary employees about the importance of sick employees staying home and encourage them to develop non-punitive leave policies.
- Do not require a healthcare provider's note for employees who are sick with acute respiratory illness to validate their illness or to return to work, as healthcare provider offices and medical facilities may be extremely busy and not able to provide such documentation in a timely way.
- Maintain flexible policies that permit employees to stay home to care for a sick family member. Employers should be aware that more employees may need to stay at home to care for sick children or other sick family members than is usual.
- Recognize that workers with ill family members may need to stay home to care for them. See CDC's Interim Guidance for Preventing the Spread of COVID-19 in Homes and Residential Communities: www.cdc.gov/coronavirus/2019ncov/hcp/guidance-prevent-spread.html.
- Be aware of workers' concerns about pay, leave, safety, health, and other issues that may arise during infectious disease outbreaks. Provide adequate, usable, and appropriate training, education, and informational material about business-essential job functions and worker health and safety, including proper hygiene practices and the use of any workplace controls (including PPE). Informed workers who feel safe at work are less likely to be unnecessarily absent.

 Work with insurance companies (e.g., those providing employee health benefits) and state and local health agencies to provide information to workers and customers about medical care in the event of a COVID-19 outbreak.

#### **Implement Workplace Controls**

Occupational safety and health professionals use a framework called the "hierarchy of controls" to select ways of controlling workplace hazards. In other words, the best way to control a hazard is to systematically remove it from the workplace, rather than relying on workers to reduce their exposure. During a COVID-19 outbreak, when it may not be possible to eliminate the hazard, the most effective protection measures are (listed from most effective to least effective): engineering controls, administrative controls, safe work practices (a type of administrative control), and PPE. There are advantages and disadvantages to each type of control measure when considering the ease of implementation, effectiveness, and cost. In most cases, a combination of control measures will be necessary to protect workers from exposure to SARS-CoV-2.

In addition to the types of workplace controls discussed below, CDC guidance for businesses provides employers and workers with recommended SARS-CoV-2 infection prevention strategies to implement in workplaces: www.cdc.gov/coronavirus/2019-ncov/specific-groups/guidance-business-response.html.

#### **Engineering Controls**

Engineering controls involve isolating employees from work-related hazards. In workplaces where they are appropriate, these types of controls reduce exposure to hazards without relying on worker behavior and can be the most cost-effective solution to implement. Engineering controls for SARS-CoV-2 include:

- Installing high-efficiency air filters.
- Increasing ventilation rates in the work environment.
- Installing physical barriers, such as clear plastic sneeze guards.

- Installing a drive-through window for customer service.
- Specialized negative pressure ventilation in some settings, such as for aerosol generating procedures (e.g., airborne infection isolation rooms in healthcare settings and specialized autopsy suites in mortuary settings).

#### Administrative Controls

Administrative controls require action by the worker or employer. Typically, administrative controls are changes in work policy or procedures to reduce or minimize exposure to a hazard. Examples of administrative controls for SARS-CoV-2 include:

- Encouraging sick workers to stay at home.
- Minimizing contact among workers, clients, and customers by replacing face-to-face meetings with virtual communications and implementing telework if feasible.
- Establishing alternating days or extra shifts that reduce the total number of employees in a facility at a given time, allowing them to maintain distance from one another while maintaining a full onsite work week.
- Discontinuing nonessential travel to locations with ongoing COVID-19 outbreaks. Regularly check CDC travel warning levels at: www.cdc.gov/coronavirus/2019-ncov/travelers.
- Developing emergency communications plans, including a forum for answering workers' concerns and internet-based communications, if feasible.
- Providing workers with up-to-date education and training on COVID-19 risk factors and protective behaviors (e.g., cough etiquette and care of PPE).
- Training workers who need to use protecting clothing and equipment how to put it on, use/wear it, and take it off correctly, including in the context of their current and potential duties. Training material should be easy to understand and available in the appropriate language and literacy level for all workers.

#### Safe Work Practices

Safe work practices are types of administrative controls that include procedures for safe and proper work used to reduce the duration, frequency, or intensity of exposure to a hazard. Examples of safe work practices for SARS-CoV-2 include:

- Providing resources and a work environment that promotes personal hygiene. For example, provide tissues, no-touch trash cans, hand soap, alcohol-based hand rubs containing at least 60 percent alcohol, disinfectants, and disposable towels for workers to clean their work surfaces.
- Requiring regular hand washing or using of alcohol-based hand rubs. Workers should always wash hands when they are visibly soiled and after removing any PPE.
- Post handwashing signs in restrooms.

#### Personal Protective Equipment (PPE)

While engineering and administrative controls are considered more effective in minimizing exposure to SARS-CoV-2, PPE may also be needed to prevent certain exposures. While correctly using PPE can help prevent some exposures, it should not take the place of other prevention strategies.

Examples of PPE include: gloves, goggles, face shields, face masks, and respiratory protection, when appropriate. During an outbreak of an infectious disease, such as COVID-19, recommendations for PPE specific to occupations or job tasks may change depending on geographic location, updated risk assessments for workers, and information on PPE effectiveness in preventing the spread of COVID-19. Employers should check the OSHA and CDC websites regularly for updates about recommended PPE.

#### All types of PPE must be:

- Selected based upon the hazard to the worker.
- Properly fitted and periodically refitted, as applicable (e.g., respirators).

- Consistently and properly worn when required.
- Regularly inspected, maintained, and replaced, as necessary.
- Properly removed, cleaned, and stored or disposed of, as applicable, to avoid contamination of self, others, or the environment

Employers are obligated to provide their workers with PPE needed to keep them safe while performing their jobs. The types of PPE required during a COVID-19 outbreak will be based on the risk of being infected with SARS-CoV-2 while working and job tasks that may lead to exposure.

Workers, including those who work within 6 feet of patients known to be, or suspected of being, infected with SARS-CoV-2 and those performing aerosol-generating procedures, need to use respirators:

- National Institute for Occupational Safety and Health (NIOSH)-approved, N95 filtering facepiece respirators or better must be used in the context of a comprehensive, written respiratory protection program that includes fit-testing, training, and medical exams. See OSHA's Respiratory Protection standard, 29 CFR 1910.134 at www.osha.gov/laws-regs/regulations/ standardnumber/1910/1910.134.
- When disposable N95 filtering facepiece respirators are not available, consider using other respirators that provide greater protection and improve worker comfort. Other types of acceptable respirators include: a R/P95, N/R/P99, or N/R/P100 filtering facepiece respirator; an air-purifying elastomeric (e.g., half-face or full-face) respirator with appropriate filters or cartridges; powered air purifying respirator (PAPR) with high-efficiency particulate arrestance (HEPA) filter; or supplied air respirator (SAR). See CDC/NIOSH guidance for optimizing respirator supplies at: www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy.

- Consider using PAPRs or SARs, which are more protective than filtering facepiece respirators, for any work operations or procedures likely to generate aerosols (e.g., cough induction procedures, some dental procedures, invasive specimen collection, blowing out pipettes, shaking or vortexing tubes, filling a syringe, centrifugation).
- Use a surgical N95 respirator when both respiratory protection and resistance to blood and body fluids is needed.
- Face shields may also be worn on top of a respirator to prevent bulk contamination of the respirator. Certain respirator designs with forward protrusions (duckbill style) may be difficult to properly wear under a face shield. Ensure that the face shield does not prevent airflow through the respirator.
- Consider factors such as function, fit, ability to decontaminate, disposal, and cost. OSHA's Respiratory Protection eTool provides basic information on respirators such as medical requirements, maintenance and care, fit testing, written respiratory protection programs, and voluntary use of respirators, which employers may also find beneficial in training workers at: www.osha.gov/SLTC/ etools/respiratory. Also see NIOSH respirator guidance at: www.cdc.gov/niosh/topics/respirators.
- Respirator training should address selection, use (including donning and doffing), proper disposal or disinfection, inspection for damage, maintenance, and the limitations of respiratory protection equipment. Learn more at: www. osha.gov/SLTC/respiratoryprotection.
- The appropriate form of respirator will depend on the type of exposure and on the transmission pattern of COVID-19. See the NIOSH "Respirator Selection Logic" at: www.cdc.gov/niosh/docs/2005-100/default.html or the OSHA "Respiratory Protection eTool" at www.osha.gov/ SLTC/etools/respiratory.

#### **Follow Existing OSHA Standards**

Existing OSHA standards may apply to protecting workers from exposure to and infection with SARS-CoV-2.

While there is no specific OSHA standard covering SARS-CoV-2 exposure, some OSHA requirements may apply to preventing occupational exposure to SARS-CoV-2. Among the most relevant are:

- OSHA's Personal Protective Equipment (PPE) standards (in general industry, 29 CFR 1910 Subpart I), which require using gloves, eye and face protection, and respiratory protection. See: www.osha.gov/laws-regs/regulations/ standardnumber/1910#1910\_Subpart\_I.
  - When respirators are necessary to protect workers or where employers require respirator use, employers must implement a comprehensive respiratory protection program in accordance with the Respiratory Protection standard (29 CFR 1910.134). See: www.osha.gov/lawsregs/regulations/standardnumber/1910/1910.134.
- The General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health (OSH) Act of 1970, 29 USC 654(a)(1), which requires employers to furnish to each worker "employment and a place of employment, which are free from recognized hazards that are causing or are likely to cause death or serious physical harm." See: www.osha.gov/laws-regs/oshact/completeoshact.

OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) applies to occupational exposure to human blood and other potentially infectious materials that typically do not include respiratory secretions that may transmit SARS-CoV-2. However, the provisions of the standard offer a framework that may help control some sources of the virus, including exposures to body fluids (e.g., respiratory secretions) not covered by the standard. See: www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030.

The OSHA COVID-19 webpage provides additional information about OSHA standards and requirements, including requirements in states that operate their own OSHA-approved State Plans, recordkeeping requirements and injury/illness recording criteria, and applications of standards related to sanitation and communication of risks related to hazardous chemicals that may be in common sanitizers and sterilizers. See: www.osha.gov/SLTC/covid-19/standards.html.

## Classifying Worker Exposure to SARS-CoV-2

Worker risk of occupational exposure to SARS-CoV-2, the virus that causes COVID-19, during an outbreak may vary from very high to high, medium, or lower (caution) risk. The level of risk depends in part on the industry type, need for contact within 6 feet of people known to be, or suspected of being, infected with SARS-CoV-2, or requirement for repeated or extended contact with persons known to be, or suspected of being, infected with SARS-CoV-2. To help employers determine appropriate precautions, OSHA has divided job tasks into four risk exposure levels: very high, high, medium, and lower risk. The Occupational Risk Pyramid shows the four exposure risk levels in the shape of a pyramid to represent probable distribution of risk. Most American workers will likely fall in the lower exposure risk (caution) or medium exposure risk levels.



## **Very High Exposure Risk**

Very high exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures. Workers in this category include:

- Healthcare workers (e.g., doctors, nurses, dentists, paramedics, emergency medical technicians) performing aerosol-generating procedures (e.g., intubation, cough induction procedures, bronchoscopies, some dental procedures and exams, or invasive specimen collection) on known or suspected COVID-19 patients.
- Healthcare or laboratory personnel collecting or handling specimens from known or suspected COVID-19 patients (e.g., manipulating cultures from known or suspected COVID-19 patients).
- Morgue workers performing autopsies, which generally involve aerosol-generating procedures, on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

## **High Exposure Risk**

High exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19. Workers in this category include:

- Healthcare delivery and support staff (e.g., doctors, nurses, and other hospital staff who must enter patients' rooms) exposed to known or suspected COVID-19 patients. (Note: when such workers perform aerosol-generating procedures, their exposure risk level becomes very high.)
- Medical transport workers (e.g., ambulance vehicle operators) moving known or suspected COVID-19 patients in enclosed vehicles.
- Mortuary workers involved in preparing (e.g., for burial or cremation) the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

## **Medium Exposure Risk**

Medium exposure risk jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) people who may be infected with SARS-CoV-2, but who are not known or suspected COVID-19 patients. In areas without ongoing community transmission, workers in this risk group may have frequent contact with travelers who may return from international locations with widespread COVID-19 transmission. In areas where there *is* ongoing community transmission, workers in this category may have contact with the general public (e.g., schools, high-population-density work environments, some high-volume retail settings).

## **Lower Exposure Risk (Caution)**

Lower exposure risk (caution) jobs are those that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2 nor frequent close contact with (i.e., within 6 feet of) the general public. Workers in this category have minimal occupational contact with the public and other coworkers.

## Jobs Classified at Lower Exposure Risk (Caution): What to Do to Protect Workers

For workers who do not have frequent contact with the general public, employers should follow the guidance for "Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2," on page 7 of this booklet and implement control measures described in this section.

## **Engineering Controls**

Additional engineering controls are not recommended for workers in the lower exposure risk group. Employers should ensure that engineering controls, if any, used to protect workers from other job hazards continue to function as intended.

#### **Administrative Controls**

- Monitor public health communications about COVID-19 recommendations and ensure that workers have access to that information. Frequently check the CDC COVID-19 website: www.cdc.gov/coronavirus/2019-ncov.
- Collaborate with workers to designate effective means of communicating important COVID-19 information.

## **Personal Protective Equipment**

Additional PPE is not recommended for workers in the lower exposure risk group. Workers should continue to use the PPE, if any, that they would ordinarily use for other job tasks.

# Jobs Classified at Medium Exposure Risk: What to Do to Protect Workers

In workplaces where workers have medium exposure risk, employers should follow the guidance for "Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2," on page 7 of this booklet and implement control measures described in this section.

## **Engineering Controls**

 Install physical barriers, such as clear plastic sneeze guards, where feasible.

## **Administrative Controls**

Consider offering face masks to ill employees and customers to contain respiratory secretions until they are able leave the workplace (i.e., for medical evaluation/care or to return home). In the event of a shortage of masks, a reusable face shield that can be decontaminated may be an acceptable method of protecting against droplet transmission. See CDC/NIOSH guidance for optimizing respirator supplies, which discusses the use of surgical masks, at: www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy.

- Keep customers informed about symptoms of COVID-19 and ask sick customers to minimize contact with workers until healthy again, such as by posting signs about COVID-19 in stores where sick customers may visit (e.g., pharmacies) or including COVID-19 information in automated messages sent when prescriptions are ready for pick up.
- Where appropriate, limit customers' and the public's access to the worksite, or restrict access to only certain workplace areas.
- Consider strategies to minimize face-to-face contact (e.g., drivethrough windows, phone-based communication, telework).
- Communicate the availability of medical screening or other worker health resources (e.g., on-site nurse; telemedicine services).

## **Personal Protective Equipment (PPE)**

When selecting PPE, consider factors such as function, fit, decontamination ability, disposal, and cost. Sometimes, when PPE will have to be used repeatedly for a long period of time, a more expensive and durable type of PPE may be less expensive

overall than disposable PPE. Each employer should select the combination of PPE that protects workers specific to their workplace.

Workers with medium exposure risk may need to wear some combination of gloves, a gown, a face mask, and/or a face shield or goggles. PPE ensembles for workers in the medium exposure risk category will vary by work task, the results of the employer's hazard assessment, and the types of exposures workers have on the job.

High exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19.

Very high exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures that involve aerosol generation or specimen collection/handling.

In rare situations that would require workers in this risk category to use respirators, see the PPE section beginning on page 14 of this booklet, which provides more details about respirators. For the most up-to-date information, visit OSHA's COVID-19 webpage: www.osha.gov/covid-19.

## Jobs Classified at High or Very High Exposure Risk: What to Do to Protect Workers

In workplaces where workers have high or very high exposure risk, employers should follow the guidance for "Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2," on page 7 of this booklet and implement control measures described in this section.

## **Engineering Controls**

- Ensure appropriate air-handling systems are installed and maintained in healthcare facilities. See "Guidelines for Environmental Infection Control in Healthcare Facilities" for more recommendations on air handling systems at: www. cdc.gov/mmwr/preview/mmwrhtml/rr5210a1.htm.
- CDC recommends that patients with known or suspected COVID-19 (i.e., person under investigation) should be placed in an airborne infection isolation room (AIIR), if available.
- Use isolation rooms when available for performing aerosol-generating procedures on patients with known or suspected COVID-19. For postmortem activities, use autopsy suites or other similar isolation facilities when performing aerosol-generating procedures on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death. See the CDC postmortem guidance at: www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-postmortem-specimens.html. OSHA also provides guidance for postmortem activities on its COVID-19 webpage: www.osha.gov/covid-19.

Use special precautions associated with Biosafety Level 3 when handling specimens from known or suspected COVID-19 patients. For more information about biosafety levels, consult the U.S. Department of Health and Human Services (HHS) "Biosafety in Microbiological and Biomedical Laboratories" at www.cdc.gov/biosafety/publications/bmbl5.

## **Administrative Controls**

If working in a healthcare facility, follow existing guidelines and facility standards of practice for identifying and isolating infected individuals and for protecting workers.

- Develop and implement policies that reduce exposure, such as cohorting (i.e., grouping) COVID-19 patients when single rooms are not available.
- Post signs requesting patients and family members to immediately report symptoms of respiratory illness on arrival at the healthcare facility and use disposable face masks.
- Consider offering enhanced medical monitoring of workers during COVID-19 outbreaks.
- Provide all workers with job-specific education and training on preventing transmission of COVID-19, including initial and routine/refresher training.
- Ensure that psychological and behavioral support is available to address employee stress.

## **Safe Work Practices**

Provide emergency responders and other essential personnel who may be exposed while working away from fixed facilities with alcohol-based hand rubs containing at least 60% alcohol for decontamination in the field.

## **Personal Protective Equipment (PPE)**

Most workers at high or very high exposure risk likely need to wear gloves, a gown, a face shield or goggles, and either a face mask or a respirator, depending on their job tasks and exposure risks.

Those who work closely with (either in contact with or within 6 feet of) patients known to be, or suspected of being, infected with SARS-CoV-2, the virus that causes COVID-19, should wear respirators. In these instances, see the PPE section beginning on page 14 of this booklet, which provides more details about respirators. For the most up-to-date information, also visit OSHA's COVID-19 webpage: www.osha.gov/covid-19.

PPE ensembles may vary, especially for workers in laboratories or morgue/mortuary facilities who may need additional protection against blood, body fluids, chemicals, and other materials to which they may be exposed. Additional PPE may include medical/surgical gowns, fluid-resistant coveralls, aprons, or other disposable or reusable protective clothing. Gowns should be large enough to cover the areas requiring protection. OSHA may also provide updated guidance for PPE use on its website: www.osha.gov/covid-19.

**NOTE**: Workers who dispose of PPE and other infectious waste must also be trained and provided with appropriate PPE.

The CDC webpage "Healthcare-associated Infections" (www.cdc.gov/hai) provides additional information on infection control in healthcare facilities.

# **Workers Living Abroad or Travelling Internationally**

Employers with workers living abroad or traveling on international business should consult the "Business Travelers" section of the OSHA COVID-19 webpage (www.osha.gov/covid-19), which also provides links to the latest:

- CDC travel warnings: www.cdc.gov/ coronavirus/2019-ncov/travelers
- U.S. Department of State (DOS) travel advisories: travel.state.gov

Employers should communicate to workers that the DOS cannot provide Americans traveling or living abroad with medications or supplies, even in the event of a COVID-19 outbreak.

As COVID-19 outbreak conditions change, travel into or out of a country may not be possible, safe, or medically advisable. It is also likely that governments will respond to a COVID-19 outbreak by imposing public health measures that restrict domestic and international movement, further limiting the U.S. government's ability to assist Americans in these countries. It is important that employers and workers plan appropriately, as it is possible that these measures will be implemented very quickly in the event of worsening outbreak conditions in certain areas.

More information on COVID-19 planning for workers living and traveling abroad can be found at: www.cdc.gov/travel.

## **For More Information**

Federal, state, and local government agencies are the best source of information in the event of an infectious disease outbreak, such as COVID-19. Staying informed about the latest developments and recommendations is critical, since specific guidance may change based upon evolving outbreak situations.

Below are several recommended websites to access the most current and accurate information:

- Occupational Safety and Health Administration website: www.osha.gov
- Centers for Disease Control and Prevention website: www.cdc.gov
- National Institute for Occupational Safety and Health website: www.cdc.gov/niosh

# OSHA Assistance, Services, and Programs

OSHA has a great deal of information to assist employers in complying with their responsibilities under OSHA law. Several OSHA programs and services can help employers identify and correct job hazards, as well as improve their safety and health program.

## **Establishing a Safety and Health Program**

Safety and health programs are systems that can substantially reduce the number and severity of workplace injuries and illnesses, while reducing costs to employers.

Visit www.osha.gov/safetymanagement for more information.

## Compliance Assistance Specialists

OSHA compliance assistance specialists can provide information to employers and workers about OSHA standards, short educational programs on specific hazards or OSHA rights and responsibilities, and information on additional compliance assistance resources.

Visit www.osha.gov/complianceassistance/cas or call 1-800-321-OSHA (6742) to contact your local OSHA office.

## No-Cost On-Site Safety and Health Consultation Services for Small Business

OSHA's On-Site Consultation Program offers no-cost and confidential advice to small and medium-sized businesses in all states, with priority given to high-hazard worksites. On-Site consultation services are separate from enforcement and do not result in penalties or citations.

For more information or to find the local On-Site Consultation office in your state, visit www.osha.gov/consultation, or call 1-800-321-OSHA (6742).

Under the consultation program, certain exemplary employers may request participation in OSHA's **Safety and Health Achievement Recognition Program (SHARP)**. Worksites that receive SHARP recognition are exempt from programmed inspections during the period that the SHARP certification is valid.

## **Cooperative Programs**

OSHA offers cooperative programs under which businesses, labor groups and other organizations can work cooperatively with OSHA. To find out more about any of the following programs, visit www.osha.gov/cooperativeprograms.

## Strategic Partnerships and Alliances

The OSHA Strategic Partnerships (OSP) provide the opportunity for OSHA to partner with employers, workers, professional or trade associations, labor organizations, and/or other interested stakeholders. Through the Alliance Program, OSHA works with groups to develop compliance assistance tools and resources to share with workers and employers, and educate workers and employers about their rights and responsibilities.

## Voluntary Protection Programs (VPP)

The VPP recognize employers and workers in the private sector and federal agencies who have implemented effective safety and health programs and maintain injury and illness rates below the national average for their respective industries.

## **Occupational Safety and Health Training**

OSHA partners with 26 OSHA Training Institute Education Centers at 37 locations throughout the United States to deliver courses on OSHA standards and occupational safety and health topics to thousands of students a year. For more information on training courses, visit www.osha.gov/otiec.

#### **OSHA Educational Materials**

OSHA has many types of educational materials to assist employers and workers in finding and preventing workplace hazards.

All OSHA publications are free at www.osha.gov/publications and www.osha.gov/ebooks. You can also call 1-800-321-OSHA (6742) to order publications.

Employers and safety and health professionals can sign-up for *QuickTakes*, OSHA's free, twice-monthly online newsletter with the latest news about OSHA initiatives and products to assist in finding and preventing workplace hazards. To sign up, visit www.osha.gov/quicktakes.

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## **Region 2**

New York Regional Office (NJ\*, NY\*, PR\*, VI\*) Federal Building 201 Varick Street, Room 670 New York, NY 10014 (212) 337-2378 (212) 337-2371 Fax

## Region 3

Philadelphia Regional Office (DE, DC, MD\*, PA, VA\*, WV) The Curtis Center 170 S. Independence Mall West, Suite 740 West Philadelphia, PA 19106-3309 (215) 861-4900 (215) 861-4904 Fax

#### Region 4

Atlanta Regional Office (AL, FL, GA, KY\*, MS, NC\*, SC\*, TN\*) Sam Nunn Atlanta Federal Center 61 Forsyth Street, SW, Room 6T50 Atlanta, GA 30303 (678) 237-0400 (678) 237-0447 Fax

#### Region 5

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#### Region 10

Seattle Regional Office (AK\*, ID, OR\*, WA\*) Fifth & Yesler Tower 300 Fifth Avenue, Suite 1280 Seattle, WA 98104 (206) 757-6700 (206) 757-6705 Fax

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## **How to Contact OSHA**

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to help ensure these conditions for America's working men and women by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

For assistance, contact us. We are OSHA. We can help.





U.S. Department of Labor

#### For more information:





# Health and Safety Plan CRT Material Removal and Building Remediation

Former Closed Loop Facility 1655 and 1675 Watkins Road Columbus, Ohio

PREPARED FOR: Garrison Southfield Park LLC

c/o Karl R. Heisler King & Spalding LLP

353 N Clark Street, 12th Floor

Chicago, IL 60654

**PREPARED BY:** AKT Peerless Environmental Services, LLC

30675 Solon Road, Suite 101

Solon, Ohio 44139

**PROJECT NUMBER:** 1375302

**REPORT DATE:** February 5, 2020

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Incident/Accident/Exposure Report Form

Inspection Form

Site Safety Meeting Record Form, Checklist, and Equipment Pre-Operation



**Table 1A: Emergency Response Telephone Roster** 

| PERSONNEL                                                                        | Office                 | Cell         |
|----------------------------------------------------------------------------------|------------------------|--------------|
| AKT Peerless Environmental Services, LLC (Environmental Consultant)              |                        |              |
| Site Manager: Jaroslaw Kaminski                                                  | 248-615-1333           | 440-251-5377 |
| Site Manager: Elias Rogatz                                                       | 248-615-1333           | 440-799-0006 |
| Health & Safety Coordinator: Jaroslaw Kaminski                                   | 248-615-1333           | 440-251-5377 |
| Health & Safety Director: Karl Primdahl                                          | 989-754-9896           | 989-239-0255 |
| Jones Lang LaSalle (Property Management Company)                                 |                        |              |
| Building Manager: Bill Pratt                                                     | 614-460-4405           | 614-309-7361 |
| Building Management Coordinator: Kelly Tamulonis                                 | 614-460-4405           | 614-390-9708 |
| Garrison Southfield Park LLC (Property and Building Owner)                       |                        |              |
| Building Owner Contact: Kristi Mazejy                                            | 212-372-9566           | 201-410-3363 |
| EMERGENCY RESPONSE AGENCIES                                                      | 911                    |              |
| Hospital: Grant Medical Center                                                   | 911 or<br>614-566-9000 |              |
| Fire Department: Columbus Fire Station 22                                        | 911 or<br>614-221-3132 |              |
| Police Department: Columbus Police                                               | 911 or<br>614-645-4545 |              |
| Health Department: Franklin County Health & Wellness Center                      | 911 or<br>614-645-3131 |              |
| Ambulance Service: Life Medical Response                                         | 911 or<br>614-469-8300 |              |
| Other:                                                                           |                        |              |
| OTHER EMERGENCY ASSISTANCE                                                       | 911                    |              |
| CHEMTREC (24 Hours)                                                              | 800-424-9300           |              |
| National Response Center (Oil and Chemical Spills)                               | 800-424-8802           |              |
| Poison Control Center                                                            | 614-228-1323           |              |
| U.S. Department of Transportation (Office of Hazardous Materials Transportation) | 202-366-4488           |              |
| U.S. Environmental Protection Agency (Region 5)                                  | 312-353-2000           |              |
| Ohio Environmental Protection Agency (Central District Office)                   | 614-644-2270           |              |



## **Table 1B: Emergency Services Instructions**

For Emergency Medical Incidents, Emergency Fire Response, or Hazardous Materials Incidents

## **Emergency Telephone Numbers:**

Hospital: 911Police: 911

Fire Department: 911

- 1. Remember to speak SLOWLY and CLEARLY. Do NOT hang up first: let the dispatcher conclude the call.
- 2. Provide the following information:
  - A Your location: 1655 & 1675 Watkins Road, Columbus, Ohio
  - B. Your name and phone number
- 3. Describe nature of Incident:
  - A. Emergency Medical Incident
    - How many victims
    - Type of incident physical injury, etc.
    - Assessment of victims' condition if known (whether victim is conscious/unconscious, breathing/not breathing, pulse/no pulse, nature of injuries, first aid measures used, etc.)
    - Where incident occurred
  - B. Fire:
    - Location of Fire
    - Injured or Trapped On-site Personnel
  - C. Hazardous Materials Incident:
    - This is a hazardous materials incident requiring dispatch of HAZMAT unit
    - Type of incident (fire, explosion, spill, etc.)
    - Type of material (specific chemicals or general description)
    - Whether there is also a Medical Emergency
- 4. Give your location at the site

Note: Security, Site Supervisor or designee must meet the emergency personnel at the staging area to brief them on the situation.



## Figure 1: Route Description and Map to Hospital

## **Hospital Information:**

**Hospital Name: Grant Medical Center** 

Hospital Address: 111 South Grand Avenue, Columbus, Ohio

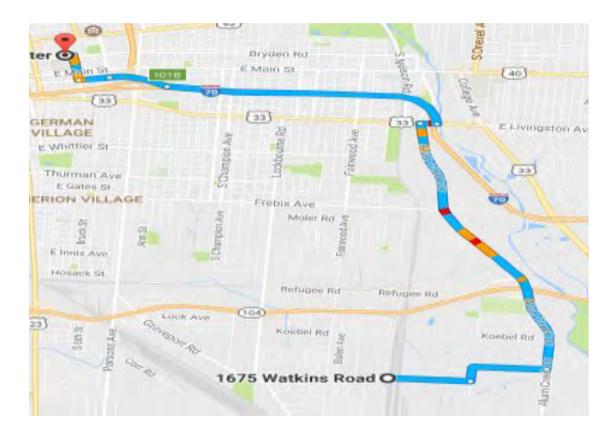
**Hospital Phone Number: 614-566-9000** 

## **Directions to Area Hospital:**

Follow Watkins Road to Alum Creek Drive

| • | Head east on Watkins Road toward New World Drive                     | go 0.6 mi |
|---|----------------------------------------------------------------------|-----------|
| • | Turn Left to stay on Watkins Road                                    | go 0.7 mi |
|   | Continue on Alum Creek Drive – Take I-70 West to South Grant Avenue. |           |
| • | Turn left onto Alum Creek Drive                                      | go 3.2 mi |
| • | Turn right onto East Livingston Avenue                               | go 0.1 mi |
| • | Turn left to merge onto I-70 West toward Downtown                    | go 2.1 mi |
| • | Take exit 101B toward Hospital/Downtown                              | go 0.4 mi |
| • | Continue onto East Mound Street                                      | go 0.2 mi |
| • | Turn right onto Grant Avenue                                         | go 0.3 mi |
|   |                                                                      |           |

End: 111 South Grant Avenue, Columbus, OH (Destination will be on the left)





**Table 1C: Personal Protective Equipment - Selection** 

| Site Teek Descriptions               | Level of Protection Required |   |             |       |   |  |
|--------------------------------------|------------------------------|---|-------------|-------|---|--|
| Site Task Descriptions               | Α                            | В | С           | Mod D | D |  |
| Site Inspection/Testing and Visitors |                              |   | $\boxtimes$ |       |   |  |
| Site Maintenance                     |                              |   | $\boxtimes$ |       |   |  |
| CRT Material Removal                 |                              |   |             |       |   |  |
| Equipment Removal                    |                              |   |             |       |   |  |
| Building Remediation                 |                              |   |             |       |   |  |

Site Specific Personal Protective Equipment (PPE), based on potential exposure hazards, has been determined to be Level C for all personnel entering the Exclusion Zone.

**Level C Protection:** Inclusive of Level D (Modified) protection plus negative pressure half face respiratory protection with appropriate cartridges, i.e., particulate P100 or equivalent; chemical protective coveralls in lieu of general coveralls; use of inner and outer sets of hand protection.

Site-specific PPE and on-site supply requirements are detailed in the following **Table 1D**.

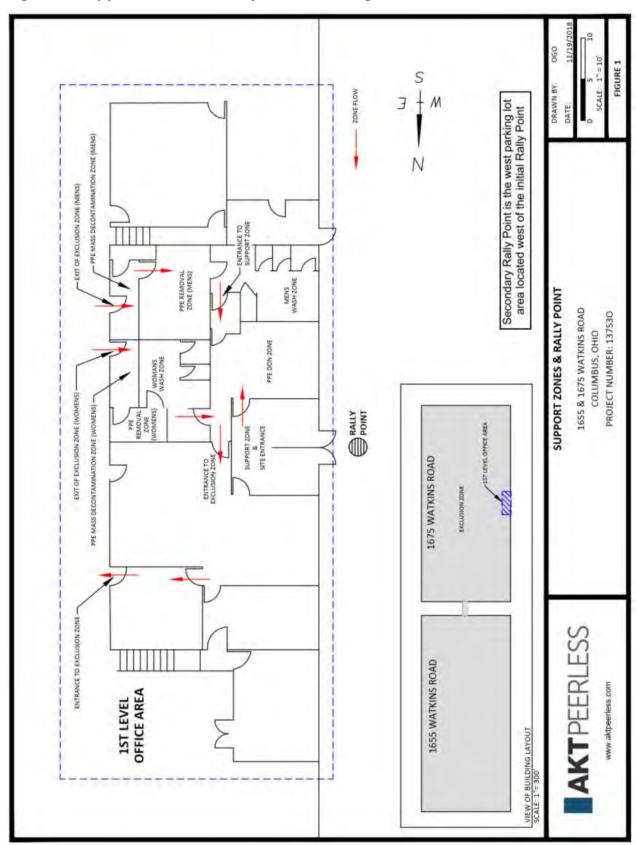
**Table 1D - Project Specific Personal Protective Equipment and Supplies** 

| Equipment                                                | Req         | Rec      | NA Equipment |                                                                                | Req         | Rec | NA          |
|----------------------------------------------------------|-------------|----------|--------------|--------------------------------------------------------------------------------|-------------|-----|-------------|
| Steel-Toe Boots                                          | $\boxtimes$ |          |              | SCBA                                                                           |             |     | $\boxtimes$ |
| Outer Disposable Boots                                   | $\boxtimes$ |          |              | Full-face Airline Resp.                                                        |             |     | $\boxtimes$ |
| Long Sleeve Shirt and Pants                              |             |          |              | Full Face Negative Pressure Resp.                                              |             |     |             |
| Flame Retardant Coveralls                                |             |          |              | Half Face Negative Pressure<br>Respirator w/ P100 Cartridge<br>(or equivalent) |             |     |             |
| Tyvek Suit (or equivalent)                               | $\times$    |          |              | Powered Air Purifying Resp                                                     |             |     | $\square$   |
| Poly-coated Tyvek / Saranex Suit                         |             |          | $\boxtimes$  | First Aid Kit                                                                  | $\boxtimes$ |     |             |
| Fully Encapsulated Chemical Suit                         |             |          | $\boxtimes$  | Fire Extinguisher                                                              | $\boxtimes$ |     |             |
| Hearing Protection                                       |             | $\times$ |              | Communication (Call Phones                                                     |             |     |             |
| Task Appropriate Gloves Work Gloves, Impact Gloves, etc. |             |          |              | Communication (Cell Phones or Walkie Talkies)                                  |             |     |             |
| Inner Chemical Gloves<br>Latex or nitrile                |             |          |              | Eye Wash (e.g., portable bottle)                                               |             |     |             |
| Outer Chemical Gloves<br>Latex or Nitrile                |             |          |              | Water or Other Fluid<br>Replenishment                                          |             |     |             |
| Hard Hat                                                 | $\boxtimes$ |          |              | Sunscreen                                                                      |             |     | $\boxtimes$ |
| Safety Glasses with Side Shields                         | $\boxtimes$ |          |              | Insect Repellent                                                               |             |     | $\boxtimes$ |
| Vented (Splash proof) Goggles                            |             |          | X            | Personal Fall Arrest System,                                                   |             |     |             |
| High Visibility Clothing                                 |             |          |              | Full Body Harness with Self-<br>Retracting Lanyard (Task<br>Specific)          |             |     |             |

Key: Req = Required; Rec = Recommended; NA = Not Applicable

## **AKT**PEERLESS

Figure 2: Support Zone and Rally Point Drawing





## **Health & Safety Plan Review and Approval**

The Health and Safety Plan presented herein has been prepared on behalf of Garrison Southfield Park LLC for the sole purpose to protect those individuals (i.e., AKT Peerless, Garrison Southfield Park LLC, Jones LaSalle, contractors, subcontractors, and visitors) associated in the performance of CRT-related material removal activities, building remediation, and site-specific tasks (i.e., site inspection, site maintenance and site stabilization) for the Former Closed Loop facility and premises located at 1655 & 1675 Watkins Road, Columbus, Ohio.

By signing below, it is acknowledged that this Health and Safety Plan (HASP) identifies the activities that are anticipated to be performed at the site. In addition, this HASP identifies the personal protective and monitoring equipment that may be necessary to be on-site. It is also understood that the provisions of this HASP will be updated if there is a change of a task and/or the addition of tasks and will be approved by the individuals listed below or their designee.

| Jaroslaw Kaminski<br>Site Manager                | Signature | 02/05/2020<br>Date |
|--------------------------------------------------|-----------|--------------------|
| Elias Rogatz<br>Site Manager                     | EZ: Rogel | 02/05/2020<br>Date |
| Jaroslaw Kaminski<br>Health & Safety Coordinator | Signature | 02/05/2020<br>Date |
| Karl Primdahl<br>Health & Safety Director        | Signature | 02/05/2020<br>Date |



## **Health & Safety Plan Acknowledgement Signatures**

All project personnel must sign indicating they have read and understand the HASP. Signing of this sheet attests that the HASP has been made available and reviewed by the individual prior to entry into the site. All contractors and subcontractors must also comply with applicable federal, state, and local regulations. Insert additional signature pages as needed.

| Name / Job Title | Company | Date | Signature |
|------------------|---------|------|-----------|
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|                  |         |      |           |



## 1 Introduction

This Health and Safety Plan (HASP) was prepared to inform all personnel (i.e., AKT Peerless Environmental Services, LLC (AKT Peerless); Garrison Southfield Park LLC (Garrison); Jones Lang LaSalle (JLL); consultants, contractors, and visitors thereof) associated with work activities at the Former Closed Loop facility of known or reasonably anticipated potential hazards and safety concerns for the facility located at 1655 & 1675 Watkins Road, Columbus, Ohio (site). All personnel participating in on-site activities must be trained in the general and specific hazards unique to the job they are performing and, if applicable, meet all required medical examination and/or training requirements identified in this HASP and their employer's criteria. All associated personnel shall follow the guidelines, rules, and procedures contained in this site-specific HASP. All personnel shall contact the Project Manager if unexpected conditions are encountered at the site, including but not limited to new processes; changes in operation, products, services; additional or changes in the chemicals of concern; and/or unsafe conditions are encountered which were not previously addressed in this HASP.

All personnel participating in on-site activities shall be expected to review and understand the hazards, risks, and control methods (including emergency procedures) as outlined in this HASP and sign off on the HASP acknowledging a copy of this HASP has been provided to them and its conditions and requirements are understood (Section 14).

Relevant contractor or subcontractor information regarding the identification of hazards and appropriate control strategies for the hazards associated with their particular work activities should be communicated to AKT Peerless or Garrison representatives prior to beginning on-site activities. Any additional site-specific HASPs prepared by contractors or subcontractors must be equally as stringent as this HASP. Copies of site-specific HASPs prepared by contractors or subcontractors must be provided to AKT Peerless and/or Garrison for review and approval, prior to starting work at the site. Each contractor or subcontractor must assume direct responsibility for its own personnel health and safety.

A copy of this HASP will be kept on-site for review and reference during all site activities. Upon completion of the project, the finalized and signed copy of the HASP will be placed in the project file.

When retaining and working with subcontractors, the following minimum requirements shall be met:

- A properly executed Contractor/Subcontractor Terms and Conditions (T&C) agreement in place prior to commencing work on-site;
- Insurance policies and limits are acceptable to all parties involved and all applicable Insurance
   Certificates are properly executed (i.e., Garrison being named as additionally insured under such
   policies, including Professional and Pollution Liability, if applicable); and
- The roles and responsibilities of the subcontractor have been established, including the naming of the Health and Safety point of contact.

#### 1.1 Site Description

The site is comprised of two commercial warehouse buildings, 1655 and 1675 Watkins Road, each of which were formerly leased to an e-waste recycling company, Closed Loop Refining and Recovery, Inc. Building 1655 is approximately 218,000 square feet in size. Closed Loop previously occupied the southern 145,000 square foot portion of this building. Building 1675 is approximately 290,000 square feet is size and was solely occupied by Closed Loop.



#### 1.2 Site History

Based on available information, Closed Loop operated as an e-waste recycler in the two buildings referenced above from approximately 2012 to March 2016. Closed Loop previously accepted electronic e-wastes including cathode ray tubes (CRTs), flat-screen displays, projection televisions, and other electronic waste for disassembly and recycling. Primary operations included mechanical dismantling of CRTs, which involved manual separation of plastic and precious metals from the glass CRTs. Secondary operations included the mechanical crushing of the glass components. Segregated plastics, metals, and crushed glass were then re-packaged into cardboard gaylord containers and stored at the site.

In the spring of 2016, when Closed Loop abandoned the site, nearly all of their unprocessed or partially processed e-waste was left behind. Both buildings are approximately 90% full of e-waste and e-waste containers (cardboard gaylord containers) that are predominately stacked on top of each other two or three high. Additionally, it appears the CRT glass crushing operations conducted by Closed Loop within the 1675 building was not operating with adequate dust control systems that met Ohio Environmental Protection Agency (EPA) (i.e., Ohio Code – OAC 3745-31-02 and -03, Air Permitting) or United States EPA (USEPA) [i.e., 40 Code of Federal Regulations (CFR) 51, 52, 63, and 70 National Emission Standards for Hazardous Air Pollutants] standards. Therefore, heavy dust residue is present throughout the facility.

## 1.3 Scope and Applicability

This HASP addresses activities to be conducted at the site to remove unprocessed CRTs, partially processed CRT (crushed CRT glass), CRT-related materials, and decontamination of the building interiors. If necessary, addendums will be added to this HASP to address activities at the site as they develop in the future.

AKT Peerless views the implementation of a site-specific HASP as a critical management tool necessary to the safety, health, and well-being of all associated site personnel and the community. Site operations will be performed in such a manner as to minimize the possibility of serious injury or accidents to site personnel, fire, explosion, or any unplanned or sudden release of contaminants into the environment that could adversely affect local receptors. This HASP is intended to be in compliance with all applicable state, federal and local regulations and is consistent with AKT Peerless' commitment to the health and safety.

The HASP identifies potential hazards associated with the activities being conducted during activities at the site, establishes the procedural and equipment requirements to protect on-site personnel from potential hazards, and requires that on-site activities are conducted in a manner consistent with both accepted professional practice and applicable regulations. It also describes measures to minimize accidents and injuries that may occur during normal daily activities or during adverse conditions.

The HASP is based upon current available information regarding the site and specific work activities anticipated to be completed at the time this HASP was prepared. Operating conditions could potentially change as the work progresses, requiring some modification of the HASP. Any permanent modifications to the HASP, including changes necessary to correct any potential health and safety issues at the site will be made only with permission by those individuals listed in Section 1 of this HASP. Approved changes will be added to the HASP as Addendums.

Applicability of this HASP extends to all site personnel and visitors to the site. All personnel participating in on-site activities shall be expected to review and understand the hazards, risks, and control methods



(including emergency procedures) as outlined in this HASP and sign off on the HASP acknowledging a copy of this HASP has been provided to them and its conditions and requirements are understood.

## 1.4 Project Specific Work Activities

The on-site project specific work activities include the removal of CRT materials and the remediation of the buildings. These activities have been divided into three separate phases of site work. Phase I consists of the removal of unprocessed CRTs and CRT-related materials located in buildings 1655 and 1675 Watkins Road. Phase II consists of the removal of partially processed CRTs (crushed CRT glass) located in building 1675 Watkins Road. Phase III consists of the removal of Closed Loop operating equipment and decontamination activities associated with both buildings, after all of the CRT materials have been removed from the buildings.

## 1.4.1 Phase I and II – Removal of CRT Materials

The principal components of the on-site activities associated with both Phase I and Phase II are as follows:

- Task 1 Construction of Dust Control Containment Structures
- Task 2 Movement and Relocation of CRT Materials
- Task 3 Evaluation of CRT Material Container Condition
- Task 4 Decontamination of CRT Material Containers
- Task 5 Preparation of CRT Material Containers for Shipping
- Task 6 Transfer of CRT Materials to the Designated Loading Zone for Shipment
- Task 7 Daily Cleaning of Work Areas
- Task 8 Final Equipment Decontamination

Each of these Tasks are further described as follows:

## Task 1 - Construction of Dust Control Containment Structures

This task includes the construction of dust control containment structures in designated loading zones inside the buildings where CRT materials will be loaded out through loading docks or ground-level bay doors for off-site recycling and/or disposal. Prior to the construction of containment structures, the work areas associated with the structures must be decontaminated per the site-specific Closure Plan. The construction activities associated with this task will include the construction of temporary containment structure walls, the installation of plastic sheeting and plywood, the use of forklifts, scissor lifts, and/or elevated platforms, and installation of negative air machines.

Refer to the applicable Job Hazard Analysis (JHAs) contained in Appendix A, construction specifications for site-specific dust containment structures, and applicable sections of the Closure Plan.

## Task 2 – Movement and Relocation of CRT Gaylords

This task includes the relocation and movement of CRT materials and CRT containers along with the safe operation of forklifts. This task includes, but is not limited to, the following:



- Forklift Operation and Movement of CRT Containers and Materials.
  - o Forklift Inspections.
  - Safe Operation of Forklifts.
  - Forklift Violations.
- Relocation of Gaylords in Poor Condition or near Collapse.

Refer to the established guidelines, procedures, protocols and methods of the Standard Operation Procedure 1.0 (SOP 1.0) – Section 2.0 contained in Appendix B, applicable JHAs included in Appendix A, and applicable sections of the Closure Plan.

#### Task 3 – Evaluation of CRT Material Container Condition

This task includes the inspection of the condition of CRT material containers for shipping, re-packaging, and the disposal of emptied unusable Gaylord containers. This task includes, but is not limited to, the following:

- Inspection of CRT material containers.
- Repackaging of CRT Materials in New Gaylords.
- Disposal of Emptied, Unusable Gaylords.

Refer to the established guidelines, procedures, protocols and methods of SOP 1.0 – Section 3.0 contained in Appendix B, applicable JHAs included in Appendix A, and applicable sections of the Closure Plan.

#### <u>Task 4 – Decontamination of CRT Material Containers</u>

This task includes the cleaning of CRT material containers with CRT materials or palletized CRT materials wrapped in stretch film to be shipped off-site for recycling and/or disposal. The inspection and cleaning of accumulated dust on containers shall be completed in designated processing areas for cleaning and re-packaging. This task includes, but is not limited to, the following:

- Inspection for Accumulated Dust on CRT Containers and Their Contents.
- High Efficiency Particulate Air (HEPA) Vacuuming Lead-Containing Dust Off of Containers, Exposed CRT Materials, Stretch Film Wrapped CRT Materials, and Wood Pallets.
- HEPA Vacuum Maintenance and Filter/Dust Disposal.

Refer to the established guidelines, procedures, protocols and methods of SOP 1.0 – Section 4.0 contained in Appendix B, applicable JHAs included in Appendix A, and applicable sections of the Closure Plan.

## <u>Task 5 – Preparation of CRT Material Containers for Shipping</u>

This task includes preparing CRT material containers and/or palletized CRT materials for shipping off-site for recycling and/or disposal in accordance with Ohio Administrative Code 3745-51-39 (A)(3). The steps presented below shall be completed after CRT material containers or palletized CRT materials have been thoroughly cleaned of dust. All of the steps outlined in this section shall be completed in designated processing areas for shipment preparation. This task includes, but is not limited to, the following:



- Stretch Film Wrapping and Banding
- Weighing and Labeling CRT Materials for Shipping

Refer to the established guidelines, procedures, protocols and methods of SOP 1.0 – Section 5.0 contained in Appendix B, applicable JHAs included in Appendix A, and applicable sections of the Closure Plan.

## Task 6 – Transfer of CRT Materials to the Designated Loading Zone for Shipment

This task includes transferring CRT material containers and/or palletized CRT materials into the Contaminant Reduction Zone (CRZ) chamber and restricted Clean Loading Zone (CLZ) chamber to load trucks for off-site recycling and/or disposal. This task includes, but is not limited to, the following:

- Loading Trucks Through CRZ and CLZ Chambers
- Double Stacking of CRT Gaylords Containers

Refer to the established guidelines, procedures, protocols and methods of SOP 1.0 – Section 6.0 contained in Appendix B, applicable JHAs included in Appendix A, and applicable sections of the Closure Plan.

## Task 7 – Daily Cleaning of Work Areas

This task includes the periodic cleaning of work areas throughout the removal of CRT materials from the site. Periodic cleaning is to be completed on a daily basis to reduce dust contamination from becoming airborne and spreading throughout the interior of the buildings. This task includes, but is not limited to, the following:

- Cleaning of Dust and Debris in Work Areas
- Disposal of Collected Dust and Debris

Refer to the established guidelines, procedures, protocols and methods of SOP 1.0 – Section 8.0 contained in Appendix B, applicable JHAs included in Appendix A, and applicable sections of the Closure Plan.

## <u>Task 8 - Final Equipment Decontamination</u>

This task includes the decontamination of equipment utilized in the Exclusion Zone, prior to the equipment being removed from the site. This task includes, but is not limited to, the following:

- Decontamination Procedures
- Disposal of Decontamination Waste
- Equipment Load Out

Refer to the established guidelines, procedures, protocols and methods of SOP 1.0 – Section 10.0 contained in Appendix B, applicable JHAs included in Appendix A, and applicable sections of the Closure Plan.



## 1.4.2 Phase III – Closed Loop Equipment Removal and Building Decontamination

Phase III activities will be completed after all CRT materials and CRT-related materials have been removed from the buildings. Phase III consists of the Closed Loop equipment decommissioning, decontamination, and removal activities and building decontamination activities.

## Task 9 – Closed Loop Equipment

This task includes the decommissioning, decontamination, and removal of Closed Loop equipment and non-CRT related materials (i.e. CRT crusher, conveyors, work tables, metal hoppers, tools, card board bailer, etc.). This task includes, but is not limited to, the following:

- Equipment Dismantling
- Equipment Decontamination
- Equipment Removal Activities

Refer to the applicable guidelines, procedures, protocols and methods of the Closure Plan and applicable JHAs included in Appendix A.

## <u>Task 10 – Building Decontamination</u>

This task includes the decontamination of lead dust throughout the interior of the buildings. This task includes, but is not limited to, the following:

- Demolition, characterization, and removal of select building materials (i.e. select non-structural drywall partition walls, carpeting, select HVAC components, acoustical ceiling tiles, etc.).
- Decontamination of all surfaces inside the building including ceilings, walls, floors, structural supports, roof supports, heating units, utility piping, lighting, etc.
- Containerizing decontamination wastes.
- Waste Characterization.
- Removal of decontamination wastes for off-site disposal.

Refer to the applicable guidelines, procedures, protocols and methods of the Closure Plan and applicable JHAs included in Appendix A.

## <u>Task 11 - Final Equipment Decontamination</u>

This task includes the decontamination of equipment utilized in the Exclusion Zone during building decontamination, prior to the equipment being removed from the site. This task includes, but is not limited to, the following:

- Decontamination Procedures
- Disposal of Decontamination Waste
- Equipment Load Out

Refer to the established guidelines, procedures, protocols and methods of SOP 1.0 – Section 10.0 contained in Appendix B, applicable JHAs included in Appendix A, and applicable sections of the Closure Plan.



Phase III work activities will utilize industrial tools, forklifts, platform lifts and decontamination equipment. The decontamination processes will include, but not be limited to, HEPA vacuuming, wet cleaning methods, hand cleaning with solvent-soaked launderable or disposable wipes, and the use of high pressure/low volume pressure washing.

Refer to the applicable guidelines, procedures, protocols and methods of the Closure Plan and applicable JHAs included in Appendix A.

## 1.5 Applicable Standards

The methods and procedures prescribed in this HASP are intended to conform to established professional practices and applicable federal, state, and local occupational safety and health protection standards based on information that is currently available. Regulations serving as the technical compliance basis for this document may include but are not limited to the following:

- U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) Standards for Construction (29 CFR 1926).
  - Hazardous Waste Operations and Emergency Response (29 CFR 1926.65)
  - Hearing Protection (29 CFR 1926.101 and 29 CFR 1926.52)
  - Eye and Face Protection (29 CFR 1926.102)
  - Respiratory Protection (29 CFR 1926.103)
  - Working Over or Near Water (29 CFR 1926.106)
  - Material Handling Equipment (29 CFR 1926.602)
- U.S. Department of Labor, OSHA Standards for General Industry (29 CFR 1910).
  - Hazardous Waste Operations and Emergency Response (29 CFR 1910.120)
  - PPE General Requirements (29 CFR 1910.132)
  - Eye and Face Protection (29 CFR 1910.133)
  - Respiratory Protection (29 CFR 1910.134)
  - Head Protection (29 CFR 1910.135)
  - Foot Protection (29 CFR 1910.136)
  - Hand Protection (29 CFR 1910.138)
  - Medical Services and First Aid (29 CFR 1910.151)
  - Portable Fire Extinguishers (29 CFR 1910.157)
  - Hazard Communication Standard (29 CFR 1910.1200)
- U.S. Department of Labor, Recording and Reporting Occupational Injuries and Illnesses, (29 CFR 1904).



The following technical documents may have been utilized as references in the preparation of this HASP. However, the citation of these technical documents does not imply compliance with all aspects of these documents. The purpose of these citations is to aid in the interpretation of conflicting issues that may arise during the performance of site activities. The following technical documents may include but are not limited to:

- National Institute for Occupational Safety & Health (NIOSH)/OSHA/United States Coast Guard (USCG)/USEPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, (October 1985).
- U.S. Department of Health and Human Services (DHHS), NIOSH Sampling and Analytical Methods, DHHS (NIOSH) Publication 84-100.
- American National Standards Institute (ANSI), Emergency Eyewash and Shower Equipment, Z358.1 (1981).
- ANSI, Protective Footwear, Z41.1 (1983).
- ANSI, Practice for Occupational and Educational Eye and Face Protection, Z87.1 (1979).
- ANSI, Protective Headgear for Industrial Workers Requirements, Z89.1 (1986).



## 2 Identification of Key Personnel

An efficient on-site operation requires that all key personnel be identified and that their roles and responsibilities be clearly defined. Below is a discussion of the management structure for this project.

## 2.1 Project Organization

AKT Peerless (or Garrison appointed representatives) will serve as the Project Coordinator for the site. The Project Coordinator is responsible for monitoring activities conducted by all site personnel, contractors, and subcontractors at the site. The Project Coordinator is responsible for monitoring compliance with this HASP. As part of AKT Peerless' role as Project Coordinator, AKT Peerless will check that all site workers are aware of the HASP and its requirements.

Any additional site-specific HASPs prepared by contractors or subcontractors must be equally as stringent as this HASP. Copies of site-specific HASPs prepared contractors or subcontractors must be provided to AKT Peerless and/or Garrison for review and approval, prior to starting work at the site.

#### 2.2 AKT Peerless Personnel

AKT Peerless project team members are defined in Table 2, located at the end of this section. The applicable responsibilities for these individuals are as follows:

## 2.2.1 Health and Safety Coordinator

The Health and Safety Coordinator (HSC) is responsible for the development of the site-specific hazard assessments and control mechanisms. The HSC will be consulted with if any changes / modifications / additions may need to occur to the HASP. The HSC will make all final decisions regarding questions on the hazard assessment and/or the control mechanisms.

Furthermore, responsibilities will include the overall coordination of site activities with respect to the protocols outlined under this HASP. The HSC has overall accountability and responsibility for monitoring compliance with this HASP and for monitoring compliance with the approved work plans. The HSC will recommend or provide disciplinary action, as appropriate, if non-compliances occur. For HASP related items, the HSC will also provide the focal point for communications between the regulatory authorities; state and local community, on-site contractors, and project staff. This liaison activity will provide a clear line of communication between all parties to minimize the chance for misconceptions concerning project tasks and HASP compliance.

Any and all recommended revisions or changes to the HASP will be reviewed by the Site Managers (SMs) prior to final approval by the HSC. In the event of an emergency, the HSC will also function as the Emergency Response Coordinator and will implement, and coordinate emergency response procedures described in this HASP.

#### 2.2.2 Site Manager

The Site Manager (SM) is responsible for overseeing day-to-day site activities performed by all site workers, contractors, and subcontractors. The principal responsibility of the SM will be to coordinate and document all on-site work necessary to fulfill approved Tasks.

The SM reports to the HSC. The SM is responsible for monitoring compliance with all aspects of the HASP which include, but are not limited to, safe work practices, site access controls, work safety zones, proper personal protective equipment (PPE), review planned site activities, implement safety



procedures necessary to complete work safely, perform daily safety briefings, assist in on-site emergencies, and act as technical liaison to the HSC. The SM will report all site-related injuries to the HSC and to any other necessary authorities. The SM will check that all site personnel understand their respective emergency response duties. In the instance of any emergency or non-emergency incidents concerning site personnel, the SM will be contacted and will be responsible for communicating any information regarding site safety conditions to rescue or emergency personnel. The SM will ensure that all activities at the site comply with the approved HASP.

Any person working on-site has the authority to **stop work** if any operation threatens the health and safety of on-site workers or the surrounding community. In the event that such a situation occurs, the SM shall be notified immediately. At that time, the SM will update the HSC and all project-related health and safety issues as they arise.

As deemed appropriate, the SM will be certified in first aid and cardiopulmonary resuscitation (CPR) by the American Red Cross, or equivalent. Furthermore, the SM will be HAZWOPER trained for site work in accordance with applicable regulations and participate in a medical surveillance program.

#### 2.2.3 Other Personnel

If needed, all contractors and subcontractors shall prepare their own company HASP which shall specifically govern the work performed by its personnel. The contractor or subcontractor's HASP shall be in conformance with AKT Peerless' HASP.

All subcontractors will also provide an appointed health and safety officer, per employer policy, who will assist the SM. It is the employer's responsibility to ensure that their personnel have received appropriate health and safety training and are participating in a medical surveillance program per the employer's criteria.

**Table 2: Personnel Contact Information** 

| Personnel Telephone Roster                 |                   |              |              |  |  |  |
|--------------------------------------------|-------------------|--------------|--------------|--|--|--|
| Company/Title                              | Personnel         | Office       | Cell         |  |  |  |
| AKT Peerless Site Manager                  | Jaroslaw Kaminski | 248-615-1333 | 440-251-5377 |  |  |  |
| AKT Peerless Site Manager                  | Elias Rogatz      | 248-615-1333 | 440-799-0006 |  |  |  |
| AKT Peerless Health and Safety Coordinator | Jaroslaw Kaminski | 248-615-1333 | 440-251-5377 |  |  |  |
| AKT Peerless Health & Safety Director      | Karl Primdahl     | 989-754-9896 | 989-239-0255 |  |  |  |
| JLL Property Manager                       | Bill Pratt        | 614-460-4405 | 614-309-7361 |  |  |  |
| Site Owner/Client Contact                  | Kristi Mazejy     | 212-372-9566 | 201-410-3363 |  |  |  |



# 3 Hazard Evaluation

The Project Hazard Analysis below identifies the hazards anticipated to be encountered by project personnel based on the tasks presented in Section 1.4.

**Table 3: Project Hazard Analysis** 

| Chemical Hazards Present:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                 | Corrosive                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compressed gas                  | ▼ Toxic                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ☐ Explosive                     | Highly Toxic                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Organic peroxide                |                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Oxidizer                        | Sensitizer                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                 |                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Unstable reactive               | Mutagen                                    |
| None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | □ Dust/Fumes/Particulates       | Other:                                     |
| Physical Hazards Present:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                 | ☐ Ionizing radiation                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                 | Non-ionizing radiation                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Walking/working surfaces        |                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Visible Dust                    | Severe Weather                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                 | Poor lighting                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Noise                           | Overhead Hazards                           |
| None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Other:                          |                                            |
| Environmental/Mechanical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Heavy machinery/ Drill Rigs     | Cranes/Hoists/Rigging                      |
| Hazards Present:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Trenching/excavation            | <u>                                   </u> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Docks-marine operations         | Scaffolding                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Docks-loading                   | Manlifts                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Drilling                        | Gas cylinders                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Forklifts                       | Roadway work                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Operations on Water             | Railroad work                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Elevated heights (includes fall | Energized equipment (LO/TO)                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | protection)                     | Pressurized equipment (LO/TO)              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Overhead/Underground utilities  | Drums and containers                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Confined spaces                 | Others: Steam Cleaning                     |
| None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Power tools                     |                                            |
| Biological Hazards Present:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Animal/human fluids or blood    | Contaminated needles                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Animal/human tissue(s)          | Live bacterial cultures                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Poisonous/irritating plants     | Insects/rodents/snakes                     |
| None     Non | Other:                          | Other:                                     |
| Ergonomics Hazards Present:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Repetitive motion               | Limited movement                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Awkward position                | Forceful exertions                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Heavy Lifting                   | Vibration                                  |
| None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Frequent Lifting                | Other:                                     |
| Personal Safety/Security:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Personal safety                 | Personnel working early/late               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Security issue                  | Potentially dangerous wildlife             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Project site in isolated area   | Guard or stray dogs in area                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Personnel working alone         | No/limited cell phone service              |
| None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Wild/Feral Animals              | Other:                                     |



## 3.1 Site Specific Chemicals of Concern

During 2015, AECOM Technical Services, Inc. (AECOM), performed a *Baseline Environmental Conditions* and *Closure Cost Evaluation* of the subject property for Garrison. The purpose of this evaluation was to assess potential hazardous materials contained in the warehouses.

AECOM's site assessment included collection of 19 dust samples from the floor and horizontal surfaces in the 1655 and 1675 Watkins Road warehouses (eight and eleven samples respectively), for analysis of the eight RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) as totals. An additional five dust samples from the 1675 Watkins Road warehouse and four dust samples from the 1655 Watkins Road warehouse were also analyzed by the Toxicity Characteristic Leaching Procedure (TCLP) for the eight RCRA metals. Indoor airborne sampling was also performed for analysis of mercury.

A summary of the analytical results for the 1655 Watkins Road warehouse indicates:

- Lead was detected in each total dust sample at concentrations ranging from 2,300 to 13,000 milligrams per kilogram (mg/kg), exceeding the Ohio Voluntary Action Program (VAP) generic direct-contact commercial/industrial soil standard (GDCSS) of 800 mg/kg.
- Barium, cadmium, chromium, mercury, and silver were detected in each total dust sample at concentrations below their respective Ohio VAP GDCSS.
- Arsenic and selenium were not detected in total or TCLP dust samples.
- Lead was reported in three of the four TCLP dust sample results at concentrations of 92 to 180 milligrams/liter (mg/L), which exceed the characteristically hazardous concentration of 5.0 mg/L for lead.
- Remaining TCLP dust sample results were below detection limits and/or their respective characteristically hazardous concentration limits.

A summary of the analytical results for the 1675 Watkins Road warehouse indicates:

- Lead was detected in each total dust sample at concentrations ranging from 2,200 to 15,000 mg/kg, exceeding the Ohio VAP GDCSS of 800 mg/kg.
- Barium, cadmium, chromium, mercury, and silver were detected in each total dust sample at concentrations below their respective Ohio VAP GDCSS.
- With the exception of one total dust sample where total selenium was detected at a concentration below its Ohio VAP GDCSS, arsenic and selenium were not detected in total or TCLP dust samples.
- Lead was reported in all five TCLP dust samples at concentrations of 11 to 220 mg/L, which
  exceed the characteristically hazardous concentration of 5.0 mg/L for lead.
- Remaining TCLP dust sample results were below detection limits and/or their respective characteristically hazardous concentration limits.

AECOM also reported that indoor air mercury concentrations ranged from less than detection limit to 0.044 milligrams per cubic meter (mg/m³) and that mercury results were below the Occupational Safety and Health Administration permissible exposure limit of 0.10 mg/m³ (NIOSH 2015).



Based on the aforementioned analytical results, Lead (Pb) has been identified as the only chemical of concern known to be present on-site exceeding the Ohio Voluntary Action Program (VAP) standards and characteristically hazardous concentration limits.

Lead is a transitional or heavy metal at room temperature and pressure. Lead, as a basic element, can combine with various other substances to form numerous lead compounds. Occupational lead exposure is most commonly absorbed into the body by inhalation. When workers breathe in lead as a dust, fume or mist, their lungs and upper respiratory tract absorb it into their body. While inorganic lead does not readily enter the body through the skin, it can enter the body through accidental ingestion.

The OSHA standard establishes limits of exposure to lead for workers, i.e., the Permissible Exposure Level (PEL) and an Action Level (AL). The OSHA PEL and National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) set the maximum worker exposure to lead at **50 micro-grams per cubic meter (\mu g/m^3)**, averaged over an 8-hour work day. The required OSHA PEL AL for lead in general industry and the construction industry is an airborne concentration of **30**  $\mu g/m^3$ , averaged over an 8-hour work day. The PEL is reduced for shifts longer than 8 hours by the equation PEL = 400/hours worked.

Potential pathways for exposure to lead dust is inhalation and ingestion. Symptoms of exposure to lead include gastrointestinal effects, anemia, kidney disease, high blood pressure, nervous system and neurobehavioral effects, and cognitive dysfunction later in life.

Table 4 presents the affected media, known concentration, the PEL or Threshold Limit Value (TLV), and the Action Level for inorganic Lead. In addition, Appendix C contains specific hazardous property information for commonly encountered chemical hazards.

**Table 4: Chemical of Concern** 

| Chemical             | Environmental Media <sup>1</sup> | Highest Measured Site Concentrations | PEL/TLV  | PEL AL   |
|----------------------|----------------------------------|--------------------------------------|----------|----------|
| Lead (Pb), inorganic | А                                | 15,000 mg/kg<br>(non-airborne solid) | 50 μg/m³ | 30 μg/m³ |
|                      |                                  | 220 mg/L<br>(non-airborne TCLP)      |          |          |

Notes:

<sup>1</sup> Codes for environmental media: **A**=Air μg/m³: milligrams per cubic meter mg/kg: milligrams per kilogram mg/L: milligrams per liter



## 4 Hazard Controls

In order to conduct a Task in the safest possible manner, the hazard(s) associated with a Task needs to be identified so that appropriate hazard control(s) can be implemented and used by personnel conducting these Task(s). This process is called a "Job Hazard Analysis (JHA) or "Job Safety Analysis" (JSA). To aid in the JHA/JSA process, the associated Task(s) (as outlined in Section 1.4) are correlated against the anticipated hazards. A "Relative Hazard/Risk Rating" is also provided in order to identify which hazards pose the greatest risk to personnel but more importantly, what hazard controls should be implemented. Hazard Controls B1 through B15 identified below are further detailed in Appendix D. Applicable JHAs for project tasks are included in Appendix A.

**Table 5: Control of Hazards Summary** 

| Task Number(s) From Section 1.4      | Hazards                           | Relative Hazard /Risk Rating* | Hazard Controls Appendix D and/or HASP Section |
|--------------------------------------|-----------------------------------|-------------------------------|------------------------------------------------|
| 1, 2, 3, 4, 5, 6, 7, 8, 9,<br>10, 11 | Chemical                          | NA Low Medium High            | B1                                             |
| 1, 2, 3, 4, 5, 6, 7, 8, 9,<br>10, 11 | Physical                          | NA Low Medium High            | B2                                             |
| NA                                   | Railroad Safety                   | NA⊠ Low Medium High           | В3                                             |
| 1, 2, 4, 7, 8, 9, 10, 11             | Electrical<br>Hazards/Safety      | NA Low Medium High            | B4                                             |
| 1, 2, 3, 4, 5, 6, 7, 8, 9,<br>10, 11 | Fire/Explosion                    | NA Low Medium High            | B5                                             |
| 1, 2, 3, 4, 5, 6, 7, 8, 9,<br>10, 11 | Heat Stress                       | NA Low Medium High            | В6                                             |
| NA                                   | Cold Stress                       | NA Low Medium High            | B7                                             |
| NA                                   | Insects, Spiders,<br>Snakes       | NA Low Medium High            | В8                                             |
| NA                                   | Poisonous Plants                  | NA Low Medium High            | B9                                             |
| NA                                   | Personal Safety                   | NA Low Medium High            | B10                                            |
| 1, 2, 3, 4, 5, 6, 7, 8, 9,<br>10, 11 | Working Alone                     | NA Low Medium High            | B11                                            |
| NA                                   | Severe Weather                    | NA                            | B12                                            |
| 1, 2, 3, 4, 5, 6, 7, 8, 9,<br>10, 11 | Material Handling /<br>Ergonomics | NA Low Medium High            | B13                                            |
| 1, 4, 5, 7, 8, 9, 10, 11             | Power Tools                       | NA Low Medium High            | B14                                            |
| 1, 2, 4, 5, 6, 7, 8, 9, 10,<br>11    | Vehicle Use                       | NA Low Medium High            | B15                                            |
| NA                                   | Confined Space                    | NA Low Medium High            | Section 9                                      |
| NA                                   | Spills                            | NA Low Medium High            | Section 10                                     |

<sup>\*</sup>Relative Hazard/Risk Rating See Table 6

When evaluating a Task against a specific hazard, the evaluator should:

- 1. Determine how frequently you will be conducting the Task and generally be exposed to the Hazard while on-site;
- 2. Determine the duration (i.e., the amount of time) you will spend conducting the Task; and



- 3. Determine the Severity that the Task/Hazard may cause using Table 6. When assessing the severity, assume the hypothetical injury was a result of the task being conducted improperly and that PPE was <u>not</u> being worn:
  - Minimal Severity would require first aid and/or the property/equipment damage is limited to minor wear and tear, scratches, dents (still functional);
  - Moderate Severity requires professional medical attention and/or the property/equipment damage necessitates repair but not replacement; and
  - **High Severity** requires immediate medical attention/life threatening and/or the property/equipment damage is significant and requires replacement.

NOTE: A single hazard maybe listed under several Tasks. In this case, use the highest Severity ranking of the tasks evaluated as the overall ranking.

Table 6: Relative Risk Rating Decision Table

| The Hazard                                                                                      | Has No<br>Severity | Has<br>Minimal<br>Severity | Has Moderate<br>Severity | Has High<br>Severity |
|-------------------------------------------------------------------------------------------------|--------------------|----------------------------|--------------------------|----------------------|
| Is Not Present (i.e., 0% of your on-site time does not expose you to this Hazard)               | NA                 | NA                         | NA                       | NA                   |
| Is Rarely Present (i.e., <25% of your onsite time exposes you to this Hazard)                   | NA                 | LOW                        | LOW                      | MED                  |
| Is Sometimes Present (i.e., 25% - <50% of your time exposes you to this Hazard)                 | NA                 | LOW                        | MED                      | HIGH                 |
| Is Frequently to Constantly Present (i.e., 50% to 100% of your time exposes you to this Hazard) | NA                 | MED                        | HIGH                     | HIGH                 |

### 4.1 General Site Safety

All activities will be conducted in a manner that minimizes hazards and personal exposures to such hazards. The following are some general safety rules that must be followed while on-site premises:

- All personnel who perform on-site operations with the potential for exposure to hazardous substances are required to comply with this HASP's personnel training and medical monitoring requirements and meet their employer's personnel training and medical monitoring requirements.
- All hazardous substances and other residues shall be handled, transported, labeled, and disposed of
  in accordance with accepted material handling procedures.
- Personnel will wear personal protective equipment as required.
- All work on-site, will be planned and supervised by the appropriate personnel to prevent injuries.
- All injuries and accidents will be reported.
- Supervisors are required confirm that all personnel observe and obey all safety rules and regulations required for the safe conduct of work.
- Alcoholic beverages and illegal drugs will not be allowed on-site. Possession of either will be grounds for disciplinary actions.



- No person will be assigned to a task without first having been instructed on proper methods of carrying out the task.
- All posted safety signs will be obeyed.
- Space around on-site emergency and fire-fighting equipment will be kept clear.
- All trash and discarded materials will be staged in an orderly fashion and regularly removed from the site in accordance with the Closure Plan.
- Approval to perform work operations alone must be preapproved by the site SMs and a communication plan must be established.
- Smoking, eating, drinking, and chewing gum or tobacco will not be permitted within the
  contaminated work zones. Personnel will follow applicable decontamination procedures prior to
  eating, drinking, smoking, and/or and chewing gum or tobacco outside of these areas, where
  permitted.
- Personnel should keep track of weather conditions and wind direction to the extent they could affect potential exposure.
- Personnel should be alert to any abnormal behavior on the part of other workers that might indicate distress, disorientation, or other ill effects.
- Personnel should never ignore symptoms that could indicate potential exposure to chemical contaminants. These should be immediately reported to their supervisor, SMs, or the site HSC.
- Visible indicators of potentially immediate danger to life and health (IDLH) conditions include:
  - 1. Large containers and tanks that must be entered.
  - 2. Enclosed spaces or trenches that must be entered.
  - 3. Potentially explosive or flammable situations (indicated by bulging drums, effervescence, gas generation, or instrument readings).
  - 4. Extremely hazardous materials (such as cyanide, phosgene, or radiation sources).
  - 5. Visible vapor clouds.
  - 6. Areas where biological indicators such as dead animals or vegetation are located.

## 4.1.1 Phase I and II - Removal of CRT Materials

The on-site project specific work activities include the removal of CRT materials and the remediation of the buildings. Phase I consists of the removal of unprocessed CRTs and CRT-related materials located in buildings 1655 and 1675 Watkins Road. Phase II consists of the removal of partially processed CRTs (crushed CRT glass) located in building 1675 Watkins Road.

The principal components of the on-site activities associated with both Phase I and Phase II are as follows:

- Task 1 Construction of Dust Control Containment Structures
- Task 2 Movement and Relocation of CRT Materials
- Task 3 Evaluation of CRT Material Container Condition
- Task 4 Decontamination of CRT Material Containers



- Task 5 Preparation of CRT Material Containers for Shipping
- Task 6 Transfer of CRT Materials to the Designated Loading Zone for Shipment
- Task 7 Daily Cleaning of Work Areas
- Task 8 Final Equipment Decontamination

Refer to SOP 1.0 contained in Appendix B for established guidelines, procedures, protocols and methods for the removal of CRT materials from the 1655 and 1675 Watkins Road buildings. JHAs for project specific work activities have been prepared. Refer to Appendix A for JHAs applicable to project specific work activities and associated physical hazards, environmental hazards, and chemical hazards.

## 4.1.2 Phase III - Closed Loop Equipment Removal and Building Decontamination

Phase III activities will be completed after all CRT materials and CRT-related materials have been removed from the buildings.

- Task 9 Closed Loop equipment decontamination and removal
- Task 10 Building Remediation
- Task 11 Final remediation equipment decontamination and removal

Phase III work activities will utilize industrial tools, forklifts, platform lifts and decontamination equipment. The decontamination processes will include, but not be limited to the following: HEPA vacuuming, wet cleaning methods, hand cleaning with solvent-soaked launderable or disposable wipes, high pressure/low volume pressure washing, containerizing and disposing of debris, wash and rinsate water, and the demolition and removal of select building materials.

JHAs for project specific work activities have been prepared. Refer to Appendix A for JHAs applicable to project specific work activities and associated physical hazards, environmental hazards, and chemical hazards.



# 5 Personnel Training Requirements

All personnel performing on-site operations with the potential for exposure to hazardous substances or health hazards will meet the personnel training requirements set forth in this HASP, by their employer, and in accordance with applicable regulations. The training policies and procedures will ensure that personnel can recognize hazards, understand emergency response procedures, and have the knowledge necessary to enable them to perform their assigned jobs in a manner that ensures personal and public safety. It is the responsibility of all contractors and subcontractors to complete all appropriate health and safety training and participate in medical surveillance in accordance with their employer's policy prior to gaining access to on-site areas other than the Support Zone (Figure 2). If deemed appropriate, training shall include, but not be limited to, initial 40-hour health and safety training, 8-hours of annual refresher training, first aid training, and CPR certification.

## 5.1 Initial Training

# A. Basic Health and Safety Training

All personnel engaged in CRT material handling, CRT removal, and equipment and building remediation activities (all work areas excluding the Support Zone – Figure 2) will have the following training (or equivalent):

- 1. 40-hours of Hazardous Waste Operations and Emergency Response (HAZWOPER) training in accordance with OSHA standard 29 CFR Part 1910.120.
- 2. Hazard Communication training in accordance with OHSA standard 29 CFR Part 1910.1200.
- 3. Respiratory Protection training in accordance with OSHA standard 29 CFT Part 1910.134.
- 4. Lead Awareness training in accordance with OSHA standard 29 CFT 1926.62.

## B. Health and Safety Coordinator Training

All HSC's will be trained to a level required by their job function and responsibility. This will include training in implementation of HASPs and compliance with applicable health and safety requirements.

# C. First Aid and CPR Training

ALL HSC's and SM's will maintain first aid and CPR training as certified by the American Heart Association (or equivalent) to render first aid and CPR. Additionally, all on-site remediation contractor or subcontractor supervisors will maintain first aid and CPR training as certified by the American Heart Association (or equivalent) to render first aid and CPR.

## 5.2 Refresher Training

All personnel who have received 40-hours of initial health and safety training will receive 8-hours of refresher training annually, as specified in accordance with applicable regulations. Topics to be covered in this training program will include those specified in the initial 40-hour health and safety training and/or those specified in the supervisory training course, as well as a critique of incidents that could serve as training examples.

## 5.3 On-Site Training

Site-specific on-site training will be provided each day work activities are to be conducted and when the project scope is changed and/or when the hazards change.



## A. Daily Site Safety Briefings

Site safety briefings will be conducted prior to the start of each work day or work shift for personnel to discuss health and safety issues, project procedures, exposure incidents, potential up-coming changes in operations, or site conditions not accounted for in this HASP and/or more stringent contractor or subcontractor HASPs associated with this project.

Prior to each change in operation, the briefings will address PPE use and maintenance, physical safety hazards, chemical hazards, environmental hazards, decontamination procedures, and specific safety requirements associated with the new operations. If deemed appropriate, on-site personnel qualified to perform first aid and CPR will be identified. All changes in the HASP will be reviewed during the safety briefings.

A record of the daily site safety briefings will be written and signed by all participants per Section 14.0 of this HASP.

## **B.** Visitor's Briefing

Visitors will not be permitted to enter areas other than the Support Zone unless training, as described above, has been completed and deemed satisfied by the SMs and HSC. All visitors will be provided with applicable site-specific information, including but not limited to, hazard recognition, personnel hygiene, site safety rules, use of PPE, emergency response procedures, this HASP, and any site-specific hazard awareness prior to entry into the site, as applicable. Visitors requesting on-site access to areas other than the Support Zone will be required to review and sign off on the HASP to ensure understanding and compliance with the provisions in the HASP. Individuals refusing to sign off will not be allowed into areas other than the Support Zone.

### 5.4 Hazard Communication

The following procedures related to hazard communication are applicable to this site. All persons will be briefed on this program.

Compliance with the Hazard Communication Standard is required for work at this site. Personnel shall receive training for the identification of hazards associated with the materials in use and the safe use of these materials, as applicable. Any hazardous chemical products brought to the site (other than standard fuels) for use during the specified site Tasks must be reviewed by the SM or HSC. Contractors and subcontractors are responsible for having their own hazard communication program.

In addition, it is the contractor or subcontractors responsibility to identify any person who is or is expected to be directly involved with contaminated media, or materials that could reasonably lead to chemical exposure, which are subject to appropriate training and standards, including but not limited to 40-hour HAZWOPER (and 8-hour refresher training), respiratory protection, first aid, and CPR training per their employer's policy.

## 5.4.1 Container Labeling

All containers received on-site by outside contractors in completion of site-specific duties will be inspected to check for the following: (1) All containers will be clearly labeled as to the contents; (2) the appropriate hazard warnings; and (3) the name and address of the manufacturer.



All containers of waste or CRT materials for recycling or disposal must be properly labeled. Containers of CRT-related materials will be labeled as follows:

- Containers destined for recycling will be labeled in accordance with OAC 3745-51-39 (A)(2) with the following statements:
  - "Used Cathode Ray Tubes Contains Leaded Glass" or "Leaded Glass From Televisions or Computers" and
  - o "Do Not Mix With Other Glass Materials."

Containers destined for disposal as hazardous waste will be labeled and marked in accordance with OAC 3745-52-30 to 32.

Containers destined for disposal as non-hazardous or construction and demolition debris will be labeled as non-hazardous waste with the site name and address.

## 5.4.2 Personal Training & Information

Prior to starting work, each person will attend an on-site health and safety orientation and will receive information and training on the following:

- 1. An overview of the requirements contained in this HASP and the Hazard Communication Standard;
- 2. Hazardous chemicals present on-site and in their workplace operations;
- 3. Location and availability of the HASP and the hazard communication program;
- 4. How to read labels to obtain appropriate hazard information;
- 5. Locations of hazardous chemical inventory lists;
- 6. Physical and health effects of the hazardous chemicals;
- 7. Methods and observation techniques used to determine the presence or release of hazardous chemicals;
- 8. How to lessen or prevent exposure to these hazardous chemicals through usage of control/work practices and personal protective equipment; and
- 9. Emergency procedures to follow if they are exposed to these chemicals.

All contractors or subcontractors shall inform AKT Peerless and Garrison of all hazardous chemicals brought on-site to perform site specific duties.

# 5.5 Disciplinary Actions

In the event that personnel do not follow the HASP safety rules or conduct themselves in any way that is hazardous to themselves or their fellow persons, disciplinary actions will be implemented in accordance with AKT Peerless and Garrison employer policies.



## 5.6 Incident Reporting

Each contractor and subcontractor is responsible for maintaining their own personnel injury and illness records in accordance with applicable regulations. With respect to incidents, the following types of Environmental Health and Safety incidents are to be recorded and reported to the SMs and/or HSC:

- All personal injuries and illnesses that include first aid, doctor/hospital visits which may or may not
  involve restricted work and/or lost time;
- Environmental incidents and exposures, such as spills or other unplanned releases to the environment or nonconformance to operating procedures;
- All evacuations (false or real);
- Any property damage;
- Near miss incidents which could have resulted in an injury, an accident, environmental impact or significant loss of facilities;
- Public/third party liability Incidents that involve injury, illness or property damage due to the
  actions of any non-AKT Peerless and Garrison personnel arising out of, or in connection with the
  contracted scope of work, operations, products, or premises.

As a rule of thumb, all of the incident types outlined above MUST be communicated to either the SMs and the HSC immediately following the incident, either in person or via phone, e-mail, or text messaging. The contacted person will then ensure that the other core project members are informed either in person or via phone, e-mail, or text messaging, regardless of time of day. As soon as possible after the incident but no later than 72-hours after the event, the first page of the Incident Investigation Report form will be completed by the appropriate personnel (e.g., HSC) or his/her designee and sent the core project members (i.e., the SMs, HSC), for preliminary root cause analysis. The root cause analysis will not be deemed complete until input from all individuals involved in the incident, applicable witnesses, and input from the core team has been obtained. Similarly, the implementation of any corrective/preventive actions will NOT be implemented until input from the HSC (and others as necessary) has been obtained.

A copy of an Incident, Accident, Exposure report is included in Appendix H. However, a contractor or subcontractor Incident Report of equal detail may also be used.



# 6 Medical Surveillance and Recordkeeping

The goals of a medical surveillance program are to monitor the health of potentially exposed personnel through the use of medical examinations and diagnostic laboratory testing, to provide medical care for occupational injury or illness, to keep accurate records for future reference and to confirm the selection of personnel are physically able to safely perform the work assigned. The medical surveillance program supports and monitors the effectiveness of the primary health and safety goal of controlling worker exposure to hazardous substances. Medical examinations will be performed by or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine.

In general, all persons who may be exposed to hazardous substances above the permissible limits; who wear a respirator; or who are injured, become ill, or develop signs or symptoms due to possible overexposure to hazardous substances from hazardous waste operations must be medically monitored. It is the responsibility of the individual's employer to implement such a medical surveillance program to ensure the health and safety of their personnel.

### 6.1 Baseline Medical Examinations

The baseline medical examination serves two major purposes: (1) it determines the individual's fitness for duty, including the ability to work while wearing a respirator and other associated project specific PPE; and (2) it provides baseline data for comparison with future medical data. The baseline medical examination will include, at a minimum, the following:

- 1. Complete occupational and medical history;
- 2. Physical examination;
- 3. Blood count and chemistry profile;
- 4. Urinalysis with microscopic review;
- 5. Chest x-ray;
- 6. Pulmonary function tests;
- 7. Resting electrocardiogram (EKG); and
- 8. Cardiac stress test (at physician's discretion).

It is the responsibility of the employer to extend clearance to the fitness of personnel for duty and ability to wear personal protective equipment beyond on-site areas other than the Support Zone.

## 6.2 Lead Exposure Medical Surveillance

In addition to the baseline medical examination requirements discussed above in Section 6.1, all personnel working in the Exclusion Zone will require medical surveillance for lead exposure. This will include an initial examination for lead prior to the individual starting work at the site, periodic examinations during the course of the project (depending on the individual's duration at the site), and a final examination upon completion of the individual's duties at the site.

Medical surveillance for lead exposure will adhere to the following OSHA standard:



Part Number: 1910

Part Number Title: Occupational Safety and Health Standards

Subpart: 1910 Subpart ZStandard Number: 1910.1025 App C

• Title: Medical surveillance guidelines

Under the occupational health standard for inorganic lead, a program of biological monitoring and medical surveillance is to be made available to all employees exposed to lead above the action level of 30 ug/m³ TWA for more than 30 days each year. This program consists of periodic blood sampling and medical evaluation to be performed on a schedule as indicated above and which is defined by previous laboratory results, worker complaints or concerns, and the clinical assessment of the examining physician.

Under this OSHA standard, the blood lead level of all employees who are exposed to lead above the action level of 30 ug/m³ must be tested prior to the individual starting work and then again at least every two months for the first six months and every six months thereafter, during the course of their work. This project also requires a final examination for lead upon completion of the individual's duties at the site. All lead medical surveillance results should be reported to the SMs or HSC.

The initial test prior to the individual starting work at the site must have been taken no more than 60 days prior to starting work at the site and during the time period between the test and the individual starting work at the site, the individual must not be working at a different site with a potential for lead exposure. If the individual has worked at a different site with a potential for lead exposure since the last test, a new test must be taken before starting work at this site.

During the site work, the frequency for testing is increased to every two months for employees whose last blood lead level was at or above 40 micrograms per deciliter 40  $\mu$ g/dl, and at least monthly while an employee is removed from exposure due a previously detected elevated blood lead level.

For an employee removed from exposure to lead due to a blood lead level at or above 50  $\mu$ g/dl, the employer may return that employee to former job status when two consecutive blood sampling tests indicate that the employee's blood lead level is below 40  $\mu$ g/dl.

Upon completion of the individuals work at this site, a final examination for lead must be completed within 14 days and the individual must not work at a different site with a potential for lead exposure until the test results have been provided to the SMs or HSC.

If an individual that works at this site leaves to temporarily work at a different site with a potential lead exposure, the individual must be tested for lead exposure when they leave this site, but before they start work at a different site. Prior to the individual resuming work at this site, they must also be retested for lead exposure, after they have finished work at a different site.

A copy of this Standard has been provided as Appendix E of this HASP.

Employees or former employees, their designated representatives, and OSHA must have access to exposure and medical records in accordance with 29 CFR 1910.1020.



## 6.3 Special Medical Examinations

Special medical examinations or consultations will be arranged for personnel exposed in an emergency situation to hazardous substances at concentrations above the PELs without adequate protection. This will be done as soon as possible after the potential overexposure has been determined by the SM, in consultation with the HSC.

Special medical examinations shall also be arranged upon notification by the individual that he/she has developed signs or symptoms indicating a possible overexposure to hazardous substances, or if the examining physician determines that a more frequent medical examination is necessary.

## 6.4 Special Circumstances

Any individual, who is on a medication that may interfere with the ability to perform his/her job function, or who may require special medical attention, must notify the SM or HSC of these circumstances prior to commencing work at the site.

## 6.5 Health and Safety Records

It is the responsibility of the employer to record and file all personnel training, medical clearances, fit testing results, and applicable monitoring, per the employer's policy. Copies of these records along with all medical surveillance results shall be provided to the SMs or HSC regularly.



# 7 Personal Protective Equipment (PPE)

This section of the site HASP is a reference of selection for different levels of PPE. The protective equipment will be selected based on the contaminant type(s), concentration(s) in air (if any), standing liquid (if any), or other applicable matrix, and the known route(s) of entry into the human body. In situations where the type of materials, their concentrations, or exposure potentials are unknown, a decision based on professional judgment regarding the assignment of personal protective equipment will be made by the HSC.

#### 7.1 Selection of PPE

The selected PPE should be able to resist degradation, penetration, and permeation by the contaminants present at the site. In selecting the appropriate protective material, the following should be considered: chemical resistance; tear and puncture resistance; flexibility; thermal stress; cleanability; and durability.

PPE will be selected, used and maintained in accordance with applicable regulations.

## **Levels of PPE**

The four levels of PPE are Levels A, B, C, and D, with Level A providing the highest available level of respiratory, skin, and eye protection. A summary of the basic PPE ensemble for Levels A, B, C, and D is provided below. PPE selection for operations at the site will be tailored to address specific task conditions.

## Level A

Level A PPE provides the maximum degree of respiratory, skin, and eye protection. A Level A PPE ensemble should include:

- 1. Full-face piece self-contained breathing apparatus (SCBA) or full-face piece supplied air respirator with escape SCBA;
- 2. Fully encapsulating, chemical-resistant suit, safety boots and inner gloves; and
- 3. Hard hat (if overhead or bump hazards exist).

#### Level B

Level B PPE provides the maximum level of respiratory protection. Since chemical-resistant clothing is not considered gas, vapor, or particulate tight, Level B PPE does not provide the maximum skin protection. However, a good quality, hooded, chemical-resistant one-piece garment with taped wrists and ankles provides a reasonable degree of protection against splashes of liquids and lower concentrations of chemicals in ambient air. It is the minimum level recommended for confined space entries and initial site entries until the hazards have been further identified. Level B PPE should be used when **any** one of the following criteria is met:

1. The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection but less skin protection -- this includes atmospheres with IDLH concentrations of specific substances that do not represent a severe skin hazard or atmospheres that do not meet the criteria for use of air-purifying respirators;



- 2. Atmosphere contains less than 19.5% oxygen; or
- 3. Presence of incompletely identified vapors or gases is indicated by air monitoring instruments but vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the intact skin.

### **Level C**

Level C PPE provides the same level of skin protection as Level B PPE, but a lower level of respiratory protection. Air-purifying respirators can be used only if the substance has adequate warning properties; the individual passes a qualitative fit-test for the mask; an appropriate cartridge/canister is used and its service limit concentration is not exceeded; and site operations are not likely to generate unknown compounds or excessive concentrations of already identified substances. Level C PPE can be used when all of the following conditions are met:

- 1. Oxygen concentrations are not less than 19.5%;
- 2. Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any exposed skin;
- 3. Types of air contaminants have been identified, concentrations measured, and a cartridge or canister is available that can remove the contaminant;
- 4. Atmospheric contaminant concentrations do not exceed IDLH levels; and
- 5. Job functions do not require self-contained breathing apparatus (SCBAs).

## **Modified Level D**

Modified Level D PPE provides minimal skin protection (i.e., hand/glove protection along with standard work clothes with optional coveralls) and no respiratory protection. Modified Level D PPE can be used when the following conditions are met:

- 1. Atmosphere contains no known hazard;
- 2. Oxygen concentrations are not less than 19.5%;
- 3. Work functions include minimal contact with contaminated media (e.g., soil, water, groundwater) and preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

#### Level D

Level D PPE provides no skin protection other than standard work clothes and no respiratory protection. Work functions are limited to non-hazardous environments and preclude contact with media that may be potentially contaminated at hazardous levels for any type of chemical.

### 7.2 Respirator Fit Test

It is the responsibility of the employer to conduct fit tests on all site personnel who will perform work operations in areas other than the on-site Support Zone. Prior to the initiation of any fit testing, personnel must be certified as medically able to wear a respirator. The respirator fit test is conducted to ensure proper face piece-to-face seal. A secure fit is important with positive-pressure equipment and is essential to the safe functioning of negative-pressure equipment, such as most air-purifying respirators. Personnel will receive a brief on-site tutorial on proper wear and maintenance of the respirator.



However, is the responsibility of the employer to assure all personnel are properly trained in the use and care of required PPE.

Qualitative fit tests should be conducted annually in accordance with the ANSI Practices for Respiratory Protection, Z88.2-1989. All personnel are responsible in conducting their own negative and positive fit check each time such personnel dons the air-purifying respirator (APR). Employers are responsible for the documentation of annual respirator fit tests per employer policy.

## 7.2.1 Negative and Positive Fit Check

The negative and positive pressure fit check shall be performed each time a person dons the APR. The negative pressure fit check involves closing off the inlet openings to the APR cartridges by covering with the palms of the hands. If an inward leakage of air is detected, the APR should be checked for material defects and refitted or replaced with another APR.

The positive pressure fit check is performed by placing the palm of hand over the exhalation valve and gently exhaling for 10 seconds to create positive pressure inside the face piece. If an outward air leak is detected, the APR should be readjusted. If after readjustment leakage still occurs, another APR should be used.

## 7.3 PPE Inspection Checklist and Maintenance

PPE inspections are the responsibility of the user and shall be conducted upon receipt of PPE from the factory or distributor; when it is issued to workers; after use or training; and prior to maintenance. Periodic inspections of stored equipment shall be conducted routinely, whenever a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise. At a minimum, PPE inspection should include the following:

## A. Clothing

Before use:

- 1. Determine that the clothing material is correct for the specified task.
- 2. Visually inspect for:
  - Imperfect seams
  - On-uniform coatings
  - Tears
  - Malfunctioning Closures
- 3. Hold up to light and check for pinholes
- 4. Flex product:
  - Observe for cracks
  - Observe for other signs of shelf deterioration
- 5. If the product has been used previously, inspect inside and out for signs of chemical breakthrough or deterioration, such as:
  - Discoloration
  - Swelling
  - Stiffness



- 6. During the work task, periodically inspect for:
  - Evidence of chemical attack such as discoloration, swelling, stiffening, and softening. Keep in mind that chemical permeation can occur without any visible effects.
  - Closure failure
  - Tears
  - Punctures
  - Seam discontinuities

### B. Gloves

Before use of chemical resistant glove (nitrile or equivalent), pressurize glove to check for pinholes. Blow into glove, then roll gauntlet towards fingers or inflate glove and hold under water. In either case, no air should escape. Non-chemical resistant gloves should be checked regularly and free of damage or deterioration.

## C. Respirators

SCBA/supplied air/air-purifying:

- 1. Inspect SCBA/supplied air/air-purifying respirators before and after each use, at least monthly when in storage and during cleaning. Air-purifying respirators should be inspected before each use to be sure they have been adequately cleaned.
- 2. Check all connections for tightness, inspect air lines prior to each use for cracks, kinks, cuts, frays, and weak areas.
- 3. Check for proper setting and operation of regulators and valves (according to manufacturer's recommendations) and check operation of alarms.
- 4. Check material conditions for:
  - Signs of pliability
  - Signs of deterioration
  - Signs of distortion
- 5. Check face shields and lenses for:
  - Cracks
  - Crazing
  - Fogginess
- 6. Examine cartridges or canisters to ensure that:
  - They are the proper type for the intended use,
  - The expiration date has not passed, and
  - They have not been opened or used previously.

## 7.4 Task Specific PPE

This section of the site HASP is used for the selection of the appropriate PPE. The protective equipment will be selected based on the contaminant type(s), concentration(s) in air (if any), standing liquid (if any), or other applicable matrix (e.g., soil, sludge, sediment, etc.) and the known route(s) of entry into the



human body. Table 7 presents the general level of protection to be used for each task that is anticipated to be conducted on-site.

**Table 7: Task Specific PPE** 

| Task Description as Discussed in Section 1.4 |                                                                                                                | Level of Protection |   |             |       |   |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------------------|---|-------------|-------|---|
|                                              |                                                                                                                | Α                   | В | С           | Mod D | D |
|                                              | Task 1 - Construction of Dust Control Containment Structures Task 2 - Movement and Relocation of CRT Materials |                     |   | $\boxtimes$ |       |   |
|                                              |                                                                                                                |                     |   | $\boxtimes$ |       |   |
| Dhaaal                                       | Task 3 - Evaluation of CRT Material Container Condition                                                        |                     |   | $\boxtimes$ |       |   |
| Phase I<br>and Phase                         | Task 4 - Decontamination of CRT Material                                                                       |                     |   | $\boxtimes$ |       |   |
| II                                           | Task 5 - Preparation of CRT Material Containers for Shipping                                                   |                     |   | $\boxtimes$ |       |   |
|                                              | Task 6 - Transfer of CRT Materials to the Designated Loading Zone for Shipment                                 |                     |   | $\boxtimes$ |       |   |
|                                              | Task 7 - Daily Cleaning of Work Areas                                                                          |                     |   | $\boxtimes$ |       |   |
| Task 8 - Final Equipment Decontamination     |                                                                                                                |                     |   |             |       |   |
|                                              | Task 9 – Closed Loop Equipment Removal                                                                         |                     |   | $\boxtimes$ |       |   |
| Phase III                                    | Task 10 – Building Decontamination                                                                             |                     |   | $\boxtimes$ |       |   |
| Task 11 – Final Equipment Decontamination    |                                                                                                                |                     |   | $\square$   |       |   |

Site Specific PPE, based on potential exposure hazards, has been determined to be Level C for all personnel entering the building, excluding the Support Zone.

#### Kev:

**Level D:** Long sleeve shirt\*; long pants\*; hard hat; eye protection; hearing protection; and safety shoes. **Level D Modified**: Level D protection plus protective coveralls, as required; and appropriate hand protection.

**Level C:** Level D (Modified) protection plus negative pressure respiratory protection with appropriate cartridges (minimum half face negative pressure respirator w/ P100 cartridge or equivalent); chemical protective coveralls in lieu of general coveralls; use of inner and outer sets of hand protection.

**Level B:** Level C protection plus Pressure-demand supplied air respirator with escape bottle in lieu of negative pressure respirator; chemical resistant coveralls with hood; chemical resistant boots.

**Level A:** Level B protection plus fully encapsulating (gas tight) chemically resistant suit.

Table 8 identifies the specific PPE items that are required or recommended to be used on this project. This includes identifying the specific type of hand and body protection (as applicable) for the chemicals that may be encounter while conducting the tasks outlined in this HASP.

<sup>\*</sup>Clothing made of natural fibers shall be worn when a shock or arc flash hazard exists.



**Table 8: Project Personal Protective Equipment and Supplies** 

| Equipment                                                | Req         | Rec         | NA          | Equipment                                                                      | Req         | Rec | NA          |
|----------------------------------------------------------|-------------|-------------|-------------|--------------------------------------------------------------------------------|-------------|-----|-------------|
| Steel-Toe Boots                                          | $\boxtimes$ |             |             | SCBA                                                                           |             |     | $\boxtimes$ |
| Outer Disposable Boots                                   | $\boxtimes$ |             |             | Full-face Airline Resp.                                                        |             |     | $\boxtimes$ |
| Long Sleeve Shirt and Pants                              |             |             |             | Full Face Negative Pressure Resp.                                              |             |     | $\boxtimes$ |
| Flame Retardant Coveralls                                |             |             |             | Half Face Negative Pressure<br>Respirator w/ P100 Cartridge<br>(or equivalent) |             |     |             |
| Tyvek Suit (or equivalent)                               | $\boxtimes$ |             |             | Powered Air Purifying Resp                                                     |             |     | $\times$    |
| Poly-coated Tyvek / Saranex Suit                         |             |             | $\boxtimes$ | First Aid Kit                                                                  | $\boxtimes$ |     |             |
| Fully Encapsulated Chemical Suit                         |             |             | $\square$   | Fire Extinguisher                                                              | $\boxtimes$ |     |             |
| Hearing Protection                                       |             | $\boxtimes$ |             | Communication (Cell Phones                                                     |             |     |             |
| Task Appropriate Gloves Work Gloves, Impact Gloves, etc. |             |             |             | or Walkie Talkies)                                                             |             |     |             |
| Inner Chemical Gloves<br>Latex or nitrile                |             | $\boxtimes$ |             | Eye Wash (e.g., portable bottle)                                               |             |     |             |
| Outer Chemical Gloves Latex or Nitrile                   | $\boxtimes$ |             |             | Water or Other Fluid<br>Replenishment                                          |             |     |             |
| Hard Hat                                                 | $\boxtimes$ |             |             | Sunscreen                                                                      |             |     | $\boxtimes$ |
| Safety Glasses with Side Shields                         | $\boxtimes$ |             |             | Insect Repellent                                                               |             |     | X           |
| Vented (Splash proof) Goggles                            |             |             | $\boxtimes$ | Personal Fall Arrest System,                                                   |             |     |             |
| High Visibility Clothing                                 | $\boxtimes$ |             |             | Full Body Harness with Self-<br>Retracting Lanyard (Task<br>Specific)          |             |     |             |

Key: Req = Required; Rec = Recommended; NA = Not Applicable



# 8 Air Monitoring/Sampling Procedures

Air samples may be collected during the project to identify and quantify airborne contaminants in order to delineate areas where PPE is needed; determine the level of PPE necessary; document on-site personnel exposures; assess the potential health effects of exposure; determine the need to implement engineering controls or evacuate the work zone or site; and determine the need for specific medical monitoring. Some commonly used devices include the following:

**Personal Air Monitoring** – Quantitative air sampling for nuisance dust, metals, organic and inorganic compounds. Samples are collected using personal air sampling pumps and the appropriate sampling media. All personnel samples will be collected in the breathing zone over the duration of the work shift. The specific methods to be utilized for the collection of personal air samples may require the involvement of a Certified Industrial Hygienist (CIH) if this type of sampling will be conducted.

Combustible Gas Indicator (CGI) – Examples include  $O_2$  / LEL meter. A CGI measures the concentration of a combustible gas or vapor. Its accuracy is, in part, dependent upon on the difference between the calibrations and sampling temperatures; oxygen-deficient atmospheres also affect accuracy; filament can be damaged by silicones, halides, and tetraethyl lead; and the sensitivity is a function of the difference in the chemical and physical properties between the calibration gas and the unknown.

Flame Ionization Detector (FID) – Examples include Organic Vapor Analyzers (OVA). Depending on mode, it may detect many organic gases and vapors. An FID will not detect inorganic gases and vapors; has reduced reliability in high humidity conditions; and should not be used when temperatures are below 40F (4.4C).

**Ultraviolet** (UV) Photo Ionization Detector (PID) – Examples include HNU. Detects a number of organic and some inorganic gases and vapors. A PID does not detect methane; does not detect a compound if the probe used has a lower energy than the compound's ionization potential; does not readily ionize fully chlorinated materials; high humidity affects readings; low humidity affects operation; response is sensitive to dust or moisture on the lamp; and responses will fluctuate when gases are mixed.

**Infrared Spectrophotometer** (IR) – Examples include Miran. Measures concentrations of many gases and vapors in the air but designed to quantify one- or two- component mixtures. Not approved for use in hazardous conditions; must make repeated passes to achieve reliable results; and somewhat bulky/heavy.

**Direct-Read Colorimetric Tubes** – Examples include Drager. The compound reacts with the indicator chemical in the tube, producing a stain whose length is proportional to the compounds' concentration. Results are affected by temperature, pressure, and humidity; many similar compounds interfere with results.

## 8.1 Using Monitoring Devices

Conducting an applicable task may necessitate using one or more monitoring devices as listed in Table 9, particularly if gases, vapors, explosion hazards and/or oxygen deficient atmosphere can occur or are expected. Table 10 below provides monitoring information for common and/or anticipated hazards. All monitoring results must be recorded, and copies of the monitoring results provided to the SM and/or HSC. The recorded monitoring results must include the following information:



- 1. Instrument name and serial number
- 2. Date of calibration
- 3. Frequency/duration of monitoring
- 4. The monitoring results
- 5. And the actions taken based on the results, even if "no actions are required to be taken"

**Table 9: Monitoring Devices Available** 

| Α | PID (10.6 eV)                | G | Dust Monitoring     |
|---|------------------------------|---|---------------------|
| В | PID (11.7 eV)                | Н | Summa Canister      |
| С | FID                          | I | Heat Stress Monitor |
| D | OVA                          | J | Radiation Detector  |
| Ε | CGI/LEL                      | K | Gas Multimeter      |
| F | Colorimetric Indicator Tubes | L | Other Device:       |

**Table 10: Monitoring Information** 

| Monitoring Scenarios                                                                                                                                                                    | Constituent      | Task(s)  | Trigger<br>(Action Level) | Monitoring<br>Instrument<br>Required |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------|---------------------------|--------------------------------------|
|                                                                                                                                                                                         | Oxygen           | NA       | NA                        | NA                                   |
| If monitoring is necessary to                                                                                                                                                           | Carbon Monoxide  | NA       | NA                        | NA                                   |
| identify that a risk is at or                                                                                                                                                           | H <sub>2</sub> S | NA       | NA                        | NA                                   |
| above tolerable limits and/or is used in controlling a risk onsite, document the task and the maximum allowable exposure or trigger, and the monitoring instrument required to be used. | C <sub>2</sub> S | NA       | NA                        | NA                                   |
|                                                                                                                                                                                         | CH <sub>4</sub>  | NA       | NA                        | NA                                   |
|                                                                                                                                                                                         | VOCs: Total      | NA       | NA                        | NA                                   |
|                                                                                                                                                                                         | Semi-VOCs:       | NA       | NA                        | NA                                   |
|                                                                                                                                                                                         | Lead             | 1 to 11* | 25 μg/m3                  | G                                    |
|                                                                                                                                                                                         | Others:          | NA       | NA                        | NA                                   |
|                                                                                                                                                                                         | Others:          | NA       | NA                        | NA                                   |

NA = Not Anticipated at this time

## 8.2 Action Level Guidance

In general, this HASP addresses site-specific chemicals as noted in Table 4. However, there are chemicals commonly encountered in the workplace that may not be a chemical targeted for sampling but nonetheless will have adverse health effects. These chemicals are listed in Table 11 below, with additional chemical hazards property information presented in Appendix C.

**Table 11: Action Levels for Commonly Encountered Compounds** 

| Compound         | Action Level                |
|------------------|-----------------------------|
| VOC (as Benzene) | 0.5 ppm MAXIMUM             |
| CH <sub>4</sub>  | 0.5% MAXIMUM or 5000 ppm    |
| CO <sub>2</sub>  | 0.25% OR 2500 ppm MAXIMUM   |
| CO               | 25 ppm MAXIMUM              |
| H <sub>2</sub> S | 5 ppm MAXIMUM               |
| O <sub>2</sub>   | 19% MINIMUM – 23.5% MAXIMUM |

<sup>\* =</sup> See Sections 8.2.1.1 and 8.2.1.2 below



### 8.2.1 **Dusts**

The permissible exposure levels for total and respirable dusts are 15 and 5 milligrams per cubic meter (mg/m³), respectively. In general, at these concentrations you will not be able to read the face of a wristwatch (with your arm extended) when the "Total Dust" concentration reaches 15 mg/m³. Particles of dust in the respirable size range cannot be seen without the aid of a microscope but in aggregate, may be perceived as a haze. More importantly and with few exceptions, when dust is noticeable in the air, more respirable particles will exist than larger particles.

To determine the likelihood of exposure from dusts, a theoretical "Total Dust" concentration in mg/m<sup>3</sup> can be calculated to estimate the total dust concentration in which the concentration of the contaminant could equal and/or exceed its' established exposure limit (EL). This equation is as follows:

Total Dust  $(mg/m^3) = (10^6 \text{ mg/kg}) (EL \text{ mg/m}^3) / (Conc. of contaminant mg/kg) (SF).$ 

#### Where:

**EL** = Exposure Limit of the contaminant of concern (e.g., its' PEL or TLV in mg/m³); and **SF** = Safety Factor, a number between one and ten. Used to account for the degree of confidence in the characterization data (a ten would represent a poor degree of confidence, for example only one sample was collected / analyzed to characterize the site).

The **SF** is based upon the following assumptions: 1) the concentration of the contaminant in the airborne dust is the same as its' concentration in the sample matrix; 2) the soil data depicts a representative "worst-case" scenario; 3) the monitoring instrument used, accurately measures the ambient concentration of particulate matter in the air; and 4) a single contaminant of concern is present.

As an example, assume that Lead (with an EL of 0.05 mg/m³) is the contaminant of concern and a bulk sample concentration of 25,000 mg/kg has been identified. Depending on the SF used, the theoretical total dust concentration will range between 2 to 0.2 mg/m³. This means that when the in-situ particulate monitoring device is registering a concentration within 2 to 0.2 mg/m³ range, there is a high probability that this dust contains enough lead to equal and/or exceed the EL. Hence, the level of PPE used would be increased until engineering controls are determined to be effective as documented by personal monitoring.

### 8.2.2 Phase I and Phase II – Removal of CRT Materials

During Phase I and II of this project, air monitoring for lead will be required and shall consist of the following:

- Personal Air Monitoring Worker Exposure by Significant Task
  - Significant tasks associated with Phase I and Phase II work activities include the following at a minimum: (1) forklift operators moving CRT materials, (2) technicians working in the Exclusion Zone cleaning or packaging CRT materials for removal, (3) technicians working in the Exclusion Zone completing wet sweeping and bulk dust cleaning in work areas, and (4) support staff in the Exclusion Zone monitoring or overseeing operations.
- Building Exterior Environmental Air Monitoring Upgradient
- Building Exterior Environmental Air Monitoring Downgradient



## 8.2.2.1 Personal Air Monitoring

Personal Air Monitoring shall consist of an initial worker exposure assessment. The initial monitoring associated with the initial worker exposure assessment may be limited to a representative sample of workers exposed to the greatest concentrations of airborne lead for each significant project task. Representative exposure sampling is permitted when there are a number of employees performing the same job, with lead exposure of similar duration and level, under essentially the same conditions. For employees engaged in similar work, OSHA standards require that the members of the group reasonably expected to have the highest exposure levels be monitored. This result is then attributed to the other employees of the group.

The contractor or subcontractors must establish and maintain an accurate record documenting the nature and relevancy of exposure data. If applicable, instead of performing initial monitoring, the employer may in some cases rely on objective data that demonstrate that a particular lead containing material or product cannot result in employee exposure at or above the action level when it is processed, used, or handled.

For this project it is anticipated that the AL for lead in dust generated inside the building during the Phase I and Phase II work activities will be exceeded; hence the PPE requirements referenced Section 7. Following the personal air monitoring associated with the initial exposure assessment by significant project task, periodic personal air monitoring consistent with the exposure assessment monitoring, shall be completed at least once every two months throughout the completion of the contractor's or subcontractor's duties for the project.

## 8.2.2.2 Building Exterior Environmental Air Monitoring (Upgradient and Downgradient)

Building exterior environmental air monitoring for lead, both upgradient (upwind) and downgradient (downwind) of the buildings will be completed for Phase I and Phase II work. The purpose of this activity is to monitor exterior conditions for potential releases of lead dust outside the buildings in association with the project work activities.

Prior to Phase I and Phase II work activities occurring at the site, an initial exterior environmental air monitoring event (upgradient and downgradient) shall be completed to establish baseline conditions. Throughout the course of the project periodic exterior environmental air monitoring events (upgradient and downgradient) shall be completed at least once a month. Upgradient exterior air monitoring shall be completed on the upgradient side of the buildings in areas representative of up wind conditions. Downgradient exterior air monitoring shall be completed on the downgradient side of the buildings in areas representative of down wind conditions and in areas most likely to be resulting in a potential release (i.e. near loading dock areas being used to load out CRT materials).

All personal air monitoring results and exterior environmental air monitoring results shall be provided regularly to the SMs or HSC.

## 8.2.3 Phase III – Closed Loop Equipment Removal and Building Decontamination

During Phase III of this project, air monitoring for lead will be required and shall consist of the following:

- Personal Air Monitoring Worker Exposure by Significant Task
  - Significant tasks associated with Phase III work activities include the following at a minimum: (1) technicians disassembling and decontaminating Closed Loop equipment,



(2) forklift operators moving Closed Loop equipment, (3) technicians working in the Exclusion Zone performing select demolition activities and building decontamination activities (HEPA vacuuming, wet wiping, pressure washing), and (4) support staff in the Exclusion Zone monitoring or overseeing operations.

- Building Exterior Environmental Air Monitoring Upgradient
- Building Exterior Environmental Air Monitoring Downgradient

# 8.2.3.1 Personal Air Monitoring

Personal Air Monitoring shall consist of an initial worker exposure assessment. The initial monitoring associated with the initial worker exposure assessment may be limited to a representative sample of workers exposed to the greatest concentrations of airborne lead for each significant project task. Representative exposure sampling is permitted when there are a number of employees performing the same job, with lead exposure of similar duration and level, under essentially the same conditions. For employees engaged in similar work, OSHA standards require that the members of the group reasonably expected to have the highest exposure levels be monitored. This result is then attributed to the other employees of the group.

The contractor or subcontractors must establish and maintain an accurate record documenting the nature and relevancy of exposure data. If applicable, instead of performing initial monitoring, the employer may in some cases rely on objective data that demonstrate that a particular lead containing material or product cannot result in employee exposure at or above the action level when it is processed, used, or handled.

For this project it is anticipated that the AL for lead in dust generated inside the building during the Phase III work activities will be exceeded; hence the PPE requirements referenced Section 7. Following the personal air monitoring associated with the initial exposure assessment by significant project task, periodic personal air monitoring consistent with the exposure assessment monitoring, shall be completed at least once every two months throughout the completion of the contractor's or subcontractor's duties for the project.

## 8.2.3.2 Building Exterior Environmental Air Monitoring (Upgradient and Downgradient)

Building exterior environmental air monitoring for lead, both upgradient (upwind) and downgradient (downwind) of the buildings will be completed for Phase III work. The purpose of this activity is to monitor exterior conditions for potential releases of lead dust outside the buildings in association with the project work activities.

Prior to Phase III work activities occurring at the site, an initial exterior environmental air monitoring event (upgradient and downgradient) shall be completed to establish baseline conditions. Throughout the course of the project periodic exterior environmental air monitoring events (upgradient and downgradient) shall be completed at least once a month. Upgradient exterior air monitoring shall be completed on the upgradient side of the buildings in areas representative of up wind conditions. Downgradient exterior air monitoring shall be completed on the downgradient side of the buildings in areas representative of down wind conditions and in areas most likely to be resulting in a potential release (i.e. near loading dock areas being used to load out materials and wastes). All personal air monitoring results and exterior environmental air monitoring results shall be provided

All personal air monitoring results and exterior environmental air monitoring results shall be provided regularly to the SMs or HSC.



# 9 Confined Space Entry

OSHA defines a Confined Space as space that is (1) large enough and so configured that an employee can bodily enter it; (2) has limited or restricted means for entry and exit; and (3) is not designed for continuous employee occupancy.

# This health and safety plan prohibits unauthorized entry into confined spaces.

In the event that entry into a confined space is required, prior to entering a confined space, the personnel must be properly trained. Without Confined Space training, entry into confined spaces is prohibited. In addition, entry authorization will only be given after the SMs or HSC have reviewed the nature of the confined space, the hazards present, measures needed to complete safe entry, and copies of the personnel's confined space safety training certification.



# 10 Spill Response

If spills of chemicals, petroleum products, or other hazardous substances occur as part of this project, the SMs and HSC shall be notified immediately. If warranted, before any spill clean-up work is initiated at the site, applicable local, state, and/or Federal Emergency Response Authorities will be identified and contacted by either the Client Contact and/or HSC personnel.

## 10.1 Reporting and Initial Personnel Safety

Upon discovery of a hazardous substance spill, personnel are to:

- Immediately summon help by notifying the SMs, HSC and/or the Client Contact;
- Take action to coordinate and establish the safety of nearby personnel;
- Proceed to a safe location;
- If anyone is seriously injured, immediately contact emergency medical services; and
- Keep unauthorized personnel out of the area.

## 10.2 Initial Spill Reaction

Factors that limit the person's response at the site of a spill are:

- · Level of training,
- Personal safety,
- · Available PPE, and
- Knowledge of the substance.

Personnel should limit their actions to shutting off equipment or pumps and closing valves if possible, feasible, and safe to do so.

## 10.3 Spill Response Evaluation

The identity and hazards of the spilled material should be determined before decisions regarding spill containment and control are made. The Client Contact and SM should evaluate the hazards regarding the spill and decide whether project personnel or external response organizations should conduct the cleanup.

The contractor or subcontractor must contact the SMs and HSC to discuss the spill incident for further input on deciding how the cleanup can be conducted, including:

- Levels of PPE and safety procedures,
- Safety and work zones,
- All steps of the response activities,
- Most effective procedures or methods for cleanup,
- Means of containment,
- Leak of spill control, and
- Decontamination procedures (including Emergency decontamination).



# 11 Decontamination

All decontamination activities shall be completed in accordance with the Closure Plan for this project and all applicable Federal, State, and local regulations.

## 11.1 CRT Materials, Building, and Equipment Decontamination

Decontamination involves the orderly controlled removal of contaminants.

## 11.1.1 Phase I and Phase II – Removal of CRT Materials

These phases of work will include the construction of CRZ and CLZ structures inside designated portions of the buildings to reduce the potential for lead dust migration from the subject property buildings.

CRT materials to be transported off-site will be decontaminated per Sections 7.2 and 11.0 of the Closure Plan. Visible dust on exterior surfaces of containers, plastic wrap, and pallets will be cleaned using a vacuum equipped with a HEPA filter such that the exterior of the containers, plastic wraps, and pallets are free of visible dust.

To reduce the potential for lead-dust generation, the following procedures will be performed on a daily basis, at a minimum, and on as needed basis, to control the transfer of lead-containing dust.

- Work areas and areas of newly exposed floor areas (e.g., areas where containerized materials
  were removed during the prior day) will be cleaned with a wet sweeping method, or equivalent
  sweeping methods that utilize acceptable dust control measures.
- To reduce the potential generation of dust, forklift travel areas will also be cleaned with a wet sweeping method, or equivalent sweeping methods that utilize acceptable dust control measures.
- The floor of the CRZ will be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable dust control measures.

Upon completion of the work, all on-site contractor equipment that is used inside the Exclusion Zone or used to move CRT materials will be decontaminated (in a designated decontamination area) prior to leaving the Exclusion Zone and the site. The decontamination requirements also include any and all equipment that must be removed from the Exclusion Zone during the project for maintenance.

The specific protocol for decontaminating reusable equipment will depend on the equipment; however, the equipment decontamination process will include the removal of dusts using a vacuum equipped with a HEPA filter, hand wiping with solvent-soaked launderable or disposable wipes, and/or wash the equipment with a detergent solution using a high pressure, low volume washer. Following the decontamination activities, the SMs, HSC, or third-party vendor providing project monitoring must inspect the decontaminated equipment and tools before they can be removed from the Exclusion Zone. The solvent for the launderable or disposal wipes and the detergent proposed for cleaning is Simple Green, or an approved equivalent that is orally non-toxic and readily biodegradable. A copy of the Simple Green product safety data sheet (SDS) and technical specifications is presented in Appendix F.

All contractors and subcontractors will be responsible for decontamination of their own equipment used during on-site operations, as well as disposal of the decontamination fluids, launderable materials or



wastes generated. Launderable wipes must be collected and managed in accordance with OAC 3745-51-06(A)(3)(e). Decontamination fluids and wastes must be properly containerized, managed, and disposed per the project Closure Plan. Additionally, prior to disposal, the HSC, SM, owner, or owner's representative must confirm the fluids and/or wastes will be disposed in accordance with the Closure Plan.

Phase I and Phase II work activities will utilize industrial tools, forklifts, platform lifts and decontamination equipment. Refer to the applicable JHAs included in Appendix A.

## 11.1.2 Phase III – Closed Loop Equipment Removal and Building Decontamination

This phase of work will include utilization of the CRZ and CLZ structures inside designated portions of the buildings to reduce the potential for lead dust migration from the subject property buildings.

To reduce the potential for lead-dust generation, the following procedures will be performed on a daily basis, at a minimum, and on as needed basis, to control the transfer of lead-containing dust.

- Work areas and areas of newly exposed floor areas (e.g., areas where equipment was removed during the prior day) will be cleaned with a wet sweeping method, or equivalent sweeping methods that utilize acceptable dust control measures.
- The floor of the CRZ will be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable dust control measures.

**Closed Loop Equipment** – Closed Loop equipment will be cleaned of gross contamination using a vacuum equipped with a HEPA filter. Following removal of gross contamination, the following additional activities will be performed:

- For Closed Loop equipment that will be disposed as recyclable scrap metal (i.e., metallic conveyor systems, metal shelving, etc.), this equipment will be rendered unusable and placed into containers for transfer to an off-site recycling facility.
- For Closed Loop equipment that cannot be recycled (e.g., non-metallic equipment), this equipment will be placed in portable containers pending sampling, analysis, and off-site disposal. Containers will remain closed pending receipt of analytical results. If analytical testing demonstrates the equipment is considered hazardous (D008) for lead (i.e., the material is found to contain lead at greater than 5.0 mg/L), the equipment will be transported off-site as a hazardous waste. Otherwise, the equipment will be managed as a non-hazardous solid waste.
- For the Closed Loop CRT glass crushing machine, the machine will be secured, and the contractor will verify that all utilities (including hydraulics) to the machine are properly shut off and deenergized. The Contractor will also be responsible for placing locks and tags on the utilities to ensure safe and redundant lockout. During decontamination of the machine, methods that prevent the transport of any machine fluids, decontamination residues, or wash waters outside the designated decontamination area will be employed. Hydraulic and lubricating oils (as applicable) associated with the machine will be drained and collected for management as used oil in accordance with OAC 3745 279. Lead- containing dust on and in the glass crushing machine will be removed using a vacuum equipped with HEPA filter. If the glass crushing machine will be transported off-site for use in a lead processing facility, it will be further dismantled, as applicable, to facilitate transport. In the event additional, previously



inaccessible areas inside the equipment are found to contain dust, they too will be decontaminated. The equipment will be prepared for off-site transport and moved out of the warehouse prior to warehouse decontamination or will be wrapped in plastic to prevent warehouse decontamination activities from re-contaminating the equipment. If the glass crushing machine will be sold for scrap, the equipment will be dismantled, rendered unusable, and placed into portable containers for transfer to an off-site recycling facility. Loose dust will be removed, as applicable, during dismantling operations using a vacuum equipped with HEPA filter. Non-scrap materials (e.g., rubber belts) will be placed in portable containers pending sampling, analysis, and off-site disposal. Containers will remain closed pending receipt of analytical results. If analytical testing demonstrates the non-scrap material is considered hazardous (D008) for lead, the equipment will be transported off-site as a hazardous waste. Otherwise, the non-scrap material will be managed as a non-hazardous solid waste.

**Building Decontamination** - Per the project Closure Plan, after removing CRT Materials, Closed Loop equipment and debris from the buildings, gross contamination including (but not limited to) debris, grime, dust, or any residual demolition debris will be removed from the buildings. The goal of this cleaning is to remove material which is easily mobilized and to facilitate final building decontamination.

The building decontamination process will include the removal of dusts using a vacuum equipped with a HEPA filter, hand wiping with solvent-soaked launderable or disposable wipes, and/or wash the impacted surfaces and building components with a detergent solution using a high pressure, low volume washer. The solvent for the launderable or disposal wipes and the detergent proposed for cleaning is Simple Green, or an approved equivalent that is orally non-toxic and readily biodegradable. A copy of the Simple Green SDS and technical specifications is presented in Appendix F.

The contractor will use methods as necessary to prevent the transport of any decontamination materials outside of the building decontamination areas. If present, any floor drains or open pipes in the area during these activities will be temporarily plugged. Further, prior to implementing any wet cleaning measures, the contractor will evaluate the surface to be cleaned and areas where cleaning fluids could be reasonably be anticipated to migrate to confirm that decontamination fluids are retained inside the buildings. Such additional pathways include, but are not limited to, the following:

- Open joints between the wall and concrete floor
- Loading dock levelers
- Doorways (man door or overhead doors)
- Ventilation openings
- Deteriorated concrete flooring that will not retain water
- Other areas, as determined by the SMs, HSC, or third-party vendor providing project monitoring

Launderable wipes must be collected and managed in accordance with OAC 3745-51-06(A)(3)(e). Decontamination fluids and wastes must be properly containerized and managed per the project Closure Plan. Containerized decontamination fluids and rinsate will either be managed as wastewater or as hazardous for lead (D008) unless analytical representative testing demonstrates the material does not meet the hazardous characteristic criteria. If decontamination fluids and rinsate will be managed as a hazardous waste for lead (D008), the fluids will be containerized in appropriate DOT-approved containers.

Upon completion of the work, all on-site contractor equipment that is used inside the Exclusion Zone or used to move CRT materials will be decontaminated (in a designated decontamination area) prior to



leaving the Exclusion Zone and the site. The decontamination requirements also include any and all equipment that must be removed from the Exclusion Zone during the project for maintenance. The specific protocol for decontaminating reusable equipment will depend on the equipment; however, the equipment decontamination process will include the removal of dusts using a vacuum equipped with a HEPA filter, hand wiping with solvent-soaked launderable or disposable wipes, and/or wash the equipment with a detergent solution using a high pressure, low volume washer. Following the decontamination activities, the SMs, HSC, or third-party vendor providing project monitoring must inspect the decontaminated equipment and tools before they can be removed from the Exclusion Zone.

All contractors and subcontractors will be responsible for decontamination of their own equipment used during on-site operations, as well as disposal of the decontamination fluids, launderable materials or wastes generated. Launderable wipes must be collected and managed in accordance with OAC 3745-51-06(A)(3)(e). Decontamination fluids and wastes must be properly containerized, managed, and disposed per the project Closure Plan. Additionally, prior to disposal, the HSC, SM, owner, or owner's representative must confirm the fluids and/or wastes will be disposed in accordance with the Closure Plan.

Phase III work activities will utilize industrial tools, forklifts, platform lifts and decontamination equipment. Refer to the applicable JHAs included in Appendix A.

## 11.2 Personnel Decontamination

All associated site personnel should minimize contact with contaminants (e.g., lead dust). At a minimum, the gross removal of contaminants from PPE shall occur in designated areas. See Figure 2 – Support Zones and Rally Point for gross removal and PPE removal areas.

All disposable PPE must be containerized in portable containers (including disposable respirators or respirator cartridges, gloves, chemical resistant suits, etc.) pending sampling, analysis, and off-site disposal. Containers will remain closed pending receipt of analytical results. If analytical testing demonstrates the materials are considered hazardous (D008) for lead, the PPE must be transported off-site as a hazardous waste. Otherwise, the disposable PPE will be managed as a non-hazardous solid waste.

Non-disposal PPE (i.e. hard hats, safety glasses, etc.) must be decontaminated. Any PPE that cannot be decontaminated should be disposed of along with the disposable PPE referenced above. Personnel must wash their hands, face, and any areas of potential exposure during work activities or during the removal of PPE immediately after exiting the PPE removal zone and prior to eating, drinking, smoking and/or applying cosmetics. The decontamination methods will be as follows:

## Level C Personnel Decontamination

Personnel involved in activities that require the use of Level C PPE will observe the following decontamination guidelines:

- Place tools, instruments, and trash at an appropriate location. These areas should be clean and dry, and at a minimum contain plastic bags for trash. Waste PPE will not be placed in the same containers as general trash.
- Inspect equipment, and if applicable, tools that are to be removed from the Exclusion Zone for signs of residual amounts of contamination or excessive dust buildup. If present, dust and contamination



must be completely cleaned off of equipment and tools prior to removal from the decontamination areas. Personnel will visually check themselves for signs of excessive dust and possible contamination. If observed, dust and contamination will be completely removed before further decontamination is performed.



- Untape wrists and ankles.
- Remove outer work gloves and place them in an appropriate container specified for waste PPE.
- Remove outer Tyvek coveralls and place them in an appropriate container specified for waste PPE.
- Wipe off and remove hard hat and safety glasses.
- Wipe off and remove respirator mask (also goggles if worn).
- Remove inner protective gloves and place them in an appropriate container specified for waste PPE.
- Wash hands, face, and any areas of potential exposure using soap and water (separate from other decontamination cleaners/solutions).

During emergencies, the need to quickly respond to an accident or injury must be weighed against the risk to the injured party from chemical exposure. It may be that the time lost decontaminating an individual may cause greater harm to the individual than from the potential for chemical exposure, particularly if the injury is life-threatening. In these instances, a non-injured person needs to inform responding emergency personnel of the potential for chemical contamination on the victim, specifically mentioning the type and expected concentrations.



# 12 Emergency Response Plan (ERP)

The ERP describes contingencies and emergency response procedures. The ERP defines the responsibilities of key personnel in planning, prevention, and response to emergency situations, and identifies agency contacts and medical care procedures. Emergency contact and procedure information is included in Appendix G.

The ERP addresses measures to prevent and respond to emergency situations, such as fire or explosion; spill or release of hazardous material; personnel injury or illness; or other adverse events. General Emergency guidelines are as follows:

# 12.1 Stop Work Authority

Any person working on-site has the authority to stop work if any operation threatens the health and safety of on-site workers, the surrounding community, or if there are concerns and/or questions regarding health and safety controls that are not clearly established or are not understood. Management is responsible for creating a culture where Stop Work Authority is exercised freely and without fear of retribution or intimidation.

When an unsafe condition is identified, a Stop Work intervention will be initiated and treated as a "near miss". In the event that such a situation occurs, the SM shall be notified immediately. At that time, the SM will update the HSC and all project-related health and safety issues as they arise. When an unsafe condition is identified, an "incident report" will be generated to document the unsafe condition allowing for review, corrective actions, and preventative measures to be implemented, as applicable.

These actions will be coordinated by the SM, with support from the HSC, and all affected personnel will be notified of the Stop Work issue. No work will resume until all Stop Work issues and concerns have been adequately addressed. Most issues can be resolved in a timely manner at the site, but occasionally additional investigation and/or corrective actions may be required. Work may resume when it is safe to do so.

## 12.2 Personnel Involved in Emergency Response

Key personnel involved in site emergency response include the HSC, SM, and associated contractors. Clear lines of authority have been established for implementing emergency response procedures and for managing safety compliance. See section 12.3 below. All emergencies and personal injuries will be immediately reported to SM. The SM will immediately report the incident to the SMs and HSC.

## 12.3 Emergency Response Telephone Roster

The Emergency Response Telephone Roster consists of persons and organizations both on- and off-site who would be involved in the ERP. This roster, provided as Table 1A, will be kept on-site and provided to all contractors and subcontractors, along with a list of on-site personnel who are trained in first aid and CPR. All site personnel will be familiar with the Emergency Response Telephone Roster and will understand the proper chain of command. A listing of on- and off-site emergency contacts and key personnel and their alternates will be posted in the on-site Support Zone.

# 12.4 Emergency Communications

The external communication system between on-site and off-site emergency response personnel is necessary to report and coordinate emergency response. Personnel cell phones will be the primary



means of external communication and will be used to notify off-site emergency response agencies and to request assistance.

## 12.5 Emergency Medical Care and Treatment

Every injury and exposure must be reported per Section 5.6. Every injury and exposure must be reported to the employee's supervisor immediately and to the SMs or HSC within 24 hours, regardless of whether the incident appears to be serious or not, or whether any adverse health effects or symptoms are apparent after the exposure.

## 12.6 Life-Threatening Emergency Response

Incidents are possible that would result in emergencies beyond the on-site emergency response capabilities. Such incidents might include:

- Life-threatening injuries or injuries/exposures requiring medical treatment; and
- Fires progressing beyond incipient stage.

## 12.7 Evacuation Routes and Procedures

During site operations and in the event of an evacuation, a safe location (Rally Point, Figure 2) has been identified. As part of the site orientation, all on-site personnel will be informed of the evacuation plan and Rally points.

If evacuation is necessary, personnel will determine wind direction. Whenever possible, evacuation should be in the direction perpendicular to the wind direction without passing through the plume of smoke and/or spilled material, if applicable. Personnel will report to their designated Rally point. In the event that a workers' evacuation route to their primary rally point is hindered by emergency conditions, workers shall evacuate to a secondary Rally Point. If the on-site SM is not involved in emergency response activities, he/she will assist first responders in accounting for all site personnel; otherwise their designated back-up will account for all personnel and will report this information to the SM and first responders.

## 12.8 Training

All site personnel will review the information in this HASP on the emergency response procedures, and the location and use of on-site emergency equipment, and will have received emergency response training. During the site orientation and/or site safety briefings, site personnel will be trained in emergency response procedures, on-site communication systems and evacuation routes, as stated in this HASP. Visitors will be briefed on hazard recognition, safe work practices and basic emergency procedures by the SM or HSC.

## 12.9 First Aid Procedures

If associated personnel are injured, general first aid will be administered. If safety concerns or hazardous conditions are still present (e.g., incipient fire, falling debris), the individual shall be moved to avoid further injury or risk. In the event that personnel are injured in a contaminated area, general first aid will be administered and then the person will be moved to the PPE removal zone for decontamination (if applicable), additional first aid, and preparation for transportation, giving due consideration to which risk will be greater; the spread of contamination or the health/safety of the individual.



First aid kits will be maintained on-site. The type of first aid kit to be maintained will be for minor emergencies, such as cuts and skin abrasions. Where applicable, first aid supplies will be stored in a waterproof container. The SM or designated person will ensure that adequate first aid supplies (listed below) are maintained.

# **Minimum List of First Aid Supplies**

| (1) First Aid Guide                    | (6) Burn treatment applications         |
|----------------------------------------|-----------------------------------------|
| • •                                    | • • • • • • • • • • • • • • • • • • • • |
| (1) Absorbent Compress >4"x8"          | (4) 3"x3" Sterile gauze pads            |
| (16) 1"x3" Adhesive bandages           | (2) Pair medical exam gloves            |
| (1) Adhesive tape 2.5yard roll         | (1) Triangular bandage >40"x40"x56"     |
| (10) Antiseptic treatment applications | (6) Antibiotic ointment applications    |
| (2) Eye/face wash                      |                                         |

# **Recommended List of First Aid Supplies**

| Analgesic (oral, non-drowsy)  | Hand sanitizer            |
|-------------------------------|---------------------------|
| Bandage compress >2"x2"       | Eye covering >1/4" thick  |
| Breathing barrier, single use | Roller bandage >2"x4yards |
| Cold pack >4"x5"              |                           |

The contents of the first aid kits shall be checked before placed on-site and at least weekly to ensure that expended items are replaced. Where the eyes or body of any personnel may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be available for use.



### 13 Sanitary Facilities and Lighting Requirements

**Potable Water** - An adequate supply of potable water must be provided on the site. Portable containers used to dispense drinking water shall be capable of being tightly closed and equipped with a tap. Any container used to distribute drinking water shall be clearly marked as the nature of its contents and not used for any other purposes. Where disposable single service cups are supplied, both a sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided.

**Sanitary/Toilet Facilities** – Provisions must be made so that no less than one toilet facility is available. Toilet facilities for men and women are accessible inside the building, adjacent to the Support Zone and outside of the Exclusion Zone. See Figure 2 – Support Zones and Rally Point.

**Lighting Requirements** – Work is anticipated to be completed indoors and during daylight hours. Adequate lighting must be maintained inside the buildings. If adequate lighting is not present for a specific project task, it must be provided/established prior to starting the work. If work will extend beyond daylight hours, adequate lighting must also be provided outside the buildings near exterior loading dock areas and/or employee access areas.



### 14 Daily Site Safety Meetings and Checklists

#### 14.1 Daily Site Safety Meeting Record

All personnel participating in the project must receive initial on-site Health and Safety Orientation. Thereafter, daily site safety meetings (tailgate meetings) are required prior to the start of each work day or work shift for personnel to discuss health and safety issues, project procedures, exposure incidents, potential up-coming changes in operations, or site conditions not accounted for in this HASP and/or more stringent contractor or subcontractor HASPs associated with this project. All site personnel must acknowledge attendance of the daily site safety meetings by signing the Daily Site Safety Meeting Record. A copy of the Daily Site Safety Meeting Record and a Site Safety Meeting Checklist are included in Appendix I.

#### 14.2 Site Safety Meeting Checklist

As part of the Daily Site Safety Meetings, contractor's supervisor should consider reviewing a site safety checklist, if needed. A copy of a Site Safety Meeting Checklist is included in Appendix I. Completed site safety checklists, if used, should be recorded and maintained with the Daily Site Safety Meeting Records.

#### 14.3 Equipment Pre-Operation Inspections

To prevent injuries and protect on-site personnel against hazards associated with equipment operations and materials handling, only properly trained and authorized personnel will be allowed to operate heavy equipment. All material-handling heavy equipment will be maintained in a safe operating condition and inspected daily prior to use.

Additional heavy equipment safety requirements include, but are not limited to:

- Prior to operating any heavy equipment, the authorized operator must conduct a pre-operation inspection to confirm that the heavy equipment is in safe operating condition.
- All mobile equipment shall be equipped with an audible back-up alarm
- All equipment must be maintained and operated in accordance with the manufacturer's specifications.

Additionally, all small tools, equipment, and power tools must be inspected prior to use and maintained and operated in accordance with the manufacturer's specifications.

A copy of the heavy equipment Pre-Operation Inspection Form is included in Appendix I. This form must be completed on a daily basis prior to heavy equipment operation. A copy of the completed form must be provided to and maintained by the contractor's supervisor.

# Appendix A Job Hazard Assessments

## Job Hazard Analysis (JHA)

| Activity/Work Task: General Work Hazard                                                | ds                            | Overal              | l Risk Assessme                                    | ent Code (RA         | AC) (Use h       | ighest code)       | F                                           | ev.0 <b>[</b> |
|----------------------------------------------------------------------------------------|-------------------------------|---------------------|----------------------------------------------------|----------------------|------------------|--------------------|---------------------------------------------|---------------|
| Project Name: Former Closed Loop Facilit<br>1655 and 1675 Watkins Ro<br>Columbus, Ohio | •                             |                     | Risk A                                             | ssessmen             | t Code (F        | RAC) Matrix        | (                                           |               |
| Contract Number:                                                                       |                               | Con                 |                                                    |                      |                  | Probability        | •                                           |               |
| Date Prepared: 11/25/2018                                                              |                               | Sev                 | erity                                              | Frequent             | Likely           | Occasional         | Seldom                                      | Unlike        |
| Prepared by (Name/Title): Karl Primdahl                                                |                               |                     | strophic                                           | E                    | E                | Н                  | Н                                           | M             |
| . , , , ,                                                                              |                               |                     | itical                                             | E                    | H                | Н                  | M                                           | L             |
| Reviewed by (Name/Title): Michael Koer                                                 | nig, Site Manager             |                     | rginal<br>rligible                                 | H<br>M               | M<br>L           | M<br>L             | L                                           | L             |
| Notes: (Field Notes, Review Comments, etc.)                                            |                               |                     | ch <b>"Hazard"</b> with iden                       | tified safety "Cont  | trols" and dete  | rmine RAC (See abo | ove)                                        |               |
|                                                                                        |                               | "Probability" is th | e likelihood to cause a                            | an incident, near n  | niss, or acciden |                    |                                             | Chart         |
|                                                                                        |                               | identified as: Cata | outcome/degree if an i<br>strophic, Critical, Mar  | ginal, or Negligible | 9                | F                  | = Extremely<br> = High Risk<br>  = Moderate |               |
|                                                                                        |                               |                     | ne RAC (Probability/Se<br>e overall highest RAC a  | .,                   | or L for each "F |                    | = Low Risk                                  | RISK          |
| Job Steps                                                                              | Hazards                       | •                   |                                                    | (                    | Controls         |                    |                                             | RAG           |
| General Work Area                                                                      | Slip / trip / fall            |                     | Designated pa                                      | •                    |                  |                    | ations.                                     | M             |
| General Work Area – lifting                                                            | Sprain / Strain               |                     | Stage equipme<br>Split heavy loa<br>Request assist | ids into small       | er loads.        |                    |                                             | M             |
|                                                                                        |                               |                     | Lift with legs-                                    | ads in front o       | f the torso;     | ; avoid overrea    | aching                                      | IVI           |
| Break time                                                                             | Ingestion                     |                     | Follow decont                                      | amination pr         | •                | 0 ,                | sh hands                                    | L             |
| Use of hand tools                                                                      | Pinch points<br>Strain-sprain |                     | Use proper ho wrenches, scre                       |                      |                  | •                  | _                                           | М             |

|                                   | Difficult positions | Ensure proper direction and grip on hammers and all other       |     |
|-----------------------------------|---------------------|-----------------------------------------------------------------|-----|
|                                   | Cut-hazards         | manual demolition hand tools prior to use. Ensure use of full   |     |
|                                   |                     | body weight for counterbalance – use proper footing stance.     |     |
| Noise Control                     | Hazardous           | Equipment may exceed 85 dbA.                                    |     |
|                                   | Noise               |                                                                 |     |
|                                   |                     | As a general "rule of thumb" – if you must raise your voice in  |     |
|                                   |                     | order to be heard – hearing protection should be used.          |     |
| Stairway/ladder use to access     | Slip / trip / fall  | Maintain 3-point contact on installed all installed ladders and |     |
| work area                         |                     | stairways.                                                      | B.4 |
|                                   |                     |                                                                 | M   |
|                                   |                     | Stay within cat-walk/handrail protected areas if available.     |     |
| Use of ladders                    | Slip / trip / fall  | Maintain 3- point contact.                                      |     |
|                                   |                     |                                                                 |     |
|                                   |                     | Extension ladders must extend 3 ft. from landing and be         |     |
|                                   |                     | secured.                                                        | M   |
|                                   |                     |                                                                 |     |
|                                   |                     | A-Frame ladders must be fully extended, do not stand on top     |     |
|                                   |                     | two rungs of the ladder.                                        |     |
| Hand Held Power Tools, electrical | Electrical Shock    | All electrical equipment must be GFCI protected.                |     |
| equipment.                        |                     |                                                                 |     |
|                                   |                     | Plug all hand held tools into a GFCI.                           | М   |
|                                   |                     |                                                                 | 141 |
|                                   |                     | Temporary electrical panels must be installed by a qualified    |     |
|                                   |                     | electrician.                                                    |     |

### Personal Protective Equipment to be Used

- Steel Toed Boots
- Hard Hat
- Safety Glasses
- Gloves appropriate for the task (chemical protective, work gloves, impact gloves, etc.)
- Chemical Resistant Suit
- Respirator
- Other (per HASP task specific)

Date/Time: **Supervisor Name: Safety Specialist Name:** Date/Time: **Employee Name(s):** Date/Time:\_\_\_\_\_ Date/Time: Date/Time:\_\_\_\_\_ Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time:\_\_\_\_\_ Date/Time:\_\_\_\_ Date/Time:\_\_\_\_\_ Date/Time: Date/Time:\_\_\_\_\_

**SIGNATURE** 

PRINT

## Job Hazard Analysis (JHA)

| Activity/Work Task: Working while Wearing                                               | g a Respirator                                                                                      | Overall                           | Risk Assessm                                                                                         | ent Code (R          | AC) (Use h       | ighest code)                               | Re                                              | v.0 <b>M</b> |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------|----------------------|------------------|--------------------------------------------|-------------------------------------------------|--------------|
| Project Name: Former Closed Loop Facilit<br>1655 and 1675 Watkins Roa<br>Columbus, Ohio | ₹`                                                                                                  | Risk Assessment Code (RAC) Matrix |                                                                                                      | ĸ                    |                  |                                            |                                                 |              |
| AKT Peerless Project Number: 137530                                                     |                                                                                                     | Con                               | - u <b>is</b> .                                                                                      |                      |                  | Probability                                | ,                                               |              |
| Date Prepared: 11/25/2018                                                               |                                                                                                     | - Sev                             | erity                                                                                                | Frequent             | Likely           | Occasional                                 | Seldom                                          | Unlikely     |
| Prepared by (Name/Title): Karl Primdahl                                                 |                                                                                                     |                                   | trophic                                                                                              | E                    | E                | Н                                          | Н                                               | M            |
| - Trepared by (Name, Nacy, Narr Timuani                                                 |                                                                                                     |                                   | tical                                                                                                | E                    | Н                | Н                                          | M                                               | L            |
| Reviewed by (Name/Title):                                                               |                                                                                                     |                                   | rginal<br>ligible                                                                                    | H<br>M               | M                | M                                          | L                                               | L            |
| Notes: (Field Notes, Review Comments, etc.)                                             |                                                                                                     |                                   | th <b>"Hazard"</b> with iden                                                                         |                      | trale" and data  | rmina BAC (Saa aha                         | avo)                                            | •            |
|                                                                                         |                                                                                                     | "Probability" is the              | e likelihood to cause a<br>uent, Likely, Occasion                                                    | an incident, near n  | niss, or acciden | ,                                          |                                                 | Chart        |
|                                                                                         |                                                                                                     | identified as: Catas              | utcome/degree if an<br>strophic, Critical, Mar<br>e RAC (Probability/Se                              | ginal, or Negligible | 9                | ŀ                                          | = Extremely F<br>I = High Risk<br>VI = Moderate |              |
|                                                                                         |                                                                                                     |                                   | overall highest RAC                                                                                  |                      | of Lioi each i   |                                            | = Low Risk                                      | USK          |
| Job Steps                                                                               | Hazards                                                                                             |                                   |                                                                                                      | C                    | ontrols          |                                            |                                                 | RAC          |
| Donning the Respirator                                                                  | Exposure to hazardous atm substances by wearing a re using cartridges that are no with the product. | respirator or clearan             |                                                                                                      |                      | st prior to      | have a medica<br>wearing a resp<br>cances. |                                                 |              |
|                                                                                         | Exposure to hazardous substances by wearing a cracked, broken or otherwise                          |                                   | Personnel must be trained in the use and care of their respirator.                                   |                      |                  |                                            | eir                                             |              |
|                                                                                         | faulty respirator                                                                                   |                                   | Employees wearing respirators must perform a negative                                                |                      |                  |                                            | ative                                           | L            |
|                                                                                         | Exposure to hazardous substances by not properly donning the respirator.                            |                                   | pressure test when first donning the respirator to ensure the a tight seal and good fit is achieved. |                      |                  | nsure that                                 |                                                 |              |
|                                                                                         | Induced medical condition wearer if unable to safely v respirator as determined b                   | wear a                            | Cartridge com<br>selecting a car<br>ensure that th<br>chemical.                                      | tridge to use        | during clea      | anup operatio                              | ns to                                           |              |
| Performing work while wearing the respirator                                            | Experiencing shortness of br fatigue                                                                | reath or                          | Be sure that a<br>pulmonary fur<br>wear a respira                                                    | nction test an       | d are fit fo     | -                                          |                                                 | М            |

| Performing work while wearing the       | Limited vision which might allow trips and   | Workers wearing respirators should be evaluated for their       |   |
|-----------------------------------------|----------------------------------------------|-----------------------------------------------------------------|---|
| respirator - continued                  | falls or being struck by various vehicles or | ability to safely wear a respirator prior to beginning work. It |   |
|                                         | equipment in the work area.                  | may be necessary to have someone "suit up" before going         |   |
|                                         |                                              | into a work area to see how they react and ensure that they     |   |
|                                         | Experiencing a panic attack due to           | remain calm and in control.                                     |   |
|                                         | claustrophobia or other mental stress        |                                                                 |   |
|                                         |                                              | Keep the work area free of unnecessary trip hazards; make       | M |
|                                         |                                              | sure all persons are aware of any trip hazards that remain in   |   |
|                                         |                                              | the area.                                                       |   |
|                                         |                                              | Keep all non-essential vehicles and equipment out of the        |   |
|                                         |                                              | work area; equipment operators are ultimately responsible       |   |
|                                         |                                              | for the operation of the machine and should give ground         |   |
|                                         |                                              | workers the right-of-way.                                       |   |
| Doffing the respirator after completion | Contamination to personnel and to            | Employees should properly doff all PPE; 1. Remove out gloves    |   |
| of the work.                            | clothing from contact with any potential     | by peeling them inside out. 2. Remove Tyvek or other            |   |
|                                         | contamination of the respirator.             | protective suit by peeling it down and exposing the inside of   |   |
|                                         | ·                                            | the suit. 3. Remove any masks, goggles, face shields, etc. 4.   |   |
|                                         | Future exposure hazards when wearing a       | Remove 2nd pair of gloves.                                      | L |
|                                         | respirator which was not properly            | · Š                                                             |   |
|                                         | decontaminated after exposure and/or         | Provide appropriate decon solution or mild dish detergent for   |   |
|                                         | use.                                         | workers to clean and decon respirators after each use.          |   |

## Personal Protective Equipment to be Used

- Steel Toed Boots
- Hard Hat
- Chemical Resistant Suit
- Chemical Resistant Gloves
- Chemical Resistant Boot Covers
- Hearing Protection such as Ear Plugs or Ear Muffs, as applicable
- Safety Glasses
- Respirator
- Other (per HASP task specific)

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|-------------------------|--------------|------------------|------------|
| Supervisor Name:        |              |                  | Date/Time: |
| Safety Specialist Name: |              |                  | Date/Time: |
| Employee Name(s):       |              |                  | Date/Time: |
|                         | -            |                  | Date/Time: |
|                         |              |                  | Date/Time: |

## **Job Hazard Analysis (JHA)**

| Activity/Work Task: Working while wearing                                                | g a "Tyvek" suit                                                                                       | Overal                                 | ll Risk Assessm                                    | ent Code (R                                       | AC) (Use h                 | ighest code)                          | Re                             | v.0 <b>M</b> |
|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------|---------------------------------------------------|----------------------------|---------------------------------------|--------------------------------|--------------|
| Project Name: Former Closed Loop Facility<br>1655 and 1675 Watkins Roa<br>Columbus, Ohio |                                                                                                        |                                        | Risk A                                             | Assessmen                                         | t Code (I                  | RAC) Matri                            | ĸ                              |              |
| AKT Peerless Project Number: 137530                                                      |                                                                                                        | Probability                            |                                                    | ,                                                 |                            |                                       |                                |              |
| Date Prepared: 11/25/18                                                                  |                                                                                                        | - sev                                  | erity/                                             | Frequent                                          | Likely                     | Occasional                            | Seldom                         | Unlikely     |
| Prepared by (Name/Title): Karl Primdahl                                                  |                                                                                                        |                                        | strophic                                           | E                                                 | Е                          | Н                                     | Н                              | M            |
|                                                                                          |                                                                                                        |                                        | ritical<br>orginal                                 | E                                                 | H<br>M                     | H<br>M                                | M                              | L            |
| Reviewed by (Name/Title): Mike Koenig, Si                                                | te Manager                                                                                             |                                        | gligible                                           | M                                                 | L                          | L                                     | L                              | L            |
| Notes: (Field Notes, Review Comments, etc.)                                              |                                                                                                        |                                        | ch <b>"Hazard"</b> with ider                       | ntified safety "Con                               | trols" and dete            | rmine RAC (See abo                    | ove)                           |              |
|                                                                                          |                                                                                                        | "Probability" is th                    | ne likelihood to cause<br>quent, Likely, Occasior  | an incident, near r                               | niss, or acciden           | · · · · · · · · · · · · · · · · · · · |                                | Chart        |
|                                                                                          |                                                                                                        | "Severity" is the didentified as: Cata | outcome/degree if an astrophic, Critical, Mai      | incident, near mis<br>rginal, or Negligible       | s, or accident d<br>e      | ŀ                                     | = Extremely H<br>I = High Risk |              |
|                                                                                          |                                                                                                        | •                                      | he RAC (Probability/Se<br>e overall highest RAC    |                                                   | or L for each "I           | · · · · · · · · · · · · · · · · · · · | /I = Moderate  <br>= Low Risk  | Risk         |
| Job Steps                                                                                | Hazards                                                                                                | 1                                      |                                                    | •                                                 | Controls                   |                                       |                                | RAC          |
| 1. Donning proper PPE                                                                    | Contamination to personne wearing improper or dama Contamination to personne improper donning of Tyvek | el by                                  | Tyvek Suits.  Inspect all suit                     | stances; this r<br>ts prior to use<br>Ensure that | may include<br>e to ensure | e all various ty                      | pes of<br>no rips,             | L            |
|                                                                                          |                                                                                                        |                                        | Be sure that a<br>trained on pro<br>the Tyvek suit | oper procedu                                      | _                          | yvek suit have<br>ing on and tak      |                                |              |
| 2. Cleaning up hazardous materials                                                       | Contamination to personnel materials on exposed skin.                                                  | l by splashing                         | Ensure that al hazardous ma exists.                |                                                   |                            | d when workir<br>tial for skin co     |                                |              |
|                                                                                          | Contamination of tools used materials, resulting in conta other personnel.                             | •                                      | Clean all tools solution.                          | s using an app                                    | roved clea                 | ner or deconta                        | amination                      | M            |
|                                                                                          |                                                                                                        |                                        | Cleaning shou<br>to avoid cross                    | •                                                 |                            | vearing appro                         | oriate PPE                     |              |

| 2. Cleaning up hazardous materials - continued |                                   | Encure that percental picking up hage and debric use caution                                                            | D.4 |
|------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----|
| Continued                                      |                                   | Ensure that personnel picking up bags and debris use caution when lifting and loading the bags; keep the bags away from | M   |
|                                                |                                   | the body when lifting them.                                                                                             |     |
| 3. Doffing PPE upon completion of work         | Contamination to personnel and to | Employees should properly doff all PPE; 1. Remove outer                                                                 |     |
|                                                | clothing from contact with the    | gloves by peeling them inside out. 2. Remove Tyvek or other                                                             |     |
|                                                | contaminant.                      | protective suit by peeling it down and exposing the inside of                                                           |     |
|                                                |                                   | the suit. 3. Remove any masks, goggles, faceshields, etc. 4.                                                            |     |
|                                                |                                   | Remove 2nd pair of gloves.                                                                                              |     |
|                                                |                                   | Consider all PPE to be contaminated and dispose of as                                                                   |     |
|                                                |                                   | applicable.                                                                                                             |     |

### Personal Protective Equipment to be Used

- Steel Toed Boots
- Hard Hat
- Safety Glasses
- Chemical Resistant Suit
- Gloves appropriate for the task (chemical protective, work gloves, impact gloves, etc.)
- Other (per HASP task specific)

| Supervisor Name:        |  | <br>Date/Time: |
|-------------------------|--|----------------|
| Safety Specialist Name: |  | <br>Date/Time: |
| Employee Name(s):       |  | Date/Time:     |
|                         |  | Date/Time:     |
|                         |  | Date/Time:     |
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|                         |  | <br>Date/Time: |
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## Job Hazard Analysis (JHA)

| Activity/Work Task: Working around mobile                                                 | equipment                                                                                                           | Overa                                                         | ll Risk Assessm                                                                                                                 | ent Code (RA                                                                         | AC) (Use h                                                     | ighest code)                                                       | Rev                                              | v.0 <b>H</b> |
|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------|--------------|
| Project Name: Former Closed Loop Facility<br>1655 and 1675 Watkins Road<br>Columbus, Ohio |                                                                                                                     |                                                               |                                                                                                                                 |                                                                                      |                                                                |                                                                    |                                                  |              |
| Contract Number:                                                                          |                                                                                                                     | Ç a.                                                          | . a u <b>it</b>                                                                                                                 |                                                                                      |                                                                | Probability                                                        | ,                                                |              |
| Date Prepared: 11/25/2018                                                                 |                                                                                                                     | - sev                                                         | verity                                                                                                                          | Frequent                                                                             | Likely                                                         | Occasional                                                         | Seldom                                           | Unlikely     |
| Prepared by (Name/Title): Karl Primdahl                                                   |                                                                                                                     |                                                               | strophic<br>ritical                                                                                                             | E<br>E                                                                               | E<br>H                                                         | H<br>H                                                             | H<br>M                                           | M<br>L       |
| Reviewed by (Name/Title): Michael Koenig,                                                 | Site Manager                                                                                                        |                                                               | arginal<br>gligible                                                                                                             | H<br>M                                                                               | M<br>L                                                         | M<br>L                                                             | L<br>L                                           | L            |
| Notes: (Field Notes, Review Comments, etc.)                                               |                                                                                                                     |                                                               | ich <b>"Hazard"</b> with idei                                                                                                   | ntified safety <b>"Con</b> t                                                         | trols" and dete                                                | rmine RAC (See abo                                                 | ove)                                             |              |
|                                                                                           |                                                                                                                     | identified as: Fred<br>"Severity" is the didentified as: Cata | ne likelihood to cause<br>quent, Likely, Occasior<br>outcome/degree if an<br>astrophic, Critical, Mai<br>he RAC (Probability/Se | nal, Seldom or Unli<br>incident, near miss<br>rginal, or Negligible                  | kely.<br>s, or accident d                                      | id occur and                                                       | RAC ( = Extremely H I = High Risk M = Moderate R | gh Risk      |
| Job Steps                                                                                 | Hazards                                                                                                             | JHA. Annotate th                                              | e overall highest RAC                                                                                                           | •                                                                                    | Controls                                                       | ı.                                                                 | = Low Risk                                       | RAC          |
| 1. Approaching the machine while it is being operated                                     | Being hit by the machine b<br>operator did not see you<br>Nearby personnel being str<br>equipment as it is being op | ruck by the                                                   | machine. This motions or by Wait until the approaching.                                                                         | ntact, verbal co<br>let them know<br>s can be done<br>y verbal comm<br>e machine has | ontact or raw you plan by making nunication.                   | adio contact w<br>to approach th<br>hand gestures<br>complete stop | vith the<br>he<br>s or<br>o before               | н            |
|                                                                                           |                                                                                                                     |                                                               | Do not approa<br>operator's ha<br>Keep non-ess<br>The use of saf                                                                | that his/her hachinds are off the ential personretely chains, ca                     | ands are not ine until the controls nel out of the untion tape | ot on the cont<br>e brake is on a<br>he work area.                 | rols<br>and the                                  |              |

| 2. Working near the bucket, forks or | Being struck by the bucket, forks or the  | Be sure that the operator has the brake set and his hands are  |   |
|--------------------------------------|-------------------------------------------|----------------------------------------------------------------|---|
| other attachments on the machine     | machine when doing any type of work       | off the controls when personnel are working near the           |   |
|                                      | near the attachments. Taking samples,     | attachments                                                    |   |
|                                      | pushing freight onto forks, rigging for a |                                                                |   |
|                                      | lift, etc.                                | Keep hands and fingers out of obvious pinch points, especially |   |
|                                      |                                           | when trying to rig something for a lift of when trying to push | н |
|                                      | Getting hands and fingers caught in pinch | freight onto the forks of a tow motor.                         |   |
|                                      | points near the attachments               |                                                                |   |
|                                      |                                           | Wear appropriate gloves such as impact gloves.                 |   |
|                                      |                                           |                                                                |   |

### Personal Protective Equipment to be Used

- Steel Toed Boots
- Hard Hat
- Safety Glasses
- Chemical Resistant Suit
- Gloves appropriate for the task (chemical protective, work gloves, impact gloves, etc.)
- Other (per HASP task specific)

Date/Time: **Supervisor Name: Safety Specialist Name:** Date/Time: **Employee Name(s):** Date/Time:\_\_\_\_\_ Date/Time: Date/Time:\_\_\_\_\_ Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time:\_\_\_\_\_ Date/Time:\_\_\_\_\_ Date/Time:\_\_\_\_\_ Date/Time: Date/Time:\_\_\_\_\_

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## **Job Hazard Analysis (JHA)**

| Activity/Work Task: Forklift Operations                                                      |                                                                                                                                                                                                                                  | Overal                                                             | l Risk Assessme                                                                                                                  | ent Code (R                                                                              | AC) (Use h                | ighest code)             | Re                                              | v.0 <b>H</b> |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------|--------------------------|-------------------------------------------------|--------------|
| Project Name: Former Closed Loop Facility<br>1655 and 1675 Watkins Road<br>Columbus, Ohio    | d                                                                                                                                                                                                                                |                                                                    | Risk A                                                                                                                           | ssessmen                                                                                 | t Code (F                 | RAC) Matrix              | ĸ                                               |              |
| AKT Peerless Project Number: 135730                                                          |                                                                                                                                                                                                                                  | Con                                                                |                                                                                                                                  |                                                                                          |                           | Probability              | ,                                               |              |
| Date Prepared: 11/25/2018                                                                    |                                                                                                                                                                                                                                  | - Sev                                                              | erity                                                                                                                            | Frequent                                                                                 | Likely                    | Occasional               | Seldom                                          | Unlikely     |
| Prepared by (Name/Title): Karl Primdahl                                                      |                                                                                                                                                                                                                                  |                                                                    | trophic<br>itical                                                                                                                | E                                                                                        | E<br>H                    | H                        | H<br>M                                          | M            |
| Reviewed by (Name/Title): Mike Koenig, Site                                                  | e Manager                                                                                                                                                                                                                        | Ma                                                                 | rginal<br>ligible                                                                                                                | H<br>M                                                                                   | M                         | M                        | L                                               | L            |
| Notes: (Field Notes, Review Comments, etc.)                                                  |                                                                                                                                                                                                                                  |                                                                    | ch <b>"Hazard"</b> with iden                                                                                                     |                                                                                          | trols" and dete           | rmine RAC (See abo       | ove)                                            |              |
|                                                                                              |                                                                                                                                                                                                                                  | "Severity" is the o<br>identified as: Catas<br>Step 2: Identify th | e likelihood to cause a<br>uent, Likely, Occasiona<br>utcome/degree if an i<br>strophic, Critical, Mary<br>e RAC (Probability/Se | al, Seldom or Unli<br>incident, near mis:<br>ginal, or Negligible<br>verity) as E, H, M, | kely.<br>s, or accident d | id occur and  Hazard" on | = Extremely H<br>I = High Risk<br>II = Moderate |              |
| Job Steps                                                                                    | Hazards                                                                                                                                                                                                                          | JHA. Annotate the                                                  | e overall highest RAC a                                                                                                          |                                                                                          | Controls                  |                          | = Low Risk                                      | RAC          |
| Operator must have Forklift Operator certification before operating the equipment.           | Improper training or lack or result in injury to personne damage and can create unsenvironments for all personarea.                                                                                                              | el or property<br>safe                                             | Equipment op<br>and be able to<br>Facility or clier                                                                              | operate the                                                                              | equipment                 | : in a safe man          | •                                               | L            |
| 2. Perform a walk around of the machine and complete a daily equipment inspection checklist. | Slip or trip hazards could be the equipment may not be in operating condition.  A fall hazard is always presegetting on and off the maching condition operating damaged or faulty can result in severe personal property damage. | n a safe  nt when  ine.  y equipment                               | Stop & Think a<br>then check for<br>fittings and to<br>Ensure 3-point<br>machine.                                                | rleaks, equip<br>rn or loose be                                                          | ment dama<br>elts.        | ige, loose wire          | es and                                          | L            |

| 3. Operate the machine in the designated area                                                                | Congestion of trucks, bins and other equipment in the operating area can lead to injury to nearby personnel or property damage.  Swinging the forks and loads over nearby personnel puts those personnel under a suspended load and puts them in the line of fire of the bucket and arm.  Having a load fall off the forks when traveling down an incline  Loads falling off the forks when going over bump  Hitting people or property when operating the forklift with an obstructed | Assess the area; be aware of the surroundings and maintain communication with all personnel and moving equipment. Some facilities or clients may require a "red zone" barricade around the operating area of the machine and do not let personnel enter the area while the unit is operating  Always back down and incline when there is a load on the forks  Travel in reverse when your view is obstructed from a large load  Travel over bumps and uneven surfaces in a diagonal pattern. | н |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|                                                                                                              | view due to a large load.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |
| 4. Once task is completed, park the machine in the designated area, lower the forks and apply the park brake | Nearby personnel and equipment can hit raised equipment when passing by.                                                                                                                                                                                                                                                                                                                                                                                                               | Ground all forks and attachments and assess the designated parking area for other hazards.                                                                                                                                                                                                                                                                                                                                                                                                   |   |
|                                                                                                              | Raised attachments can cause stress on the hydraulics and if they fail they can hit nearby personnel or property or damage the equipment.                                                                                                                                                                                                                                                                                                                                              | Always park equipment on flat and level surfaces.                                                                                                                                                                                                                                                                                                                                                                                                                                            | L |

## Personal Protective Equipment to be Used

- Steel Toed Boots
- Hard Hat
- Safety Glasses
- Seat Belt
- Other (per HASP task specific)

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| Supervisor Name:        |              |                  | Date/Time: |
| Safety Specialist Name: |              |                  | Date/Time: |
| Employee Name(s):       |              |                  | Date/Time: |
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|                         |              | -                | Date/Time: |
|                         |              |                  | <u> </u>   |
|                         |              |                  | Date/Time: |

**Job Hazard Analysis (JHA)** 

| Activity/Work Task: Aerial Platform Work                                               | Overal                                                                                      | Overall Risk Assessment Code (RAC) (Use highest code)                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                     |           | ev.0           | М             |          |    |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------|----------------|---------------|----------|----|
| Project Name: Former Closed Loop Facilit<br>1655 and 1675 Watkins Ro<br>Columbus, Ohio |                                                                                             |                                                                                                                                                                                        | Risk                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Assessmen                                           | t Code (F | RAC) Matri     | <             |          |    |
| Contract Number:                                                                       |                                                                                             | Coverity                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Probability                                         |           |                |               |          |    |
| Date Prepared: 11/25/2018                                                              |                                                                                             | - Sev                                                                                                                                                                                  | Risk Assessment Code (RAC) Matrix  Probability  Frequent Likely Occasional Seldom  Catastrophic E E H H H  Critical E H H M M  Marginal H M M M L  Negligible M L L L  Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)  "Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.  Severity" is the outcome/degree if an incident, near miss, or accident and identified as: Catastrophic, Critical, Marginal, or Negligible  Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on JHA. Annotate the overall highest RAC at the top of JHA.  Controls  Use appropriate traffic control measures.  Utilize fencing/delineators/cones and caution tape to rope off area of work | Ur                                                  | nlikely   |                |               |          |    |
| Prepared by (Name/Title): Karl Primdahl                                                |                                                                                             |                                                                                                                                                                                        | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | _                                                   |           |                | _             |          | M  |
|                                                                                        |                                                                                             |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                     |           |                | L             |          | i  |
| Reviewed by (Name/Title): Michael Koenig, Site Manager                                 |                                                                                             |                                                                                                                                                                                        | · ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                     | L         | L              | L             |          | L  |
| Notes: (Field Notes, Review Comments, etc.)                                            |                                                                                             |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                     |           |                |               |          |    |
|                                                                                        |                                                                                             |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                     |           |                |               | Char     | t  |
|                                                                                        |                                                                                             | -                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                     |           |                |               | High Ris | ik |
|                                                                                        |                                                                                             | Step 2: Identify th                                                                                                                                                                    | ne RAC (Probability/S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Severity) as E, H, M,                               |           | Hazard" on     | /I = Moderate | e Risk   |    |
| Job Steps                                                                              | Hazards                                                                                     |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                     |           | RAC            |               |          |    |
| 1. Set up exclusion zone                                                               | Physical injury from moving Vehicles  Strike pedestrian/unauthorized personnel in work area |                                                                                                                                                                                        | Utilize fencin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | cing/delineators/cones and caution tape to rope off |           |                |               | f        | L  |
| 2. Ensure fire protection                                                              | Fire                                                                                        |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | re extinguishers within 25' of work zone(s)         |           |                |               |          | L  |
| 3. Perform equipment inspection  Lift failure  Pinch                                   |                                                                                             | safety devices, fall protection; air, hydraulic and fuel system leaks, cables and wiring harness; missing parts; tires and wheels; outriggers, stabilizers, extendable axles and other |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                     |           |                | L             |          |    |
|                                                                                        |                                                                                             |                                                                                                                                                                                        | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | otential pinch ,<br>are labelled or                 | •         | nts before ope | ration and    | d        |    |

| 4. Equipment operation          | Unsafe operation               | Lift controls shall be tested in accordance with the                                                                                          |     |
|---------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----|
|                                 | Pinch Points                   | manufacturers or instructions prior to use to determine that such controls are in safe working condition.                                     |     |
|                                 |                                | Only authorized persons shall operate an aerial device. Authorized person shall be named in the HASP.                                         |     |
|                                 |                                | Employees shall not sit or climb on the edge of the basket or use planks, ladders or other devices to gain greater working height.            | M   |
|                                 |                                | Signal person shall be in full view of equipment operator.                                                                                    |     |
|                                 |                                | Employees / support personnel shall not go over, under, behind, or between operating equipment.                                               |     |
| 5. Establish clear path         | Injury to personnel            | Inspect the entire area where aerial platform is to be used.                                                                                  |     |
|                                 | Getting lift stuck             | Ensure there are no drop-offs or holes; bumps and ground obstructions; debris; overhead obstructions and high voltage                         |     |
|                                 | Tipping over/driving off path  | conductors; hazardous locations                                                                                                               | L   |
|                                 | Overhead utilities             | Maintain safe distance from energized electric utilities, ensure swing radius and path do not contact any overhead utilities or obstructions. |     |
| 6. Don fall protection prior to | Falls                          | Shall be secured to manufacturer's anchor point.                                                                                              |     |
| operating.                      |                                | Body harness with Self Retracting Lanyard- or fixed lanyard <4' long.                                                                         | L   |
| 7. Lift operation               | Pinch points                   | Keep feet and hands clear of moving/suspended materials                                                                                       |     |
|                                 | Overhead utilities             | and equipment.                                                                                                                                |     |
|                                 | Overnead difficies             | Beware of contact points.                                                                                                                     | 5.4 |
|                                 | Personnel struck by equipment  |                                                                                                                                               | M   |
|                                 | Unsafe rigging / Lift failure  | Identify all energized utilities.                                                                                                             |     |
|                                 | Silver inggring / Elit idildic | Maintain safe distance (minimum 10 feet) from energized                                                                                       |     |
|                                 | Unsafe operation               | electric utilities, ensure swing radius and path do not                                                                                       |     |

| 7. Lift operation - continued | contact any overhead utilities or obstructions.                                                                                                                                  |   |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|                               | Lift to be operated only by qualified /authorized operator.  All non essential personnel will be evacuated from the immediate area during any lifting or unloading of materials. | M |
|                               | At no time will personnel be permitted to pass beneath or cross patch of a load in transit.                                                                                      |   |
|                               | Calculate load weight and distance using standard charts prior to pick.                                                                                                          |   |
|                               | Getting off or on any equipment while it is in motion is prohibited.                                                                                                             |   |

### Personal Protective Equipment to be Used

- Steel Toed Boots
- Hard Hat
- Safety Glasses
- Gloves appropriate for the task (chemical protective, work gloves, impact gloves, etc.)
- Fall Protection
- Chemical Resistant Suits
- Respirator
- Other (per HASP task specific)

Date/Time: **Supervisor Name: Safety Specialist Name:** Date/Time: **Employee Name(s):** Date/Time:\_\_\_\_\_ Date/Time: Date/Time:\_\_\_\_\_ Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time:\_\_\_\_\_ Date/Time:\_\_\_\_\_ Date/Time:\_\_\_\_\_ Date/Time: Date/Time:\_\_\_\_\_

**SIGNATURE** 

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# Appendix B Standard Operating Procedure 1.0



### **STANDARD OPERATION PROCEDURE 1.0**

## Removal of CRT Materials From 1655 & 1675 Watkins Road, Columbus, Ohio

ORIGINAL SOP PREPARATION DATE: FEBRUARY 28, 2019
SOP REVISION DATES: N/A

**Prepared for:** 

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#### 1.0 Introduction

The purpose of this Standard Operating Procedure (SOP) is to provide a general guideline for the handling, moving, cleaning, packaging/repackaging, weighing, labeling, loading, and record keeping of CRT materials and hazardous wastes to be removed from the former Closed Loop facility located at 1655 & 1675 Watkins Road for off-site recycling and/or disposal.

All workers involved with completing these tasks inside the building must comply with the current site-specific Health and Safety Plan prepared for the project. No workers can enter the warehouse space (Exclusion Zone) without complying with all aspects of the Health and Safety Plan. All tasks associated with this work shall be completed in accordance with the Ohio Environmental Protection Agency- (Ohio EPA-) approved *RCRA Closure Plan* and applicable Job Hazard Assessments (JHAs) included in the Health and Safety Plan. All CRT transportation and recycling activities shall be completed in accordance with 40 CFR section 261.4(a)(22), 40 CFR section 261.39, and Ohio Administrative Code 3745-51-39. All hazardous waste removed from the facility shall be transported in accordance with 40 CFR part 263.

#### 2.0 MOVEMENT AND RELOCATION OF CRT MATERIALS

#### 2.1 Forklift Operation and Movement of Gaylords

The purpose of this instruction is to establish guidelines and methods for the safe operation of forklifts. This section covers forklift inspections, training, safe operating procedures, and violations.

#### 2.1.1 Forklift Inspection

- 1. Forklift inspection shall be done at least once per shift.
- 2. If maintenance work is required, the fork lift operator shall notify the shift supervisor. The forklift will be locked out and tagged out until the maintenance work is complete.
- 3. The shift supervisor shall coordinate all maintenance work.
- 4. If a forklift working in the Exclusion Zone (contaminated warehouse area) must be removed from the Exclusion Zone for maintenance, the forklift must first be decontaminated per Section 10.1 of this SOP and the Closure Plan. See Section for 10.3 of this SOP for equipment load out procedures from the Exclusion Zone.

#### 2.1.2 Safe Operation of Forklift

- 1. Forklifts will only be utilized by properly trained/qualified operators with a full understanding of the design, stability, controls, and instruments of the forklift.
- 2. Keep forks no more than 6" off the floor when moving with or without a load.
- 3. Always sound the horn when backing up.
- 4. Slow down at intersections and sound the horn.
- 5. A forklift is capable of going 10 miles per hour but should be operated no more than a fast walk.
- 6. Check the load before lifting and moving to ensure that it is stable.
- 7. All wheels on the forklift should be checked before loading or unloading.
- 8. There should be no "horseplay" on the forklift at any time.
- 9. All accidents are to be reported immediately to the shift supervisor.
- 10. Do not use unsafe or damaged forklifts. Report them immediately to the shift supervisor.
- 11. Keep forks on the ground or as low as possible when the truck is not in use.



- 12. At no time shall an operator lift a load that exceeds the forklift's rated lifting capacity.
- 13. Pay special attention to other forklifts, workers, and falling objects when operating a lift.
- 14. When propane tanks need to be changed, the tanks shall be changed by properly trained forklift operators. Before empty tanks from forklifts operating in the Exclusion Zone (contaminated warehouse area) can be removed from the Exclusion area for re-filling, the tank must first be decontaminated. See Sections 10.1 and 10.3 for decontamination and equipment load out procedures.

#### 2.1.3 Forklift Violations

- 1. Forklift operator privileges shall be revoked or suspended for a minimum amount of time based on the incident and as deemed appropriate by management. The following reasons may constitute reasons for privileges being revoked/suspended:
  - a. If an operator has acquired a total of three violations in a 2 month period.
  - b. Failure to report all accidents, injury and property damage to the shift supervisor.
  - c. Not being certified on the forklift they are operating.
  - d. Forklift operating privileges shall be suspended until retraining requirements are fulfilled.

#### 2.2 Relocating Elevated CRT Material Containers and Gaylords In Poor Condition or Nearing Collapse

Elevated CRT material containers or gaylord containers (i.e. containers stacked 2 or 3 high) that are in poor condition or nearing collapse shall be moved in a safe manner. Where such conditions exist in the facility, the forklift operator shall coordinate the movement of the gaylords with the shift supervisor. If the elevated gaylords can not be moved or lifted in a safe manner with a forklift, the elevated gaylords should be allowed to fall to the floor, pushed over, or pulled down in a safe manner designed to protect site worker safety.

The contents of collapsed/fallen gaylords shall be cleaned up and properly re-packaged in new gaylord containers suitable for shipment for recycling and/or disposal. See Section 3.2 for re-packaging instructions.

#### 3.0 EVALUATION OF CRT MATERIAL CONTAINER CONDITIONS

The purpose of this instruction is to establish guidelines and methods for the inspection of CRT material container and/or gaylord container conditions for shipping, re-packaging, and the disposal of emptied unusable gaylord containers.

#### 3.1 Inspection of CRT Material Containers and/or Gaylord Container Conditions

Each CRT material container and/or gaylord removed from current storage areas shall be inspected by properly trained personnel to determine if the container/gaylord is in a condition suitable for off-site shipment to a recycling facility or disposal location. The inspection process shall include an evaluation of the structural integrity of the cardboard gaylord container, inspection of existing stretch film or shrink wrap, inspection of banding, and inspection of the wood pallet.

If a CRT material container or gaylord container is determined to be in good condition and acceptable for shipping, the container and materials shall be moved to the designated processing areas for cleaning, weighing, and labeling. See Sections 4.0 and 5.0 below.



If a CRT material container or gaylord container is determined to be damaged or unsuitable for shipping, the container and materials shall be repaired (if possible) or emptied and re-packaged, per Section 3.2 below.

#### 3.2 Re-Packaging CRT Materials in New Containers and/or Gaylords

Prior to any repairs or re-packaging, the exterior of a damaged material container must be cleaned to remove any bulk dust residue that exists on the exterior of the container, on the wood pallet or on the top of the container's contents. See Section 4.0 below for dust cleaning procedures.

If during container inspection it is determined that minimal damage exists, repairs should be made to ready the container for shipment (i.e. replacing banding, re-wrapping the container with stretch film, replacing damaged pallets, etc.). Once the container has been repaired to a condition suitable for shipping, the container shall be moved to the designated processing areas for cleaning, weighing, and labeling. See Sections 4.0 and 5.0 below.

If existing containers are damaged beyond repair, the contents shall be emptied and re-packaged into new containers or the contents shall be organized on wood pallets and wrapped in stretch film in a manner acceptable for shipping purposes. Once the materials are re-containerized to a condition suitable for shipping, the container or palletized materials shall be moved to the designated processing areas for cleaning, weighing, and labeling. See Sections 4.0 and 5.0 below.

#### 3.3 Disposal of Emptied, Unusable CRT Material Containers and/or Gaylords

If during the container inspection process it is determined that a container and/or wood pallet is damaged beyond repair, the emptied container (cardboard, stretch fill, plastic liner, wood pallet, etc.) should be moved to the designated storage area within the Exclusion Zone for disposal. The cardboard gaylord container, existing stretch film (if any), interior plastic liner (if any), and wood pallet shall decontaminated and disposed of as non-hazardous solid waste or properly recycled.

If the materials can not be decontaminated, the materials will be containerized in appropriate DOT-approved containers and considered hazardous for lead (D008) unless analytical testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L).

If analytical testing demonstrates the materials are considered hazardous (D008) for lead (i.e., the material is found to contain lead at greater than 5.0 mg/L), the materials must be transported off-site as a hazardous waste.

#### 4.0 DECONTAMINATION OF CRT MATERIAL CONTAINERS

The purpose of this instruction is to establish guidelines and methods for the cleaning of gaylord containers with CRT materials or palletized CRT materials wrapped in stretch film to be shipped off-site for recycling and/or disposal. The inspection and cleaning of accumulated dust on containers shall be completed in designated processing areas for cleaning and re-packaging.

#### 4.1 Inspection for Accumulated Dust on CRT Material Containers and Their Contents

Each gaylord or palletized CRT materials wrapped in stretch film shall be inspected by properly trained personnel for the presence of bulk dust contamination on the exterior of the cardboard gaylord, wood



pallet, exterior of palletized stretched film materials, and on the contents of CRT materials in open-top containers. Observed accumulations of bulk dust shall be cleaned per Section 4.2 below.

## 4.2 HEPA Vacuuming Lead-Containing Dust Off Containers, Exposed CRT Materials, Stretch Film Wrapped CRT Materials, and Wood Pallets

Accumulated dust observed on the exterior of CRT material containers or on the exterior of stretch film wrapped CRT materials on wood pallets shall be cleaned using a High-Efficiency Particulate Air (HEPA) vacuum certified to filter particles as small as 0.3 microns to 99.97% efficiency of the equipment's designed air flow. Accumulated dust observed on wood pallets shall be cleaned using a HEPA vacuum. Accumulated dust observed on the top of sealed containers and/or on the contents of open top containers shall be cleaned using a HEPA vacuum. The cleaning shall be thorough and effective to render the exterior of the containers free of dust.

Once all dust has been removed from the exterior of the containers, the CRT materials shall be moved to the designated processing areas for weighing, stretch film wrapping, and labeling. See Section 5.0 below.

#### 4.3 HEPA Vacuum Maintenance and Filter/Dust Disposal

HEPA vacuums shall be used and maintained in accordance with manufacturer's specifications. Filters shall be cleaned and/or replaced in accordance with manufacturer's specifications. HEPA Vacuum's and filters shall be checked on a regular basis to ensure they are operating correctly. Spent filters and collected dust, which require disposal, shall be containerized in appropriate DOT-approved containers and considered hazardous for lead (D008) unless analytical testing demonstrates the materials do not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L).

If analytical testing demonstrates the materials are considered hazardous (D008) for lead (i.e., the materials are found to contain lead at greater than 5.0 mg/L), the materials must be transported off-site as a hazardous waste.

#### 5.0 PREPARATION OF CRT MATERIAL CONTAINERS FOR SHIPPING

The purpose of this instruction is to establish guidelines and methods for preparing gaylords of CRT materials and/or palletized CRT materials for shipping off-site for recycling and/or disposal in accordance with Ohio Administrative Code 3745-51-39 (A)(3). The steps presented below shall be completed after gaylords of CRT materials or palletized CRT materials have been thoroughly cleaned of dust as described in Section 4.0 above. All of the steps outlined in this section shall be completed in designated processing areas for shipment preparation.

Per Ohio Administrative Code 3745-51-39 (A)(1)(b), CRT materials shall be.... "Placed in a container (i.e., a package or a vehicle) that is constructed, filled, and closed to minimize releases to the environment of CRT glass (including fine solid materials)."

#### 5.1 Stretch Film Wrapping and Banding

Once a gaylord of CRT materials or a pallet of stretch film wrapped CRT materials has been properly cleaned, the condition of the pre-existing stretch film or plastic covered containers shall be inspected. If the gaylord and pre-existing stretch film or plastic covered materials remain in good condition, acceptable for shipping in accordance with Ohio Administrative Code 3745-51-39 (A)(3), the materials shall be moved to the designated areas for weighing and labeling. See Section 5.2 below.



If the gaylord's pre-existing stretch film or banding are damaged (holes, tears, broken bands, etc.) or determined to be inadequate, new banding shall be installed and/or new stretch film shall be wrapped around the gaylord or CRT materials to completely encapsulate the container. All existing open-top gaylords containing CRT materials shall be wrapped with new stretch film to enclose the top of the gaylord. Once the containers or CRT materials have been wrapped in new stretch film, banded (if needed), and enclosed, they shall be moved to the designated areas for weighing and labeling. See Section 5.2 below.

#### 5.2 Weighing and Labeling CRT Materials for Shipping

All gaylords of CRT materials and/or palletized CRT Materials ready for shipping shall be weighed and labeled in accordance with Ohio Administrative Code 3745-51-39 (A)(2). Each container in which used, broken CRT are contained must be labeled or marked clearly with one of the following phrases: "Used cathode ray tube(s)-contains leaded glass" or "Leaded glass from televisions or computers". The containers must also be labeled: "Do not mix with other glass materials". Additionally, each container will be labeled with "Closed Loop CRT Materials".

Each container will be weighed, and the total gross weight recorded to the nearest pound. The tare weight of each container will be estimated based on the container type. The tare weight for a container consisting of a standard wood pallet, cardboard gaylord, banding, and stretch film wrap is estimated to be 75 pounds. The tare weight for a container consisting of a standard wood pallet and stretch film wrap is estimated to be 40 pounds. The measured total gross weight and estimated net and tare weights will be labeled on each container.

#### 6.0 TRANSFERRING CRT MATERIALS TO DESIGNATED LOADING ZONE FOR SHIPPING

The purpose of this instruction is to establish guidelines and methods for transferring gaylord containers with CRT materials and/or palletized CRT materials into the restricted Contaminant Reduction Zone (CRZ) and Clean Loading Zone (CLZ) chambers for loading trucks and off-site shipping.

#### 6.1 Loading Trucks Through CRZ and CLZ Chambers

To prevent lead-containing dust from exiting the building and impacting trucks, restricted access CRZ and CLZ chambers will be constructed in the loading dock areas to be utilized for loading trucks. Prior to the construction of the CRZ and CLZ chambers, the interior portions of the existing building to be utilized as the CRZ and CLZ chamber areas will be cleaned and decontaminated from lead-containing dust. This includes all walls, floors, ceilings, and building components in the designated areas. The CLZ chamber will be constructed on the inside of the building adjacent to the loading docks to be used. The CLZ chamber will be outfitted with negative air machines to maintain negative pressure in the CLZ chamber during all truck loading activities.

As a second layer of protection, a CRZ chamber will be constructed on the interior of the building adjacent to the CLZ chamber. The CRZ chamber will be outfitted with negative air machines to maintain negative pressure in the CRZ chamber during all truck loading activities. The wall of the CRZ chamber adjacent to the open warehouse space will be include PVC strip doors for forklifts to drive through and enter the CRZ chamber. Additionally, the wall of the CLZ chamber that connects it to the CRZ chamber will be include PVC strip doors for the transferring of CRT materials into the restricted CLZ chamber. To prevent forklifts that are working in the Exclusion Zone from entering the restricted CLZ chamber, 2"x4" wood stops will be bolted to the concrete floor at the threshold of the PVC strip doors separating the CRZ chamber from the CLZ chamber.



To prevent dust from being tracked into the CLZ chamber, forklifts and personnel working in the Exclusion Zone are restricted to operating in the warehouse and the CRZ chamber. Forklifts and personnel working in the CLZ chamber to load trucks are restricted to only working in the CLZ chamber. Once containers are ready for loading, forklifts restricted to working in the Exclusion Zone and CRZ chamber will transport containers from the designated processing areas inside the warehouse to the CRZ chamber. These forklifts will pass containers ready for loading through the PVC strip doors and into the CLZ chamber. These forklifts are restricted from entering the CLZ chamber. Forklifts inside the CLZ chamber will then move the containers into trucks.

All CRT materials are to be loaded into trucks safely. Trucks shall not be loaded beyond the truck' maximum carrying capacity per Department of Transportation (DOT) regulations.

#### 6.2 Double Stacking of CRT Material Containers

Some containerized materials to be removed from the facility are light weight. Such materials may be able to be double stacked within truck trailers to maximize shipping efficiency. Heavy containers shall not be double stacked on top of lighter weight containers. Containers that are double stacked within a truck trailer shall be double stacked in a stable manner suitable for transportation in accordance with applicable OHSA and DOT regulations.

#### 7.0 CRT MATERIAL SHIPMENT RECORD KEEPING

The purpose of this instruction is to establish minimum guidelines and requirements for recordkeeping associated with the removal of CRT Materials and hazardous wastes removed from the buildings.

#### 7.1 CRT Materials Shipped for Recycling

In accordance with applicable EPA and DOT regulations, accurate shipping records will be prepared for all CRT materials removed from the buildings and transported off-site for recycling. At a minimum this will include a Bill of Lading (BOL) for each truck load. Each BOL shall include the following:

- 1. Shipper information (business name, address, contact, and contact phone number),
- 2. Receiver/destination information (business name, address, contact, and contact phone number),
- 3. Carrier information with trailer numbers and trailer seal numbers
- 4. Pick up date,
- 5. Number of packages with package content descriptions,
- 6. Shipping weight in pounds net weight, tare weight, and total gross weight,
- 7. Shipper and Carrier signatures, and
- 8. A packing list that lists each container with individual container net and tare weights

A copy of each BOL will remain with the shift supervisor. At the end of each work day, additional copies of all BOLs will be provided to the third-party vendor providing project monitoring and project coordination services.

All recordkeeping procedures will be completed in accordance with applicable portions of 40 CFR Section 261 and Ohio Administrative Code 3745-51-39.



#### 7.2 CRT Materials (Crushed Co-Mingled Glass) Shipped for Landfill Disposal

Glass from used CRTs that is used in a manner constituting disposal shall comply with Ohio Administrative Code 3745-266-20 to 3745-266-23.

Before transporting hazardous waste off-site, each container of hazardous waste must be labeled and marked in accordance with 40 CFR 262.31 and 40 CFR 262.32, respectively. Additionally, the shipper/generator must placard the waste or offer placards to the initial transporter, per 40 CFR 262.33.

Federal regulations require generators and transporters of hazardous waste to use the uniform hazardous waste manifest (EPA Form 8700-22) and, if necessary, the continuation sheet (EPA Form 8700-22A) for both interstate and intrastate transportation.

Universal hazardous waste manifest and continuation sheets, if necessary, will be prepared for each truck load of crushed co-mingled glass destine for landfill disposal. The universal hazardous waste manifests and continuation sheets will be completed in accordance with U.S. EPA regulations.

In addition, BOLs will also be prepared for each truck load of crushed co-mingled glass to be removed from the facility.

A copy of each hazardous waste manifest and BOL will remain with the shift supervisor. At the end of each work day, additional copies of all hazardous waste manifests and BOLs will be provided to the third-party vendor providing project monitoring and project coordination services.

All hazardous waste removed from the facility shall be transported in accordance with 40 CFR part 263.

#### 7.3 CRT Materials (Crushed Co-Mingled Glass) Exported for Recycling

Prior to any planned exporting of used, broken CRTs, the exporter shall notify U.S. EPA of an intended export before the CRTs are scheduled to leave the United States and shall comply with the notification requirements in 40 CFR 261.39(a)(5)(i) to (a)(5)(xi).

In accordance with these regulations, the exporters must comply with the following:

- "(5) Exports. In addition to the applicable conditions specified in paragraphs (a)(1)-(4) of this section, exporters of used, broken CRTs must comply with the following requirements:
  - (i) Notify EPA of an intended export before the CRTs are scheduled to leave the <u>United States</u>. A complete notification should be submitted sixty (60) <u>days</u> before the initial shipment is intended to be shipped off-site. This notification may cover export activities extending over a twelve (12) month or lesser period. The notification must be in writing, signed by the exporter, and include the following information:
    - (A) Name, mailing address, telephone number and EPA ID number (if applicable) of the exporter of the CRTs.
    - **(B)** The estimated frequency or rate at which the CRTs are to be exported and the period of time over which they are to be exported.
    - (C) The estimated total quantity of CRTs specified in kilograms.
    - (D) All points of entry to and departure from each foreign country through which the CRTs will pass.



- **(E)** A description of the means by which each shipment of the CRTs will be transported (**e.g.**, mode of <u>transportation</u> vehicle (air, highway, rail, water, etc.), type(s) of <u>container</u> (drums, boxes, tanks, etc.)).
- **(F)** The name and address of the recycler or recyclers and the estimated quantity of used CRTs to be sent to each <u>facility</u>, as <u>well</u> as the names of any alternate recyclers.
- **(G)** A description of the manner in which the CRTs will be <u>recycled</u> in the foreign country that will be receiving the CRTs.
- **(H)** The name of any transit country through which the CRTs will be sent and a description of the approximate length of time the CRTs will remain in such country and the nature of their handling while there.
- (ii) Notifications must be submitted electronically using EPA's Waste Import Export Tracking System (WIETS), or its successor system.
- (iii) Upon request by EPA, the exporter shall furnish to EPA any additional information which a receiving country requests in order to respond to a notification.
- (iv) EPA will provide a complete notification to the receiving country and any transit countries. A notification is complete when EPA receives a notification which EPA determines satisfies the requirements of <u>paragraph (a)(5)(i)</u> of this section. Where a claim of confidentiality is asserted with respect to any notification information required by <u>paragraph (a)(5)(i)</u> of this section, EPA may find the notification not complete until any such claim is resolved in accordance with <u>40 CFR 260.2</u>.
- (v) The export of CRTs is prohibited unless all of the following occur:
  - (A) The receiving country consents to the intended export. When the receiving country consents in writing to the receipt of the CRTs, EPA will forward an Acknowledgment of Consent to Export CRTs to the exporter. Where the receiving country objects to receipt of the CRTs or withdraws a prior consent, EPA will notify the exporter in writing. EPA will also notify the exporter of any responses from transit countries.
  - (B) On or after the AES filing compliance date, the exporter or a U.S. authorized agent must:
    - (1) Submit Electronic Export Information (EEI) for each shipment to the Automated Export <u>System</u> (AES) or its successor <u>system</u>, under the International Trade Data <u>System</u> (ITDS) platform, in accordance with <u>15 CFR 30.4(b)</u>.
    - **(2)** Include the following items in the EEI, along with the other information required under <u>15 CFR</u> <u>30.6</u>:
      - (i) EPA license code;
      - (ii) Commodity classification code per 15 CFR 30.6(a)(12);
      - (iii) EPA consent number;
      - (iv) Country of ultimate destination per 15 CFR 30.6(a)(5);
      - (v) Date of export per <u>15 CFR 30.6(a)(2)</u>;
      - (vi) Quantity of waste in shipment and units for reported quantity, if required reporting units established by value for the reported commodity classification number are in units of weight or volume per  $\underline{15}$  CFR  $\underline{30.6(a)(15)}$ ; or



(vii) EPA net quantity reported in units of kilograms, if required reporting units established by value for the reported commodity classification number are not in units of weight or volume.

(vi) When the conditions specified on the original notification change, the exporter must provide EPA with a written renotification of the change using the allowable methods listed in paragraph (a)(5)(ii) of this section, except for changes to the telephone number in paragraph (a)(5)(i)(A) of this section and decreases in the quantity indicated pursuant to paragraph (a)(5)(i)(C) of this section. The shipment cannot take place until consent of the receiving country to the changes has been obtained (except for changes to information about points of entry and departure and transit countries pursuant to paragraphs (a)(5)(i)(D) and (H) of this section) and the exporter of CRTs receives from EPA a copy of the Acknowledgment of Consent to Export CRTs reflecting the receiving country's consent to the changes.

**(vii)** A copy of the Acknowledgment of Consent to Export CRTs must accompany the shipment of CRTs. The shipment must conform to the terms of the Acknowledgment.

(viii) If a shipment of CRTs cannot be delivered for any reason to the recycler or the alternate recycler, the exporter of CRTs must renotify EPA of a change in the conditions of the original notification to allow shipment to a new recycler in accordance with <u>paragraph (a)(5)(vi)</u> of this section and obtain another Acknowledgment of Consent to Export CRTs.

(ix) Exporters must keep copies of notifications and Acknowledgments of Consent to Export CRTs for a period of three years following receipt of the Acknowledgment. Exporters may satisfy this recordkeeping requirement by retaining electronically submitted notifications or electronically generated Acknowledgements in the CRT exporter's account on EPA's Waste Import Export Tracking System (WIETS), or its successor system, provided that such copies are readily available for viewing and production if requested by any EPA or authorized state inspector. No CRT exporter may be held liable for the inability to produce a notification or Acknowledgement for inspection under this section if the CRT exporter can demonstrate that the inability to produce such copies are due exclusively to technical difficulty with EPA's Waste Import Export Tracking System(WIETS), or its successor system for which the CRT exporter bears no responsibility.

- (x) <u>CRT exporters</u> must file with EPA no later than March 1 of each year, an annual report summarizing the quantities (in kilograms), frequency of shipment, and ultimate destination(s) (i.e., the <u>facility</u> or facilities where the recycling occurs) of all used CRTs exported during the previous calendar year. Such reports must also include the following:
  - (A) The name, EPA ID number (if applicable), and mailing and site address of the exporter;
  - **(B)** The calendar year covered by the report;
  - **(C)** A certification signed by the CRT exporter that states:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

(xi) Prior to one year after the <u>AES filing compliance date</u>, annual reports must be sent to the following mailing address: Office of Enforcement and Compliance Assurance, Office of Federal Activities, International Compliance Assurance Division, (Mail Code 2254A), Environmental Protection Agency, 1200 Pennsylvania Ave. NW., Washington, DC 20460. Hand-delivered annual reports on used CRTs exported during 2016 should



be sent to: Office of Enforcement and Compliance Assurance, Office of Federal Activities, International Compliance Assurance Division, (Mail Code 2254A), Environmental Protection Agency, Ariel Rios Bldg., Room 6144, 1200 Pennsylvania Ave. NW., Washington, DC. Subsequently, annual reports must be submitted to the office listed using the allowable methods specified in paragraph (a)(5)(ii) of this section. Exporters must keep copies of each annual report for a period of at least three years from the due date of the report. Exporters may satisfy this recordkeeping requirement by retaining electronically submitted annual reports in the CRT exporter's account on EPA's Waste Import Export Tracking System(WIETS), or its successor system, provided that a copy is readily available for viewing and production if requested by any EPA or authorized state inspector. No CRT exporter may be held liable for the inability to produce an annual report for inspection under this section if the CRT exporter can demonstrate that the inability to produce the annual report is due exclusively to technical difficulty with EPA's Waste Import Export Tracking System (WIETS), or its successor system for which the CRT exporter bears no responsibility."

Copies of all exportation documentation will remain with the shift supervisor. At the end of each work day, additional copies of all exportation documentation will be provided to the third-party vendor providing project monitoring and project coordination services.

#### 7.4 Hazardous Wastes Shipped for Disposal

Other materials determined to be hazardous wastes (items including, but not limited to, containers of phosphor or lead contaminated dust, contaminated unusable cardboard gaylord containers, contaminated unusable stretch wrap, contaminated PPE, floor sweepings, etc.) shall be placed in clean containers suitable for hazardous waste disposal.

Before transporting hazardous waste off-site, each container of hazardous waste must be labeled and marked in accordance with 40 CFR 262.31 and 40 CFR 262.32, respectively. Additionally, the shipper/generator must placard the waste or offer placards to the initial transporter, per 40 CFR 262.33.

Universal hazardous waste manifest and continuation sheets, if necessary, will be prepared for containers and/or truck loads of hazardous waste to be removed from the site for disposal. The universal hazardous waste manifests and continuation sheets will be completed in accordance with U.S. EPA regulations.

A copy of each hazardous waste manifest will remain with the shift supervisor. At the end of each work day, additional copies of all hazardous waste manifests will be provided to the third-party vendor providing project monitoring and project coordination services.

All hazardous waste removed from the facility shall be transported in accordance with 40 CFR part 263.

#### 8.0 DAILY CLEANING OF WORK AREAS

The purpose of this instruction is to establish guidelines and methods associated with the daily cleaning of work areas throughout the removal of CRT materials from the site, as needed. The cleaning is to be completed on a daily basis, as needed, to reduce dust contamination from becoming airborne and spreading throughout the interior of the buildings.

#### 8.1 Cleaning of Dust and Debris in Work Areas

Prior to the start of CRT removal activities, existing open floor spaces shall be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable dust control measures. Throughout the CRT removal process additional open floor space will be exposed. On a daily basis, new exposed floor areas shall be inspected for elevated dust accumulation. All areas with elevated dust accumulation shall be



cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable dust control measures. Additionally, on an as needed or daily basis, high traffic areas that contain elevated dust accumulation shall be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable dust control measures.

On a daily basis, or as needed, the CRZ and CLZ chambers shall be inspected for elevated dust accumulation. If elevated dust accumulation is observed, the elevated dust accumulation shall be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable dust control measures.

Cleaning equipment utilized to clean work areas in the Exclusion Zone is restricted to cleaning activities in the Exclusion Zone only. Cleaning equipment used in the Exclusion Zone is prohibited from being used in the CLZ chamber.

#### 8.2 Disposal of Collected Dust and Debris

All dust, debris, and water from wet sweeping collected as part of daily periodic cleaning efforts must be placed in appropriate DOT-approved containers and be considered hazardous for lead (D008) unless analytical representative testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L).

If analytical testing demonstrates the materials are considered hazardous (D008) for lead (i.e., the materials are found to contain lead at greater than 5.0 mg/L), the materials must be transported off-site as a hazardous waste.

#### 9.0 MEDICAL MONITORING

Throughout the CRT removal process, all personnel working in the Exclusion Zone and CLZ chamber shall participate in medical monitoring as detailed in the current Health and Safety Plan for the project. See the Health and Safety Plan for the medical monitoring requirements.

## 10.0 FINAL DECONTAMINATION OF EQUIPMENT (TOW MOTORS, SWEEPERS, SCALES, HEPA VACUUMS, STRETCH WRAP STATIONS, ETC.)

The purpose of this instruction is to establish guidelines and methods associated with the decontamination of equipment utilized in the Exclusion Zone, prior to the equipment being removed from the site.

#### 10.1 Decontamination Procedures

Prior the removal of all equipment or tools from the Exclusion Zone, the equipment and tools must first be thoroughly decontaminated to remove contaminated dust. The specific protocol for decontaminating reusable equipment will depend on the equipment. However, the equipment decontamination process will include the removal of dusts using a vacuum equipped with a HEPA filter, hand wiping with solvent-soaked launderable or disposable wipes, and/or wash the equipment with a detergent solution using a high pressure, low volume washer. Following the decontamination activities, the shift supervisor and third part vendor providing project monitoring must inspect the equipment and tools before they can be removed from the Exclusion Zone.



#### 10.2 Disposal of Decontamination Wastes

All decontamination wastes (i.e. collected dust, wipes, water, etc.) generated as part of decontamination activities shall be containerized, labeled, and disposed of properly. Launderable wipes must be transported to an off-site laundry or cleaning facility that is subject to regulation under Section 402 or Section 307(b) of the Clean Water Act.

If used, disposable wipes must be placed in appropriate DOT-approved containers and be considered hazardous for lead (D008) unless analytical representative testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L).

Containerized decontamination fluids and rinsate must either be managed as wastewater or as hazardous for lead (D008) unless analytical representative testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., the material is found to contain lead at less than 5.0 mg/L). If decontamination fluids and rinsate will be managed as a hazardous waste for lead (D008) the fluids must be containerized in appropriate DOT-approved containers.

#### 10.3 Equipment Load Out

Following the proper decontamination of equipment and tools, all of the equipment and tools shall be transferred from the Exclusion Zone to the CLZ chamber. At the threshold of the CLZ chamber the tires of wheeled equipment must be cleaned to prevent potentially tracking dust from the CRZ chamber into the CLZ chamber. During the equipment load out, the shift supervisor and third party vendor providing project monitoring must inspect the equipment and tools before they can be transferred into the CLZ chamber.

#### 11.0 THIRD PARTY MONITORING AND REPORTING

A third-party vendor retained by the current building/property owner, will provide monitoring, coordination, administration, and advisory services. Prior to CRT removal activities occurring at the site, the third-party vendor shall monitor and coordinate the construction of the CRZ and CLZ chambers. Throughout the CRT material removal activities, the third-party vendor will monitor and assist with the coordination of the CRT material removal activities. As part of the monitoring and coordination activities, the third party vendor will provide the following services:

- 1. Monitor, document, and ensure compliance with the project Health and Safety Plan;
- 2. Monitor, document, and ensure compliance with the project Closure Plan
- 3. Complete and document periodic indoor air sampling, testing, and reporting;
- 4. Monitor and document daily periodic cleaning activities and effectiveness;
- 5. Monitor and document the integrity and condition of the CRZ and CLZ chambers;
- 6. Monitor and document the operation and maintenance of negative air machines used to maintain negative pressure in the CRZ and CLZ chambers;
- 7. Monitor, document, and provide coordination/advisory assistance with the shift supervisor for CRT materials to be moved, cleaned, re-packaged (if necessary), and loaded into trucks for off-site recycling and disposal;
- 8. Monitor and document the activities which may generate hazardous wastes and the disposal of hazardous waste from the site;
- 9. Review and obtain copies of all BOLs and waste manifests to ensure compliance with applicable regulations;
- 10. Assist with troubleshooting unforeseen conditions;
- 11. Evaluate the need for modifications to the project's SOP and/or HASP;



- 12. Provide necessary observation, documentation, and recordkeeping services to support closure activities, post-closure reporting, and fiduciary responsibilities;
- 13. Provide weekly progress/status reports and compliance confirmation to the building/property owner;
- 14. Provide periodic confirmation of downstream CRT material recycler's receipt of materials and proper recycling of CRT materials removed from the site.

#### 12.0 REFERENCES

40 CFR part 263

Project Health and Safety Plan
Project Closure Plan
Ohio Administrative Code 3745-51-39
Ohio Administrative Code 3745-266-20 to 3745-266-23
40 CFR 261.39
40 CFR section 261.4(a)(22)
40 CFR 262.31
40 CFR 262.32
40 CFR 262.33

# Appendix C Chemical Information

### **Hazardous Property Information**

| Check if<br>Present | Material<br>(CAS #)                                   | Water<br>Solubility <sup>a</sup> | Specific<br>Gravity | Flash Point  | Vapor<br>Pressure <sup>d</sup> | LEL<br>UEL     | Cal/OSHA<br>PEL- TWA <sup>f</sup> | IDLH Level h             | Odor Threshold<br>Geometric mean <sup>i</sup><br>(ppm) |
|---------------------|-------------------------------------------------------|----------------------------------|---------------------|--------------|--------------------------------|----------------|-----------------------------------|--------------------------|--------------------------------------------------------|
|                     |                                                       |                                  | Volatil             | e Organic Co | ompounds (                     |                |                                   |                          |                                                        |
|                     | Acetic acid<br>(64-19-7)                              | Miscible                         | 1.05                | 103          | 11 mm                          | 4.0%<br>19.9%  | 10 ppm                            | 50 ppm                   | 0.074 (d)                                              |
|                     | Acetone<br>(67-64-1)                                  | Miscible                         | 0.79                | 0            | 180 mm                         | 2.5%<br>12.8%  | 250 ppm                           | 2,500 ppm                | 62 (d)<br>130 (r)                                      |
|                     | Acrolein<br>(107-02-8)                                | 40%                              | 0.84                | -15          | 210 mm                         | 2.8%<br>31%    | C 0.1 ppm<br>Skin                 | 2 ppm                    | 1.8 (d)                                                |
|                     | Acrylonitrile<br>(107-13-1)                           | 7%                               | 0.81                | 30           | 83 mm                          | 3%<br>17%      | 2 ppm<br>Skin                     | 85 ppm<br>Ca             | 1.6 (d)                                                |
|                     | Benzene<br>(71-43-2)                                  | 0.07%                            | 0.88                | 12           | 75 mm                          | 1.2%<br>7.8%   | 1 ppm<br>Skin                     | 500 ppm<br>Ca            | 61 (d)<br>97 (r)                                       |
|                     | Bromodichloro-<br>methane<br>(75-27-4)                | 4500 mg/l                        | 1.98                |              | 50 mm                          | Non-<br>flam   | None<br>established               | None<br>determined       |                                                        |
|                     | Bromoform<br>(75-25-2)                                | 0.10%                            | 2.89                |              | 5 mm                           | Non-<br>flam   | 0.5 ppm Skin                      | 850 ppm                  | 1.3 <sup>j</sup>                                       |
|                     | Bromomethane<br>(74-83-9)                             | 2%                               | 1.73                |              | 1.9 atm                        | 10%<br>16.0%   | 1 ppm Skin                        | 250 ppm<br>Ca            | <b>80</b> <sup>j</sup>                                 |
|                     | Carbon Tetrachloride (56-23-5)                        | 0.05%                            | 1.59                |              | 91 mm                          | Non-<br>flam   | 2 ppm<br>Skin                     | 200 ppm<br>Ca            | 252 (d)                                                |
|                     | Chlorobenzene<br>(108-90-7)                           | 0.05%                            | 1.11                | 82           | 9 mm                           | 1.3%<br>9.6%   | 10 ppm                            | 1000 ppm                 | 1.3 (d)                                                |
|                     | 2-Chloroethyl-vinyl<br>Ether<br>(110-75-8)            | 0.02%                            | 1.05                | 61           | 27 mm                          |                | None<br>established               | None<br>determined       |                                                        |
|                     | Chloroethane<br>(75-00-3)                             | 0.60%                            | 0.92                | -58          | 1000 mm                        | 3.8%<br>15.4%  | 100 ppm<br>Skin                   | 3800 ppm                 | 4.2 <sup>j</sup>                                       |
|                     | Chloroform<br>(67-66-3)                               | 0.50%                            | 1.48                |              | 160 mm                         | Non-<br>flam   | 2 ppm                             | 500 ppm<br>Ca            | 192 (d)                                                |
|                     | Chloromethane<br>(74-87-3)                            | 0.50%                            | 0.92                |              | 5 ATM                          | 8.1%<br>17.4%  | 50 ppm                            | 2000 ppm<br>Ca           | <b>10</b> <sup>j</sup>                                 |
|                     | Dibromo-<br>chloromethane<br>(124-48-1)               | 2700 mg/l                        | 2.5                 |              | 76 mm                          |                | None<br>established               | None<br>Determined       |                                                        |
|                     | Dibutyl phthalate<br>(84-74-2)                        | 0.001%<br>(77°F)                 | 1.05                | 315          | 0.00007 mm                     | 0.5%<br>       | 5 mg/m³                           | 4,000 mg/m <sup>3</sup>  |                                                        |
|                     | 1,2-Dichlorobenzene<br>(95-50-1)                      | 0.01%                            | 1.3                 | 151          | 1 mm                           | 2.2%<br>9.2%   | 25 ppm<br>Skin                    | 200 ppm                  |                                                        |
|                     | 1,1-Dichloroethane<br>(75-34-3)                       | 0.60%                            | 1.18                | 2            | 182 mm                         | 5.4%<br>11.40% | 100 ppm                           | 3,000 ppm                |                                                        |
|                     | 1,1-Dichloroethylene<br>(DCE)<br>(75-35-4)            | 0.04%                            | 1.21                | -2           | 500 mm                         | 6.5%<br>15.5%  | 1 ppm                             | None<br>determined       | 190 <sup>j</sup>                                       |
|                     | 1,2-Dichloroethane<br>(107-06-2)                      | 0.90%                            | 1.24                | 56           | 64 mm                          | 6.2%<br>16%    | 1 ppm                             | 50 ppm<br>Ca             | 26 (d)<br>87 (r)                                       |
|                     | 1,2-Dichloroethylene<br>(540-59-0)                    | 0.40%                            | 1.27                | 36-39        | 180-265 mm                     | 5.6%<br>12.8%  | 200 ppm                           | 1,000 ppm                | 17 - 170 <sup>k</sup>                                  |
|                     | 1,2-Dichloropropane<br>(78-87-5)                      | 0.30%                            | 1.16                | 60           | 40 mm                          | 3.4%<br>14.5%  | 75 ppm                            | 400 ppm<br>Ca            | 0.26 (d)<br>0.52 (r)                                   |
|                     | 1,3-Dichloropropene<br>(542-75-6)                     | 0.20%                            | 1.21                | 77           | 28 mm                          | 5.3%<br>14.5%  | 1 ppm<br>Skin                     | None<br>Determined<br>Ca | 1 <sup>j</sup>                                         |
|                     | Bis-(2-Ethylhexyl)-<br>phthalate (DEHP)<br>(117-81-7) | 0.00%                            | 0.99                | 420          | <0.01 mm                       | 0.3%           | 5 mg/m <sup>3</sup>               | 5,000 mg/m³<br>Ca        |                                                        |
|                     | Diethyl phthalate<br>(84-66-2)                        | 0.10%                            | 1.12                | 322          | 0.002 mm                       | 0.7%           | 5 mg/m³                           | None<br>Determined       |                                                        |
|                     | Dinitrotoluene (DNT)<br>(25321-14-6)                  | Insoluble                        | 1.32                | 404          | 1 mm                           |                | 0.15 mg/m <sup>3</sup><br>Skin    | 50 mg/m³<br>Ca           |                                                        |
|                     | Endrin<br>(72-20-8)                                   | Insoluble                        | 1.7                 |              | 0.00001 mm<br>Low              |                | 0.1 mg/m³<br>Skin                 | 2 mg/m <sup>3</sup>      |                                                        |
|                     | Ethyl benzene<br>(100-41-4)                           | 0.01%                            | 0.87                | 55           | 7 mm                           | 0.8%<br>6.7%   | 100 ppm                           | 800 ppm                  | 2.3 <sup>j</sup>                                       |
|                     | Hydrazine<br>(302-01-2)                               | Miscible                         | 1.01                | 99           | 10 mm                          | 2.9%<br>98%    | 0.01 ppm<br>Skin                  | 50 ppm<br>Ca             | 3.7 (d)                                                |

| Check if<br>Present | Material<br>(CAS #)                                    | Water<br>Solubility <sup>a</sup> | Specific<br>Gravity | Flash Point                                           | Vapor<br>Pressure <sup>d</sup> | LEL<br>UEL              | Cal/OSHA<br>PEL- TWA <sup>f</sup>    | IDLH Level h             | Odor Threshold<br>Geometric mean <sup>i</sup><br>(ppm) |
|---------------------|--------------------------------------------------------|----------------------------------|---------------------|-------------------------------------------------------|--------------------------------|-------------------------|--------------------------------------|--------------------------|--------------------------------------------------------|
|                     | Methyl ethyl ketone<br>(MEK)<br>(78-93-3)              | 28%                              | 0.81                | 16                                                    | 78 mm                          | 1.4%<br>11.4%           | 200 ppm                              | 3000 ppm                 | 16 (d)<br>17 (r)                                       |
|                     | Methyl tert-butyl ether<br>(MTBE)<br>(1634-04-4)       | 5.1 g/100ml                      | 0.7                 | -18                                                   | 245 mm                         | 1.6%<br>8.4%            | 40 ppm                               | None<br>determined       | 0.32 – 0.47mg/m <sup>31</sup>                          |
|                     | Methylene chloride<br>(75-09-2)                        | 2%                               | 1.33                | 1                                                     | 350 mm                         | 13%<br>23%              | 25 ppm                               | 2,300 ppm<br>Ca          | 160 (d)<br>230 (r)                                     |
|                     | Phenol<br>(108-95-2)                                   | 9% (77°F)                        | 1.06                | 175                                                   | 0.4 mm                         | 1.8%<br>8.6%            | 5 ppm<br>Skin                        | 250 ppm                  | 0.06 (d)                                               |
|                     | 1,1,2,2-<br>Tetrachloroethane<br>(79-34-5)             | 0.30%                            | 1.59                |                                                       | 5 mm                           | Non-<br>flam            | 1 ppm<br>Skin                        | 100ppm<br>Ca             | 7.3 (d)                                                |
|                     | Tetrachloroethylene<br>(PCE)<br>(127-18-4)             | 0.02%                            | 1.62                |                                                       | 14 mm                          | Non-<br>flam            | 25 ppm                               | 150 ppm<br>Ca            | 47 (d)<br>71 (r)                                       |
|                     | Toluene<br>(108-88-3)                                  | 0.07% (74°F)                     | 0.87                | 40                                                    | 21 mm                          | 1.1%<br>7.1%            | 10 ppm<br>Skin                       | 500 ppm                  | 1.6 (d)<br>11 (r)                                      |
|                     | 1,1,1-Trichloroethane<br>(71-55-6)                     | 0.40%                            | 1.34                | 1                                                     | 100 mm                         | 7.5%<br>12.5%           | 350 ppm                              | 700 ppm                  | 390 (d)<br>710 (r)                                     |
|                     | 1,1,2-Trichloro-ethane<br>(79-00-5)                    | 0.40%                            | 1.44                | -                                                     | 19 mm                          | 6%<br>15.5%             | 10 ppm<br>Skin                       | 100 ppm<br>Ca            |                                                        |
|                     | 1,2,4-<br>Trichlorobenzene<br>(120-82-1)               | 0.003%                           | 1.45                | 222                                                   | 1 mm                           | 2.5%<br>6.6%<br>(302°F) | C 5 ppm                              | None<br>Determined       | 3 <sup>j</sup>                                         |
|                     | Trichloroethylene<br>(TCE)<br>(79-01-6)                | 0.1% (77°F)                      | 1.46                |                                                       | 58 mm                          | 8%<br>10.5%             | 25 ppm                               | 1,000 ppm<br>Ca          | 82 (d)<br>110 (r)                                      |
|                     | Trichlorofluoromethane (75-69-4)                       | 0.1% (75°F)                      | 1.47                |                                                       | 690 mm                         | Non-<br>flam            | C 1,000 ppm                          | 2000 ppm                 |                                                        |
|                     | 1,1,2-Trichloro-1,2,2-<br>trifluoroethane<br>(76-13-1) | 0.02%                            | 1.56                |                                                       | 285 mm                         |                         | 1,000 ppm                            | 2,000 ppm                |                                                        |
|                     | 1,2,4-<br>Trimethylbenzene<br>(95-63-6)                | 0.006%                           | 0.88                | 112                                                   | 1 mm                           | 0.9%<br>6.4%            | 25 ppm                               | None<br>determined       | 2.4 (d)                                                |
|                     | Vinyl Chloride<br>(75-01-4)                            | 0.1% (77°F)                      | 0.91                |                                                       | 3.3 atm                        | 3.6%<br>33%             | 1 ppm<br>Skin                        | None<br>Determined<br>Ca |                                                        |
|                     | Xylene (o, p, m, mix)<br>(1330-20-7)                   | Slightly soluble                 | 0.86-0.88           | 81-90                                                 | 7-9 mm                         | 0.9%<br>7%              | 100 ppm                              | 900 ppm                  | 20 (d)<br>40 (r)                                       |
|                     |                                                        |                                  |                     | Met                                                   | als                            | •                       |                                      | •                        |                                                        |
|                     | Aluminum metal and oxide (as Al)                       | b                                | 2.7                 |                                                       | 0 mm                           | е                       | 10 mg/m <sup>3</sup><br>(respirable) | None determined          |                                                        |
|                     | Antimony<br>(7440-36-0)                                | b                                | 6.69                |                                                       | 0 mm                           | е                       | 0.5 mg/m <sup>3</sup>                | 50 mg/m <sup>3</sup>     |                                                        |
|                     | Arsenic (inorganic compounds, as As)                   | b                                | 5.73                |                                                       | 0 mm                           | е                       | 0.010mg/m <sup>3</sup>               | 5 mg/m³<br>Ca            |                                                        |
|                     | Arsenic (organic compounds, as As)                     | Properties va                    | ary dependi         | ng upon the sp compound.                              | ecific organic                 | arsenic                 | 0.2mg/m <sup>3</sup>                 | None determined          |                                                        |
|                     | Barium chloride(as<br>Ba)<br>(10361-37-2)              | 38%                              | 3.86                |                                                       | low                            | Non-<br>flam            | 0.5 mg/m <sup>3</sup>                | 50 mg/m <sup>3</sup>     |                                                        |
|                     | Barium nitrate (as Ba)<br>(10022-31-8)                 | 9%                               | 3.24                |                                                       | Low                            | е                       | 0.5 mg/m <sup>3</sup>                | 50 mg/m <sup>3</sup>     |                                                        |
|                     | Beryllium and compounds (as Be)                        | b                                | 1.85                |                                                       | 0 mm                           | е                       | 0.0002 mg/m <sup>3</sup>             | 4 mg/m³<br>Ca            |                                                        |
|                     | Cadmium dust (as<br>Cd)                                | b                                | 8.65                |                                                       |                                | е                       | 0.005 mg/m <sup>3</sup>              | 9 mg/m³<br>Ca            |                                                        |
|                     | Chromium (III)<br>compounds (as Cr)                    | b                                | Propertie           | Properties vary depending upon the specific compound. |                                |                         | 0.5 mg/m <sup>3</sup>                | 25 mg/m <sup>3</sup>     |                                                        |
|                     | Cobalt metal dust and<br>fume (as Co)<br>(7440-48-4)   | Insoluble                        | 8.92                |                                                       | 0 mm                           | е                       | 0.02 mg/m <sup>3</sup>               | 20 mg/m <sup>3</sup>     |                                                        |
|                     | Copper dust and mist (as Cu)                           | b                                | 8.94                |                                                       | 0 mm                           | е                       | 1 mg/m <sup>3</sup>                  | 100 mg/m <sup>3</sup>    |                                                        |

| Check if<br>Present                                                                                                                      | Material<br>(CAS #)                                        | Water<br>Solubility <sup>a</sup> | Specific<br>Gravity | Flash Point             | Vapor<br>Pressure <sup>d</sup> | LEL<br>UEL            | Cal/OSHA<br>PEL- TWA <sup>f</sup>                   | IDLH Level h             | Odor Threshold<br>Geometric mean <sup>i</sup><br>(ppm) |  |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------|---------------------|-------------------------|--------------------------------|-----------------------|-----------------------------------------------------|--------------------------|--------------------------------------------------------|--|
|                                                                                                                                          | Lead                                                       | Insoluble                        | 11.34               |                         | 0 mm                           | е                     | 0.05 mg/m <sup>3</sup>                              | 100 mg/m <sup>3</sup>    |                                                        |  |
|                                                                                                                                          | Manganese, Fume<br>and compounds (as<br>Mn)<br>(7439-96-5) | Insoluble                        | 7.2                 |                         | 0 mm                           | Comb-<br>ustible      | 0.2 mg/m <sup>3</sup>                               | 500 mg/m <sup>3</sup>    |                                                        |  |
|                                                                                                                                          | Mercury compounds<br>(as Hg)<br>Except alkyl<br>compound   | b                                | 13.6                |                         | 0.0012 mm                      | е                     | 0.025 mg/m <sup>3</sup><br>Skin                     | 10 mg/m <sup>3</sup>     |                                                        |  |
|                                                                                                                                          | Molybdenum<br>(7439-98-7)                                  | Insoluble                        | 10.28               | -                       | 0 mm                           | Comb-<br>ustible      | 10 mg/m <sup>3</sup><br>3 mg/m <sup>3</sup> (resp.) | 5,000 mg/m <sup>3</sup>  | -                                                      |  |
|                                                                                                                                          | Nickel and other compounds (as Ni)                         | Insoluble                        | 8.9                 |                         | 0 mm                           | е                     | 1 mg/m <sup>3</sup>                                 | 10 mg/m³<br>Ca           |                                                        |  |
|                                                                                                                                          | Selenium<br>(7782-49-2)                                    | Insoluble                        | 4.28                |                         | 0 mm                           | Comb-<br>ustible      | 0.2 mg/m <sup>3</sup>                               | 1 mg/m <sup>3</sup>      |                                                        |  |
|                                                                                                                                          | Silver, metal dust, and<br>soluble compounds<br>(as Ag)    | b                                | 10.49               |                         | 0 mm                           | е                     | 0.01 mg/m <sup>3</sup>                              | 10 mg/m <sup>3</sup>     |                                                        |  |
|                                                                                                                                          | Thallium (soluble compouds, as Ti)                         | b                                | Propertie           | es vary depend<br>compo |                                | specific              | 0.1 mg/m³<br>Skin                                   | 15 mg/m <sup>3</sup>     |                                                        |  |
|                                                                                                                                          | Vanadium pentoxide<br>dust and Fume<br>(1314-62-1)         | 0.8%                             | 3.36                | -                       | 0 mm                           | е                     | 0.05 mg/m <sup>3</sup><br>(Respirable)              | 35 mg/m <sup>3</sup>     |                                                        |  |
|                                                                                                                                          | Zinc oxide<br>(1314-13-2)                                  | b                                | 5.61                |                         | 0 mm                           | е                     | 5 mg/m <sup>3</sup>                                 | 500 mg/m <sup>3</sup>    |                                                        |  |
| Miscellaneous                                                                                                                            |                                                            |                                  |                     |                         |                                |                       |                                                     |                          |                                                        |  |
|                                                                                                                                          | Ammonia<br>(7664-41-7)                                     | 34%                              |                     |                         | 8.5 atm                        | 15%<br>28%            | 25 ppm                                              | 300 ppm                  | 17 (d)                                                 |  |
|                                                                                                                                          | Asbestos<br>(1332-21-4)                                    | Insoluble                        |                     |                         | 0 mm                           | Non-<br>flam          | 0.1<br>fibers/cc                                    | None determined          |                                                        |  |
|                                                                                                                                          | Chromic Acid and<br>chromates<br>(1333-82-0)               | 63%                              | 2.7                 |                         | Very low                       | Non-<br>flam          | 0.005 mg/m <sup>3</sup>                             | 15 mg/m³<br>Ca           |                                                        |  |
|                                                                                                                                          | Cyanide (as CN)                                            |                                  |                     |                         |                                | Non-<br>flam          | 5 mg/m³<br>Skin                                     |                          |                                                        |  |
|                                                                                                                                          | DDT<br>(50-29-3)                                           | Insoluble                        | 0.99                | 162-171                 | 0.0000002<br>mm                |                       | 1 mg/m³ Skin                                        | 500 mg/m³<br>Ca          |                                                        |  |
|                                                                                                                                          | Diesel Fuel #2<br>(68476-34-6)                             | Insoluble                        | 0.81-0.90           | 130                     |                                | 0.6-1.3<br>6-7.5      | None established                                    | None determined          |                                                        |  |
|                                                                                                                                          | Fluorides, as F                                            | -                                |                     |                         |                                |                       | 2.5 mg/m <sup>3</sup>                               | None determined          |                                                        |  |
|                                                                                                                                          | Gasoline<br>(8006-61-9)                                    | Insoluble                        | 0.72-0.76           | -45                     | 38-300 mm                      | 1.4%<br>7.6%          | 300 ppm                                             | Ca<br>None<br>determined |                                                        |  |
|                                                                                                                                          | Kerosene<br>(8008-20-6)                                    | Insoluble                        | 0.81                | 100-162                 | 5 (100°F)                      | 0.7%<br>5.0%          | 200 mg/m <sup>3g</sup><br>Skin                      | None determined          | -                                                      |  |
|                                                                                                                                          | Naphthalene<br>(91-20-3)                                   | 0.003%                           | 1.15                | 174                     | 0.08 mm                        | 0.9%<br>5.9%          | 10 ppm                                              | 250 ppm                  | 0.038 (d)                                              |  |
|                                                                                                                                          | PCB (42% chlorine)<br>(53469-21-9)                         | Insoluble                        | 1.39                |                         | 0.001 mm                       | Non-<br>flam          | 1 mg/m³<br>Skin                                     | 5 mg/m³<br>Ca            |                                                        |  |
|                                                                                                                                          | PCB (54% chlorine)<br>(11097-69-1)                         | Insoluble                        | 1.38                |                         | 0.00006 mm                     | Non-<br>flam          | 0.5 mg/m³<br>Skin                                   | 5 mg/m³<br>Ca            |                                                        |  |
|                                                                                                                                          | Phosphorus (yellow)<br>(7723-14-0)                         | 0.0003%                          | 1.82                |                         |                                | 0.1 mg/m <sup>3</sup> | 5 mg/m³                                             |                          |                                                        |  |
|                                                                                                                                          | Polycyclic Aromatic<br>Hydrocarbons (PAH)                  | Properties<br>Liste              | ound.               | 0.2 mg/m <sup>3</sup>   | 80 mg/m³<br>Ca                 |                       |                                                     |                          |                                                        |  |
| SITE-SPECIFIC SUBSTANCES Add hazardous property information on any substances that are of concern at the site but are not listed above.) |                                                            |                                  |                     |                         |                                |                       |                                                     |                          |                                                        |  |

| Check if   Material   Water   Specific   Flash Point   Vapor   LEL   Cal/OSHA |
|-------------------------------------------------------------------------------|
|-------------------------------------------------------------------------------|

#### EXPLANATIONS AND FOOTNOTES:

- Water solubility is expressed in different terms in different references. Many references use the term "insoluble" for materials that will not readily mix with water, such as gasoline. However, most of these materials are water soluble at the part per million or part per billion level. Gasoline, for example, is insoluble in the gross sense, and will be found as a discrete layer on top of the ground water. But certain gasoline constituents, such as benzene, toluene, and xylene, will also be found in solution in the ground water at the part per million or part per billion levels.
- b Solubility of metals depends on the compound in which they are present.
- c Several chlorinated hydrocarbons exhibit no flash point in a conventional sense, but will burn in the presence of high energy ignition source or will form explosive mixtures at temperatures above 200 □F.
- d Expressed as mm Hg under standard conditions.
- <sup>e</sup> Explosive concentrations of airborne dust can occur in confined areas.
- f Cal/OSHA Time-weighted Average (TWA) Permissible Exposure Limits (PELs) except where noted in g. The substances designated by "Skin" in the PEL column may be absorbed into the bloodstream through the skin, the mucous membranes and/or the eye, and contribute to the overall exposure. "C" notation indicates the number given is a ceiling value.
- g TLV-TWA adopted by the American Conference of Governmental Industrial Hygienists (ACGIH). Currently, there is no Cal/OSHA PEL.
- <sup>h</sup> The substances with a "Ca" notation in the IDLH column are considered to be potential occupational carcinogens by NIOSH.
- Odor thresholds values extracted from "ODOR THRESHOLDS for Chemicals with established Occupational Health Standards", American Industrial Hygiene Association, 1997.
- (d) Odor detection threshold: Lowest concentration at which a stimulus is being detected.
- (r) Odor recognition threshold: Lowest concentration at which a definite odor character is detected.
- <sup>j</sup> Values extracted from the U.S. Environmental Protection Agency Technology Transfer Network, Air Toxics website. URL: www.epa.gov/ttn/atw/, 2006
- <sup>k</sup> Value extracted from "*HESIS Guide to Solvent Safety*" California Department of Health Services, 2004. URL: http://www.dhs.ca.gov/ohb/HESIS/solv\_cht.htm
- <sup>1</sup> Value extracted from "Chemical Summary For Methyl-Tert-Butyl Ether", U.S. Environmental Protection Agency, Office Of Pollution Prevention and Toxics, August 1994. URL: http://www.epa.gov/chemfact/s\_mtbe.txt

## Appendix D Control Mechanisms

The following Control Mechanisms and Methods should be implemented for Hazards that were identified as part of the Tasks that will be conducted for this Project.

- **B1** Chemical Hazards All personnel performing work activities within the Exclusion Zone shall wear appropriate personal protective equipment (PPE) while performing site activities. At a minimum, equipment shall include safety glasses, steel-toed boots, hard hats, chemical resistant gloves, chemical resistant clothing (Tyvek or equivalent), and a half-face negative pressure respirator w/ P100 cartridge (or equivalent). Additional PPE requirements are outlined in this HASP (See Table 8) and all personnel shall familiarize themselves with the appropriate health and safety responses for exposure to known on-site chemicals prior to beginning work at the site. See Attachment A for chemical safety data. Personal air monitoring shall be completed in accordance with Section 8.0.
- **B2** Physical Hazards Hazards from floor and wall openings, careless movements, protruding objects, building contents (stockpiled CRT materials), debris, spills, placement of materials on paths or foot traffic areas, present a problem with regards to slips, trips, falls, and puncture wounds.

All personnel shall minimize the risk of slips, trips, and falls by keeping the work area clear of excess equipment and cleaning up wet surfaces as soon as possible. In addition, the floor of every workroom shall be maintained in a clean and, as much as possible, a dry condition. Personnel should avoid walking through/on wet and/or cluttered surfaces and be conscious of the fact the wet surfaces could be slippery and could cause injury. Spilled materials should be cleaned up immediately.

Personnel should stay alert at all times and if tired or distracted, take this into account when working at the site. To minimize the possibility of injury:

- Wear sturdy steel toed work boots with good tread.
- Do not run.
- Slide feet when walking on slick/wet surfaces.
- Don't walk on debris.
- Don't carry items that block your vision.
- Use handrails/grips when available and maintain 3-point contact whenever possible.
- Don't jump down from equipment and look down before you step down.
- Use appropriate fall protection when working at elevation.
- Report any floor openings that are not clearly marked and/or guarded.
- Don't use ladders/scaffolds during high winds or when ice or snow is on the rungs/work surface.
- Don't use ladder substitutes like a box or fork lift, and don't use a ladder or scaffolding that is not in good condition.
- Keep paths and work areas clear of tools, equipment, boxes, cords, etc. Tape or secure cords, wires, etc. to minimize trip/fall hazard.
- If a protruding object cannot be moved, make sure the object can be easily seen or guard/pad the object if possible.
- Use ancillary lighting such as flashlights and headband lights when necessary.

Sufficient illumination should be provided in all areas at all times. Personnel should notify the responsible person of conditions where there is an absence of sufficient natural and/or permanent artificial light.

Emergency exit doors will be kept free of any obstacles at all times. Any person finding an emergency door blocked should immediately report the condition and correct it when possible. Exit lights and signs will also be maintained in proper condition at all times and immediately reported if deficient.

Noise monitoring may be conducted as required. If noise levels exceed 85 dBA, then hearing protection with a USEPA NRR of at least 20 dBA must be used. Hearing protection is mandatory for all employees in noise hazardous areas, such as around heavy equipment. As a general rule, sound levels that cause speech interference at normal conversation distance should require the use of hearing protection.

- **B3** Working Near Railroads In the event that work activities are conducted near and/or adjacent to railroad tracks, the following procedures will be implemented:
  - The hazards of working near and/or adjacent to railroads will be included in job briefings prior to work activity commencing and subsequently when the activity changes;
  - Mounting, dismounting, or crossing over moving locomotives or cars is prohibited;
  - Personnel will be alert for the movement of cars, locomotives, or equipment at any time, in
    either direction, on any track and will remain at least 25 feet (8 meters) from the end of
    standing cars, equipment, or locomotives, except when proper protection is provided (e.g.,
    a flagman is present or the track is taken out of service by the proper authority, prior to
    starting any work on or about the tracks);
  - Personnel will not cross over coupled, moving freight cars; take refuge under any car, equipment, or locomotive; attempt to mount, dismount, or cross over moving equipment.
- **B4** Electrical Hazards Electricity may pose a particular hazard to site workers due to the use of portable electrical equipment. If wiring or other electrical work is needed, a qualified electrician must perform it.

Properly ground all electrical equipment. Avoid standing in water when operating electrical equipment. Ground fault outlets or adapters shall be used for any electrical equipment. Apparatus, tools, equipment, and machinery will not be repaired while in operation. Lockout/Tagout (LOTO) procedures will be implemented when necessary. If equipment must be connected by splicing wires, electrical work must be performed by a licensed and competent electrician.

General electrical safety requirements include:

- All electrical wiring and equipment must be a type listed by Underwriters Laboratories (UL), Factory Mutual Engineering Corporation (FM), or other recognized testing or listing agency.
- All portable generators or other portable internal combustion type devices used on-site will be grounded. All grounds will be validated twice daily with a multimeter to confirm a resistance of less than ten ohms.
- All installations must comply with the National Electrical Safety Code (NESC), the National Electrical Code (NEC), or United States Coast Guard regulations.
- Portable and semiportable tools and equipment must be grounded by a multiconductor cord having an identified grounding conductor and a multicontact polarized plug-in receptacle.

- Tools protected by an approved system of double insulation, or its equivalent, need not be grounded. Double-insulated tools must be distinctly marked and listed by UL or FM.
- Live parts of wiring or equipment must be guarded to prevent persons or objects from touching them.
- Electric wire or flexible cord passing through work areas must be covered or elevated to protect it from damage by foot traffic, vehicles, sharp corners, projections, or pinching.
- All circuits must be protected from overload.
- Temporary power lines, switchboxes, receptacle boxes, metal cabinets, and enclosures around equipment must be marked to indicate the maximum operating voltage.
- Plugs and receptacles must be kept out of water unless of an approved submersible construction.
- All extension cord outlets must be equipped with ground-fault-circuit interrupters (GFCIs).
- Attachment plugs or other connectors must be equipped with a cord grip and be constructed to endure rough treatment.
- Extension cords or cables must be inspected prior to each use and replaced if worn or damaged.
- Cords and cables must not be fastened with staples, hung from nails, or suspended by bare wire.
- Flexible cords must be used only in continuous lengths without splice, with the exception of molded or vulcanized splices made by a qualified electrician.
- **B5** Fire and Explosion Hazards The presence of petroleum and/or solvent products or contaminated material presents a potential fire hazard. Smoking and use of open flame will be prohibited. The use of non-sparking tools and equipment will be implemented if conditions warrant. Where the potential of fire exists, portable fire extinguishers must be provided. Where applicable, all fire extinguishers shall be mounted no higher and no lower than 4 feet (1.22 m) from the floor and/or shall be readily accessible for use. All fire extinguishers shall be maintained as follows:
  - Fully charged and in operable condition
  - Clean and free of defects
  - Readily accessible at all times

Fire prevention and protection measures include elimination of ignition sources, where feasible, identification of combustion sources and atmospheres, and early detection and rapid response to fire/explosion situations. In addition to standard operating procedures, the following safe work practices will be implemented:

- Site activities will comply with National Electric Code and explosion proof criteria;
- Smoking will only be allowed in designated areas;
- Appropriate air monitoring procedures will be conducted, when necessary;
- Welding, open flame or spark-producing operations will not be allowed on-site;
- Solvents with a flash point of less than or equal to 100°F will not be used for cleaning purposes;

- Fire extinguishers shall be kept in all work vehicles
- Extinguishers must:
  - Be maintained in a fully charged and operable condition;
  - Be visually inspected each month; and
  - Undergo a maintenance check each year.

All fires and visible smoke that are detected at the site will be dealt with immediately by the individual recognizing the fire and/or smoke. In the event of visible smoke, fire or explosion, the following emergency response procedures will be implemented:

- Immediately cease operations; and
- In all emergency situations contact the SM or HSC and emergency services.

For small fires, personnel may attempt to extinguish the fire, if safe to do so and they have been trained. One fire extinguisher ONLY may be used to fight the fire. After one fire extinguisher is depleted, personnel must evacuate the area. For larger fires, perform site evacuation.

**B6 Heat Stress** – Heat stress can be a significant hazard, especially for workers wearing protective clothing. Depending on the ambient conditions and the work being performed, heat stress can occur very rapidly, within as little as 15 minutes. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim and in the prevention of heat stress incidents.

Workers will be encouraged to immediately report any heat-related problems that they experience or observe in fellow workers. Any worker exhibiting signs of heat stress and exhaustion should be made to rest in a cool location and drink plenty of water. Emergency help by a medical professional is required immediately for anyone exhibiting symptoms of heat stroke, such as red, dry skin, confusion, delirium, or unconsciousness. Heat stroke is a life threatening condition that must be treated by competent medical authority.

ACGIH screening criteria for heat stress exposure in degrees Celsius for an 8 hour work day 5 days per week with conventional breaks will be used in determining safe exposure for acclimatized and unacclimatized personnel.

| Allocation of Work in a Work/Rest<br>Cycle |                 | Acclimat        | ized            | Action Limit<br>(Unacclimatized) |                 |                 |                 |                 |
|--------------------------------------------|-----------------|-----------------|-----------------|----------------------------------|-----------------|-----------------|-----------------|-----------------|
|                                            | Light           | Moderate        | Heavy           | Very<br>Heavy                    | Light           | Moderate        | Heavy           | Very<br>Heavy   |
| 75-100%                                    | 31.0<br>(87.8F) | 28.0<br>(82.4F) |                 |                                  | 28.0<br>(82.4F) | 25.0<br>(77F)   |                 |                 |
| 50-75%                                     | 31.0<br>(87.8F) | 29.0<br>(84.2F) | 27.5<br>(81.5)  |                                  | 28.5<br>(83.3F) | 26.0<br>(78.8F) | 24.0<br>(75.2F) |                 |
| 25-50%                                     | 32.0<br>(89.6F) | 30.0<br>(86F)   | 29.0<br>(84.2F) | 28.0<br>(82.4F)                  | 29.5<br>(85.1F) | 27.0<br>(80.6F) | 25.5<br>(77.9)  | 24.5<br>(76.1F) |
| 0-25%                                      | 32.5<br>(90.5F) | 31.5<br>(88.7F) | 30.5<br>(86.9F) | 30.0<br>(86F)                    | 30.0<br>(86F)   | 29.0<br>(84.2F) | 28.0<br>(82.4F) | 27.0<br>(80.6F) |

#### **Heat Stress Prevention**

If necessary and where/when appropriate, engineering controls should be utilized to protect workers from heat related hazards. For example, isolation from the heat source, ventilation such as open windows, fans or other methods of creating air flow, and heat shielding such as awnings or umbrellas.

Appropriate work practices can also lessen the chances of heat related hazards. Some of these include:

- Water intake should be about equal to the amount of sweat produced (i.e., drinking 5-7 ounces of water every 15-20 minutes). Electrolyte fluids may also be necessary.
- Whenever possible, gradual exposure to heat is preferred to allow the body's internal temperature to actuate to the working conditions.
- Whenever possible, adjust the work schedule to reduce risk of heat stress. For example, postpone nonessential or heavier work to the cooler part of the day and perform work in the shade if portable.
- Rotate personnel to reduce the amount of time spent working in direct sun and heat.
- Increase the number and/or duration of rest breaks, and whenever possible, rest break areas should be in a cool area and as close to the work area as is feasible.

Wear appropriate PPE when necessary, such as thermally conditioned clothing, self-contained air conditioning in a backpack, and plastic jackets/vests with pockets that can be filled with dry ice or ice. However, based on the type of work being done, where work is being performed, or other required PPE, these options may be prohibited or make the use of this PPE impossible or impractical.

#### Heat-Related Illnesses

**Heat Stress**: This is the mildest heat-related illness, but prompt action may prevent it from turning into a more severe heat-related illness. Symptoms include irritability, lethargy, significant sweating, headache, or nausea. The following guidance can be used in the identification and treatment of heat related illness.

#### Heat Stress First Aid:

- Take victim to a protected (e.g., shaded, cool) area, remove any excess protective clothing, and provide cool fluids.
- If an air-conditioned spot is available, this is an ideal break location.
- Once the victim shows improvement he/she may resume working; however, the work pace and practices (e.g., does fluid intake need to be increased) should be moderated to prevent recurrence of the symptoms.

**Heat Exhaustion:** Usually begins with muscular weakness, dizziness, nausea, and a staggering gait. Symptoms include pale, clammy skin, and profuse sweating, vomiting, and the bowels may move involuntarily. The pulse is weak and fast, breathing is shallow. Fainting can occur.

#### Heat Exhaustion First Aid:

- Immediately remove the victim from the work area to a shady or cool area with good air circulation (avoid drafts or sudden chilling you do not want the victim to shiver).
- Call a physician or emergency service, or transport the victim to medical care.

- Remove all protective outerwear.
- If the victim is conscious, it may be helpful to give him/her sips of water.

**Heat Stroke:** Heat stroke is a severe medical condition requiring first aid and emergency treatment by a medical professional as death can occur without appropriate care. Heat Stroke represents the collapse of the body's cooling mechanisms. As a result, body temperatures often rise to between 105 – 110°F. As the victim progresses toward heat stroke symptoms include hot and usually dry, red and spotted skin, headache, dizziness, nausea, mental confusion, delirium, possible convulsions and loss of consciousness.

#### Heat Stroke First Aid:

- Immediately remove the victim from the work area to a shady or cool area with good air circulation (avoid drafts or sudden chilling you do not want the victim to shiver).
- Summon emergency medical help to provide on-site treatment and transportation to a medical facility.
- Remove all protective outerwear and loosen personal clothing.
- Apply cool wet towels, ice bags, etc. to the head, armpits, and thighs. Sponge off the bare skin with cool water or even place the victim in a tub of cool water.

#### **Skin Hazards**

Sunburn and prickly heat are both symptoms of skin irritation/damage produced through exposure to sunlight and operating in hot work environments.

- In sunny work areas protect exposed skin with an appropriate sunscreen. A sunscreen with a sun protection factor (SPF) of 15 or greater is required for work in the sun with reapplication at breaks and lunch.
- Heat rash, also known as prickly heat, can be prevented by the application of a hydrophobic, water repellent barrier cream such as Kerodex 71.

**B7** Cold Stress - The four environmental conditions that cause cold-related stress are low temperatures, high/cool winds (wind chill), dampness, and cold water. One or any combination of these factors can cause cold-related hazards. Cold stress, including frostbite and hypothermia, can result in severe health effects.

A dangerous situation of rapid heat loss may arise for any individual exposed to high winds and cold temperatures. Major risk factors for cold-related stresses include:

- Wearing inadequate or wet clothing increases the effects of cold on the body.
- Taking certain drugs or medications such as alcohol, nicotine, caffeine, and medication that inhibits the body's response to the cold or impairs judgment.
- Having a cold or certain diseases, such as diabetes, heart, vascular, and thyroid problems, may make a person more susceptible to the winter elements.
- Being male increases a person's risk to cold-related stresses. Men experience far greater death rates due to cold exposure than women, perhaps due to inherent risk-taking activities, body-fat composition, or other physiological differences.
- Becoming exhausted or immobilized, especially due to injury or entrapment, may speed up the effects of cold weather.

Aging -- the elderly are more vulnerable to the effects of harsh winter weather.

TABLE 2. Cooling Power or Wind on Exposed Flesh Expressed as Equivalent Temperature (under calm conditions)\*

|                                  | Actual                  | Tempe                     | erature | e Read  | ing (°F)                 |          |          |           |                            |            |      |      |
|----------------------------------|-------------------------|---------------------------|---------|---------|--------------------------|----------|----------|-----------|----------------------------|------------|------|------|
| Estimated Wind<br>Speed (in mph) | 50                      | 40                        | 30      | 20      | 10                       | 0        | -10      | -20       | -30                        | -40        | -50  | -60  |
|                                  |                         |                           | '       |         | Equiva                   | lent Chi | ill Temp | erature   | (°F)                       |            |      |      |
| calm                             | 50                      | 40                        | 30      | 20      | 10                       | 0        | -10      | -20       | -30                        | -40        | -50  | -60  |
| 5                                | 48                      | 37                        | 27      | 16      | 6                        | -5       | -15      | -26       | -36                        | -47        | -57  | -68  |
| 10                               | 40                      | 28                        | 16      | 4       | -9                       | -24      | -33      | -46       | -58                        | -70        | -83  | -95  |
| 15                               | 36                      | 22                        | 9       | -5      | -18                      | -32      | -45      | -58       | -72                        | -85        | -99  | -112 |
| 20                               | 32                      | 18                        | 4       | -10     | -25                      | -39      | -53      | -67       | -82                        | -96        | -110 | -121 |
| 25                               | 30                      | 16                        | 0       | -15     | -29                      | -44      | -59      | -74       | -88                        | -104       | -118 | -133 |
| 30                               | 28                      | 13                        | -2      | -18     | -33                      | -48      | -63      | -79       | -94                        | -109       | -125 | -140 |
| 35                               | 27                      | 11                        | -4      | -20     | -35                      | -51      | -67      | -82       | -98                        | -113       | -129 | -145 |
| 40                               | 26                      | 10                        | -6      | -21     | -37                      | -53      | -69      | -85       | -100                       | -116       | -132 | -148 |
| (Wind speeds                     | LITTL                   | E DAN                     | GER     |         | INCREASING DANGER        |          |          |           | GREAT DANGER               |            |      |      |
| greater than 40                  | In < hr with dry skin.  |                           |         |         | Danger from freezing of  |          |          |           | Flesh may freeze within 30 |            |      |      |
| mph have little                  | Maximum danger of false |                           |         |         | exposed flesh within one |          |          |           | seco                       | nds.       |      |      |
| additional effect.)              | sense                   | sense of security minute. |         |         |                          |          |          |           |                            |            |      |      |
|                                  |                         | Tı                        | renchfo | oot and | immersi                  | ion foot | may oc   | cur at an | y point o                  | n this cha | art. |      |

<sup>\*</sup>Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.

#### **Cold Stress Prevention**

Engineering controls should be utilized whenever possible to protect workers from cold related hazards. For example, on-site heat sources, heated shelters, work areas shielded from drafty or windy conditions, and the use of thermal insulating material on equipment handles.

Effects arising from cold exposure will be minimized by the following control measures:

- Personnel will be trained to recognize cold stress symptoms.
- Field activities will be curtailed or halted if the equivalent chill temperature is below 20 F.
- As much as possible, work that exposes personnel to the cold will be done during the warmest hours of the day.
- Inactivity in cold conditions will be kept to a minimum.
- Frequent short breaks in warm, dry shelters will be taken.
- Vehicles will be equipped with supplies in case the vehicle becomes inoperable (e.g., blanket, dry clothing, water, food, a shovel, etc.

The following PPE should be provided during work in cold environments

- Workers will be provided with insulated dry clothing when the equivalent chill temperature is less the 30°F.
- Feet, hands, the face, and the head should be protected (40% of the body's heat can be lost when the head is exposed).
- Foot and hand wear may also need to be waterproof.
- Clothing should be layered so that adjustments can be made to changing environmental temperatures and conditions. For example, an outer layer to break the wind, a middle layer

Equivalent chilll temperature requiring dry clothing to maintain core body tempearture above 36°C (96.8°F) per cold stress TLV

that will absorb sweat and retain insulation when wet, and an inner layer that allows ventilation.

#### Cold-Related Illness

*Hypothermia:* Hypothermia occurs when the body temperature falls to a level where normal muscular and cerebral functions are impaired. Although it usually occurs in freezing air and water temperatures, it can occur in any climate if a person's internal body temperature falls below normal. Symptoms should not be ignored, and a supervisor should be notified as soon as hypothermia is suspected.

Initially, symptoms may include shivering, an inability to do complex motor functions, sluggishness and mild confusion as the body temperature drops to around 95°F. As the body temperature falls, speech may become slurred, and behavior may be irrational, simple motor functions may be difficult to do and a state of "dazed consciousness" may exist. In severe state (below 90°F), heart rate, blood flow, and breathing will slow. Unconsciousness and full heart failure can occur.

#### Hypothermia First Aid:

- Call for emergency, and then help move the victim (unless other injuries prohibit their being moved) to a warm, dry area and replace wet clothing with warm, dry clothing or a blanket. Move the person carefully because movement can increase the irritability of the heart.
- If the person is conscious and lucid, warm liquids can be provided, but never alcohol or caffeinated drinks. If possible, have them to move their arms and legs to create muscle heat.
- If the person is unconscious or unable to assist, place warm bottles/packs in the person's arm pits, groin, neck and head areas.
- Do not rub the person's body or place them in warm water.

**Frostbite:** Frostbite occurs when the skin literally freezes, and deep frostbite can affect deeper tissues such as tendons and muscles. Frostbite usually occurs when temperatures drop below 30 F, but wind chill effects can cause frostbite at above-freezing temperatures. The ears, fingers, toes, cheeks, and nose are the most commonly affected body parts. Initially, symptoms include an uncomfortable sensation of coldness. Tingling, stinging or an aching feeling of the exposed area is followed by numbness. Frostbitten areas appear white and cold to the touch and with deeper frostbite, the area becomes numb, painless, and hard, and can turn black.

#### Frostbite First Aid:

- Seek medical attention as soon as possible and treat any existing hypothermia first.
- Warm liquid can be provided, but not alcohol or caffeinated drinks such as tea and coffee.
- Do not rub the affected areas, but cover them with dry, sterile gauze or soft, clean bandages.
- Do not try rewarming the affected area if you have not been specifically trained to do so and/or if there is a chance the affected area will get cold again.

**B8** Insects and Spiders - Care will be taken by all site workers to avoid stinging or biting insects such as spiders, bees, wasps, hornets, and yellow jackets. Workers allergic to any particular insect sting or bite should seek medical attention if stung or bitten and may need to carry emergency medicine prescribed by their doctor.

Care should always be taken to avoid these insects and increased vigilance is necessary during high infestation seasons, when opening protective casings of monitoring wells, and when walking through areas of heavy vegetation or areas known to be infested.

To minimize the chance of bites/stings:

- Wear appropriate PPE such as light colored clothing so you can see insects, long pants tucked into boots, long sleeves when possible, a hat, and gloves if you are cutting brush or need to handle or move vegetation.
- Check your body and clothing for insects, shower after work and wash/dry clothes at as high temperature as possible.
- Don't swat at insects and don't eat in areas where there are insects.
- Avoid sweet smelling personal hygiene products and, unless contradicted by the work being performed (e.g., sampling, data collection), wear EPA approved repellants such as those containing DEET.





Black Widow Spider

Brown Recluse Spider

Spider bites generally cause only localized reactions such as swelling, pain, and redness. However, bites from a Black Widow or Brown Recluse, or if you are allergic to spiders, can cause symptoms that are more serious.

#### First Aid for spider bites:

- Clean the bite area with soap and water and place a cold pack over the bite area to reduce swelling.
- Monitor for allergic reactions. If victim has more than minor pain, or if nausea, vomiting, difficulty breathing, or swallowing occurs, medical attention should be sought immediately.





Bees and wasps belong to the phylum Arthropod family, and they are crucially important to the pollination of plants, specifically flowers, fruits, and vegetables. A sting from a bee or wasp will cause itching, irritation, redness and/or swelling at the sting site.

#### First Aid for bee stings:

- Remove the stinger as quickly as possible venom continues to enter the skin from the stinger for 45 to 60 seconds following a sting using a flat dull object, like a credit card. Slid the flat object in the opposite direction of the stinger to remove it from the skin.
- Wash the wound using soap and water
- Apply ice for swelling and pain
- A topical hydrocortisone cream, antihistamine, or local anesthetic may be of value in reducing itching
- If the sting occurs on the neck or mouth, seek medical attention immediately, swelling in these areas may cause suffocation

A small percentage of people are allergic to stings and a sting can be fatal, caused by a disruption to breathing and circulatory systems called anaphylactic shock. If the sting is followed by severe symptoms, seek medical attention immediately. Allergic people should never be alone for outdoor activities since help may be needed for prompt emergency treatment. Allergic people should have an identification bracelet as well as carry something like an "EpiPen" for immediate treatment for anaphylactic shock.

**B9** Poisonous Plants – Plants poison on contact, through ingestion, or by absorption or inhalation. They cause painful skin irritations upon contact and can cause internal poisoning when eaten.

#### First Aid for poisonous plants:

- Wash exposed areas with cold running water as soon as you can
- When possible, wash your clothing
- Relieve itching by taking cool showers and applying topical anti-itch medications or hydrocortisone
- The rash is often arranged in streaks or lines where you brushed against the plant
- In a few days, the blisters become crusted and take 10 days or longer to heal
- If the reaction is severe or worsens, seek medical attention

**B10 Personal Safety** - If it is deemed that a work site is in an area where personal safety may be at risk from potential criminal acts, wild animals, etc. the risks will be evaluated and implementation of preventative measures will be taken to minimize the risk. Informational resources such as the client, local law enforcement officials, Park or Wildlife Service, and Animal Control could be utilized to assess the risk and to ensure the safest possible work environment. For example, local law enforcement can be made present or make frequent drivebys while work is being done, outside security can be hired, and work can occur only during certain times of the day or work may not proceed at all. Some general guidelines are provided here, but each situation is different and actions must be taken based on the specifics of each.

In areas of risk, personnel will communicate via cell phones or 2-way radios, and will check-in at predetermined times throughout each workday. If personnel do not call in to the Project

Manager or designated representative, the team will be contacted, and if unsuccessful, local law enforcement will be notified.

If you see wild animals while driving, stay in your vehicle. Never get out for a photo or a closer look. Keep windows up and don't try to keep the animal from crossing a road with your vehicle. If you see a wild animal while on foot, never approach the animal. If the animal has not seen you, go back the way you came. Do NOT turn your back and run which could evoke their natural predator instinct. Instead, keep facing the animal and back away at a steady pace. Let it know you are human by talking in a low voice and waving your hands slowly. If you are near a car or building, get inside. In addition, in areas of higher risk (i.e., contacted officials have indicated that wild animals are a nuisance), personnel may want to consider carrying "pepper spray".

If, while on the project site, and despite any precautions set forth, if any person feels that their safety is at risk, they shall cease work, leave the work area and immediately report their concerns so that appropriate steps can be taken.

**B11** Working Alone and Working in Isolated Areas - Site personnel will assess the risk of working alone and whenever possible, personnel will not work alone or within isolated areas.

Communicating through cell phones or 2-Way Radios will be utilized whenever possible. If necessary, personnel will check-in at predetermined times throughout each workday and as the risk rating increases, personnel will check-in more frequently. If personnel do not call in to their supervisor, the team member will attempt to be contacted and located. If contacting the team member is unsuccessful, the appropriate authorities will be notified. In addition, and especially if communication is not possible during the day, the planned start and estimated finish times for the day will be communicated, and personnel will check in at the beginning and end of the work day.

If personnel will be moving from isolated area to isolated area, there will be established beginning and ending locations, planned start and estimated finish times, and planned routes that will be followed throughout the day. Personnel will not deviate from this schedule without first contacting the appropriate personnel.

If this is not possible to complete work during day light hours, personnel will wear appropriate reflective apparel and have appropriate lighting, such as portable lighting, flashlights, or headlamps as appropriate for the activity being conducted. Personal security will be assessed and measures taken as discussed above, if appropriate.

#### **B12 Severe Weather**

Severe weather conditions include high winds, electrical storms, and heavy rain. At a minimum, all work outdoors will cease during these events. When lightning is spotted, site personnel working outdoors should use the following steps to avoid injury:

- Workers should note the flash-boom ratio (i.e., count the seconds after the lightning was seen until the thunder was heard).
- By counting the seconds between seeing lightning and hearing thunder and dividing by 5, you can estimate your distance from the storm (in miles or kilometers). If the storm is 6

miles (9.6 kilometers) away or less (30 seconds between when lightning was seen and thunder was heard) workers must stop work and take shelter.

- If the storm is more than 6 miles (9.6 kilometers) away (greater than 30 seconds between lightning and thunder), the personnel's supervisor should monitor the storm and be prepared to cease work if the storm approaches an unsafe distance. Since storms can travel at varying speeds and the amount of time at takes to cease and secure operations will also vary, so prudent judgment should be exercised when storms are in the vicinity and/or developing (e.g., darkening skies, increasing wind speeds, etc.).
- Workers should not stay in exposed areas (outdoors on the ground, on a roof, in an aerial lift, on a steel truss, on an ungrounded steel structure, in a golf cart, un-sided building, etc.) after lightning has been witnessed. All personnel must move to a safe location.
- Workers should wait 30 minutes from the last sight of lightning or sound of thunder before returning to work.
- Those required to travel from one building to another during the 30 minute wait time should do so only by enclosed vehicle.
- Once the 30 minute wait time period has elapsed and no additional lightning or thunder has been seen or heard, individuals may resume normal work.

**B13 Material Handling/Ergonomics** – Handling and moving materials involve diverse operations such as hoisting with a crane, driving a truck loaded with materials, carrying bags or materials manually, and stacking materials. When moving materials manually, and if appropriate and feasible, personnel should attach handles or holders to loads in addition to wearing appropriate personal protective equipment and using proper lifting techniques.

Personnel should seek help when handling loads that are too bulky to grasp or lift, when personnel cannot see around or over a load, or when they cannot safely handle a load for any other reason. Personal protective equipment should be worn when moving materials to prevent needless injuries. Hand and forearm protection, such as gloves should be worn when working with loads that have sharp or rough edges. Blocking materials can be used to manage and move loads, but ensure the materials are large and strong enough to support the load safely.

When mechanical equipment is used to move materials, allow the weight, shape and size of the material to dictate the type of equipment used to move it, based on its rated capacity and making sure not to overload. Equipment-rated capacity should be displayed on each piece of equipment in use. When picking up items with a powered truck, center the load as close to the mast as possible, avoid overloading and do not put extra weight on the rear to counterbalance the equipment, adjust the load to the lowest possible safe position when traveling, and always follow the manufacturer's operational instructions.

Lifting, carrying and lowering objects represent a potential physical hazard to personnel. Therefore, it is every person's responsibility to realistically evaluate the object to determine if the weight and size exceeds the person's ability to lift, lower, or carry it. To eliminate or minimize the risk of lifting hazards, utilize proper techniques, such as keeping the back straight and legs bent. Objects should always be lifted, lowered and carried as close to the body as possible. If the equipment cannot be lifted in this manner, it is too heavy to lift alone. Call other personnel, or use a mechanical device for aid in lifting. Mechanical aids like hand trucks and carts or the buddy system should be used to move heavy objects, objects with poor handgrips or large bulky objects. Some other things to consider:

- Evaluate the object for the presence of any physical hazards such as pinch points, sharp or jagged edges, burrs or rough and slippery surfaces.
- The route in which the object will be moved should be free from obstructions, which could cause difficulty in moving the object.
- Asses other hazards such as stairs before you move the object and consider smaller loads with multiple trips as a safe alternative.
- If an object is stored at a level higher than five feet, or on the floor, an appropriate mechanical device may be necessary to move the object.
- Recognized lifting hazards should be designed out of the work process, whenever possible.

Proper lifting and lowering techniques should be followed even if the object or material to be lifted is of lighter weight. Keep the objects as close to the body as possible and:

- Establish a firm footing with feet at approximately shoulder width and one foot slightly ahead of the other. This posture will aid in keeping good balance and will establish a stable lifting base.
- Always bend at the knees, not at the waist when lifting or lowering an object.
- Obtain a good secure grip on the object.
- When beginning to lift, tighten your stomach muscles and use your les to lift the object, as leg muscles are generally stronger than back muscles.
- Lift slowly and smoothly.
- If you need to turn as you lift, do not twist at the waist, but instead pivot with the feet.

When lowering the object, reverse the procedure.

**B14** Power Tools – Tools can be hazardous when improperly used since these types of tools utilize energy: Electric, liquid fuel, hydraulic, pneumatic, and powder-actuated. The following precautions will be taken by personnel to prevent injury:

- Power tools will always be operated within their design limitations, and only by personnel
  who have been appropriately trained in the use, operation, and proper handling of such
  tools.
- Guards are not to be removed or rendered inoperative.
- Eye protection, gloves, and safety footwear are recommended during operation.
- Store tools in an appropriate dry location when not in use.
- Work only in well illuminated locations.
- Tools will not be carried by the cord or hose, and cords or hoses will not be yanked to disconnect it from the receptacle.
- Cords and hoses will be kept away from heat, oils, and sharp edges or any other source that could result in damage.
- Tools will be disconnected when not in use, before servicing, and when changing accessories such as blades, bits, and cutters.
- Observers will be kept at a safe distance at all times from the work area.

- Tools will be maintained in a clean manner, and properly maintained in accordance with the manufacturer's guidelines. Periodic inspection of hand and portable power tools should occur.
- Ensure that the work area is kept clean to maintain proper footing and good balance.
- Ensure that proper apparel is worn. Loose clothing, ties, or jewelry can become caught in moving parts.
- Tools that are damaged will be removed from service immediately and tagged "Do Not Use"

**B15 Vehicle Use** – Work areas and site conditions must be considered when designating and selecting a vehicle for use. The vehicle shall be maintained in safe working order as required by the manufacturer. This would include a routine preventive maintenance schedule for servicing and checking of safety-related equipment.

Special-use vehicles (e.g., All-Terrain Vehicles (ATV), snowmobiles, etc.) are vehicles with a light engine or electric motor, other than construction equipment, and are not intended and/or allowed for highway use. These vehicles may **not** have seat belts or **do not** have substantial roll protection (i.e., ROPS, FOPS, steel roll-cage, etc.).

The following general practices will be followed for operating vehicles:

- All vehicles will be operated in accordance with the Manufacturer's requirements and specifications;
- Drivers should use prudent judgment and proceed cautiously;
- Operators of special-use vehicles shall be trained by a competent person. At a minimum, training will be hands-on by a competent person and the operator shall demonstrate of basic skills. All individuals are required meet all training aspects before use;
- All vehicles shall remain on flat surfaces at all times and shall not be operated on slopes steeper than a 30% grade;
- Daily inspections of vehicles for safety and maintenance will be required (i.e., fluid leaks/levels, tire pressure, tire surfaces, lights, fuel levels, brakes, etc.);
- Safe speed limits shall be maintained to safe operating speeds;
- Make sure the engine is turned OFF before dismounting the vehicle;
- Avoid driving over debris or extreme obstacles:
- Watch for workers and other vehicles;
- Do not carry passengers;
- Slow down before coming to a stop;
- Shut engine down prior to refueling;
- Each driver will have a valid driver's license.

#### **Forklifts Operations**

#### **Forklift Inspection**

1. Forklift inspection shall be done at least once per shift.

- 2. If maintenance work is required, the fork lift operator shall notify the shift supervisor. The forklift will be locked out and tagged out until the maintenance work is complete.
- 3. The shift supervisor shall coordinate all maintenance work.
- 4. If a forklift working in the Exclusion Zone (contaminated warehouse area) must be removed from the Exclusion Zone for maintenance, the forklift must first be decontaminated.

#### Safe Operation of Forklifts

- 1. Keep forks no more than 6" off the floor when moving with or without a load.
- 2. Always sound the horn when backing up.
- 3. Slow down at intersections and sound the horn.
- 4. A forklift is capable of going 10 miles per hour but should be operated no more than a fast walk.
- 5. Check the load before lifting and moving to ensure that it is stable.
- 6. All wheels on the forklift should be checked before loading or unloading.
- 7. There should be no "horseplay" on the forklift at any time.
- 8. All accidents are to be reported immediately to the shift supervisor.
- 9. Do not use unsafe or damaged forklifts. Report them immediately to the shift supervisor.
- 10. Keep forks on the ground or as low as possible when the truck is not in use.
- 11. At no time shall an operator lift a load that exceeds the forklift's rated lifting capacity.
- 12. Pay special attention to other forklifts, workers, and falling objects when operating a lift.
- 13. When propane tanks need to be changed, the tanks shall be changed by properly trained forklift operators. Before empty tanks from forklifts operating in the Exclusion Zone (contaminated warehouse area) can be removed from the Exclusion area for re-filling, the tank must first be decontaminated. See Sections 10.1 and 10.3 for decontamination and equipment load out procedures.

#### **Vehicle or Forklift Violations**

- 1. Vehicle and forklift operator privileges shall be revoked or suspended for a minimum amount of time based on the incident and as deemed appropriate by management. The following reasons may constitute reasons for privileges being revoked/suspended:
  - a. If an operator has acquired a total of three violations in a 2 month period.
  - b. Failure to report all accidents, injury, or property damage to the shift supervisor.
  - c. Not being certified, licensed, or properly trained on the forklift or vehicle they are operating.
  - d. Vehicle and forklift operating privileges shall be suspended until retraining requirements are fulfilled.

### Appendix E 29 CFR 1910.1025 – Medical Monitoring

By Standard Number / 1910.1025 App C - Medical surveillance guidelines

Part Number: 1910

Part Number Title: Occupational Safety and Health Standards

Subpart: 1910 Subpart Z

Subpart Title: Toxic and Hazardous Substances

Standard Number: 1910.1025 App C

Title: Medical surveillance guidelines

• **GPO Source**: e-CFR

#### INTRODUCTION

The primary purpose of the Occupational Safety and Health Act of 1970 is to assure, so far as possible, safe and healthful working conditions for every working man and woman. The occupational health standard for inorganic lead(1) was promulgated to protect workers exposed to inorganic lead including metallic lead, all inorganic lead compounds and organic lead soaps.

Footnote(1) The term inorganic lead used throughout the medical surveillance appendices is meant to be synonymous with the definition of lead set forth in the standard.

Under this final standard in effect as of March 1, 1979, occupational exposure to inorganic lead is to be limited to 50 ug/m(3) (micrograms per cubic meter) based on an 8 hour time-weighted average (TWA). This level of exposure eventually must be achieved through a combination of engineering, work practice and other administrative controls. Periods of time ranging from 1 to 10 years are provided for different industries to implement these controls. The schedule which is based on individual industry considerations is given in Table 1. Until these controls are in place, respirators must be used to meet the 50 ug/m(3) exposure limit.

The standard also provides for a program of biological monitoring and medical surveillance for all employees exposed to levels of inorganic lead above the action level of 30 ug/m(3) (TWA) for more than 30 days per year.

The purpose of this document is to outline the medical surveillance provisions of the standard for inorganic lead, and to provide further information to the physician regarding the examination and evaluation of workers exposed to inorganic lead.

Section 1 provides a detailed description of the monitoring procedure including the required frequency of blood testing for exposed workers, provisions for medical removal protection (MRP), the recommended right of the employee to a second medical opinion, and notification and recordkeeping requirements of the employer. A discussion of the requirements for respirator use and respirator monitoring and OSHA's position on prophylactic chelation therapy are also included in this section.

Section 2 discusses the toxic effects and clinical manifestations of lead poisoning and effects of lead intoxication on enzymatic pathways in heme synthesis. The adverse effects on both male and female reproductive capacity and on the fetus are also discussed.

Section 3 outlines the recommended medical evaluation of the worker exposed to inorganic lead including details of the medical history, physical examination, and recommended laboratory tests, which are based on the toxic effects of lead as discussed in Section 2.

Section 4 provides detailed information concerning the laboratory tests available for the monitoring of exposed workers. Included also is a discussion of the relative value of each test and the limitations and precautions which are necessary in the interpretation of the laboratory results.

| Effective date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |
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| Permissible airborne   Mar 1,   Mar 1, | ar 1,  |
| lead levels by   1979   1980   1981   1982   1984   3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1989   |
| industry (ug/m(3)(1)             (3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | final) |
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| 2. Secondary lead                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | F.0    |
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| 3. Lead-acid battery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |
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| 4. Nonferrous foundries  200   100   100   50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 50     |
| 5. Lead pigment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |
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| 6. All other industries 200   50   50   50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 50     |

Footnote(1) Airborne levels to be achieved without reliance or respirator protection through a combination of engineering, work practice and other administrative controls. While these controls are being implemented respirators must be used to meet the 50 ug/m(3) exposure limit.

### I. MEDICAL SURVEILLANCE AND MONITORING REQUIREMENTS FOR WORKERS EXPOSED TO INORGANIC LEAD

Under the occupational health standard for inorganic lead, a program of biological monitoring and medical surveillance is to be made available to all employees exposed to lead above the action level of 30 ug/m(3) TWA for more than 30 days each year. This program consists of periodic blood sampling and medical evaluation to be performed on a schedule which is defined by previous laboratory results, worker complaints or concerns, and the clinical assessment of the examining physician.

Under this program, the blood lead level of all employees who are exposed to lead above the action level of 30 ug/m(3) is to be determined at least every six months. The frequency is increased to every two months for employees whose last blood lead level was between 40 ug/100 g whole blood and the level requiring employee medical removal to be discussed below. For employees who are removed from exposure to lead due to an elevated blood lead, a new blood lead level must be measured monthly. A zinc protoporphyrin (ZPP) is required on each occasion that a blood lead level measurement is made.

An annual medical examination and consultation performed under the guidelines discussed in Section 3 is to be made available to each employee for whom a blood test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 ug/100 g. Also, an examination is to be given to all employees prior to their assignment to an area in which airborne lead concentrations reach or exceed the action level. In addition, a medical examination must be provided as soon as possible after notification by an employee that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice regarding lead exposure and the ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during respirator use. An examination is also to be made available to each employee removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited or specially protected pursuant to medical recommendations.

Results of biological monitoring or the recommendations of an examining physician may necessitate removal of an employee from further lead exposure pursuant to the standard's medical removal protection (MRP) program. The object of the MRP program is to provide temporary medical removal to workers either with substantially elevated blood lead levels or otherwise at risk of sustaining material health impairment from continued substantial exposure to lead. The following guidelines which are summarized in Table 2 were created under the standard for the temporary removal of an exposed employee and his or her subsequent return to work in an exposure area.

TABLE 2

| <br>                                  |            | Effecti    | ve date       |               |             |
|---------------------------------------|------------|------------|---------------|---------------|-------------|
| I                                     |            | I          | I             | I             | 1           |
| I                                     | Mar. 1,    | Mar. 1,    | Mar. 1,       | Mar. 1,       | Mar. 1,     |
| I                                     | 1979       | 1980       | 1981          | 1982          | 1983        |
| I                                     |            | 1          | 1             | 1             | (final)     |
|                                       | 1          |            | I             | I             | 1           |
| I                                     |            | 1          | 1             | 1             | 1           |
| A. Blood lead                         | >than or = | >than or = | =  >than or = | =  >than or = | =  >than or |
| level requir-                         | to 80      | to 70      | to 60         | to 60         | to 60       |
| ing employee                          | ug/100 g   | ug/100 g   | ug/100 g      | ug/100 g      | ug/100 g    |
| medical                               | 3          | ı          |               | ı             | l or        |
| removal.                              |            | 1          | 1             | 1             | average     |
| (Level must                           |            | 1          | 1             | 1             | of last     |
| oe confirmed                          |            | 1          | 1             | 1             | three       |
| with second                           |            | 1          | 1             |               | blood       |
| ·                                     |            | 1          | 1             | 1             |             |
| follow-up                             |            | 1          | 1             | 1             | samples     |
| olood lead                            |            |            |               | 1             | or all      |
| level within                          |            | 1          | I             | 1             | blood       |
| two weeks of                          |            | 1          | 1             | 1             | samples     |
| first report.                         |            | 1          | 1             | 1             | over        |
| I                                     |            | 1          | 1             | 1             | previous    |
| I                                     |            | 1          | 1             | 1             | 6 months    |
| I                                     |            | 1          | 1             | 1             | (whicheve   |
| I                                     |            | 1          | 1             | 1             | is over a   |
| I                                     |            | 1          | 1             | 1             | longer      |
| I                                     |            | 1          | 1             | 1             | time        |
| I                                     |            | 1          | 1             | 1             | period)     |
| I                                     |            | 1          | 1             | 1             | is 50       |
| I                                     |            | I          | I             | I             | ug/100 g    |
|                                       |            | 1          | 1             | Ī             | or greate   |
|                                       |            | 1          | 1             | 1             | unless      |
|                                       |            | 1          | 1             | 1             | last        |
| · · · · · · · · · · · · · · · · · · · |            | 1          | 1             | 1             | blood       |
| ı                                     |            | 1          | 1             | 1             | sample is   |
| l<br>I                                |            | 1          | 1             |               | 40 ug/100   |
| l<br>ı                                |            | 1          | 1             |               |             |
|                                       |            | 1          | 1             | 1             | g or less   |
|                                       | 1          | 1          | 1             | 1             | 1           |
| 3. Frequency                          | I          | 1          | I .           | 1             | 1           |
| vhich                                 |            | 1          | I             | 1             | 1           |
| employees                             |            | 1          | 1             | 1             | 1           |
| exposed to                            |            | 1          | I             | I             |             |
| action level                          |            | 1          | 1             | 1             |             |
| of lead (30                           |            | 1          | 1             | 1             |             |
| ıg/m(3) TWA)                          |            | 1          | 1             | 1             |             |
|                                       |            | 1          | i             | 1             | 1           |

|               | 1        | 1        | ı        |          | ,        |
|---------------|----------|----------|----------|----------|----------|
| D. Blood lead | .60      | .50      | .40      | .40      | .40      |
| level         | ug/100 g |
| confirmed     |          | 1        | I        |          |          |
| with a second | . [      | 1        | I        |          |          |
| blood         |          | 1        | I        |          |          |
| analysis, at  | I        | 1        | I        | I        |          |
| which         | I        | 1        | I        | I        |          |
| employee may  | I        | 1        | I        | 1        |          |
| return to     | I        | 1        | I        | I        |          |
| work.         | I        | 1        | I        | I        |          |
| Permissible   | I        | 1        | I        | I        |          |
| exposure      | I        | I        | I        | I        |          |
| without       | I        | I        | I        | I        |          |
| regard to     | I        | I        | I        | I        |          |
| respirator    | I        | I        | I        | I        |          |
| protection is | I        | I        | I        | I        |          |
| listed by     | I        | I        | I        | I        |          |
| industry in   | I        | 1        | I        | I        |          |
| Table 1.      | I        | 1        | I        | I        |          |
|               | 1        | 1        | 1        |          | 1        |

NOTE: When medical opinion indicates that an employee is at risk of material impairment from exposure to lead, the physician can remove an employee from exposures exceeding the action level (or less) or recommended special protective measures as deemed appropriate and necessary. Medical monitoring during the medical removal period can be more stringent than noted in the table above if the physician so specifies. Return to work or removal of limitations and special protections is permitted when the physician indicates that the worker is no longer at risk of material impairment.

Under the standard's ultimate worker removal criteria, a worker is to be removed from any work having any eight hour TWA exposure to lead of 30 ug/m(3) or more whenever either of the following circumstances apply: (1) a blood lead level of 60 ug/100 g or greater is obtained and confirmed by a second follow-up blood lead level performed within two weeks after the employer receives the results of the first blood sampling test, or (2) the average of the previous three blood lead determinations or the average of all blood lead determinations conducted during the previous six months, whichever encompasses the longest time period, equals or exceeds 50 ug/100 g, unless the last blood sample indicates a blood lead level at or below 40 ug/100 g in which case the employee need not be removed. Medical removal is to continue until two consecutive blood lead levels are 40 ug/100 g or less.

During the first two years that the ultimate removal criteria are being phased in, the return criteria have been set to assure that a worker's blood lead level has substantially declined during the period of removal. From March 1, 1979 to March 1, 1980, the blood lead level requiring employee medical removal is 80 ug/100 g. Workers found to have a confirmed blood lead at this level or greater need only be removed from work having a daily 8 hour TWA exposure to lead at or above 100 ug/m(3). Workers so removed are to be returned to work when their blood lead levels are at or below 60 ug/100 g of whole blood. From March 1, 1980 to March 1, 1981, the blood lead level requiring medical removal is 70 ug/100 g. During this period workers need only be removed from jobs having a

daily 8 hour TWA exposure to lead at or above 50 ug/m(3) and are to be returned to work when a level of 50 ug/100 g is achieved. Beginning March 1, 1981, return depends on a worker's blood lead level declining to 40 ug/100 g of whole blood.

As part of the standard, the employer is required to notify in writing each employee whose blood lead level exceeds 40 ug/100 g. In addition each such employee is to be informed that the standard requires medical removal with MRP benefits, discussed below, when an employee's blood lead level exceeds the above defined limits.

In addition to the above blood lead level criteria, temporary worker removal may also take place as a result of medical determinations and recommendations. Written medical opinions must be prepared after each examination pursuant to the standard. If the examining physician includes a medical finding, determination or opinion that the employee has a medical condition which places the employee at increased risk of material health impairment from exposure to lead, then the employee must be removed from exposure to lead at or above the action level. Alternatively, if the examining physician recommends special protective measures for an employee (e.g., use of a powered air purifying respirator) or recommends limitations on an employee's exposure to lead, then the employer must implement these recommendations. Recommendations may be more stringent than the specific provisions of the standard. The examining physician, therefore, is given broad flexibility to tailor special protective procedures to the needs of individual employees. This flexibility extends to the evaluation and management of pregnant workers and male and female workers who are planning to raise children. Based on the history, physical examination, and laboratory studies, the physician might recommend special protective measures or medical removal for an employee who is pregnant or who is planning to conceive a child when, in the physician's judgment, continued exposure to lead at the current job would pose a significant risk. The return of the employee to his or her former job status, or the removal of special protections or limitations, depends upon the examining physician determining that the employee is no longer at increased risk of material impairment or that special measures are no longer needed.

During the period of any form of special protection or removal, the employer must maintain the worker's earnings, seniority, and other employment rights and benefits (as though the worker had not been removed) for a period of up to 18 months. This economic protection will maximize meaningful worker participation in the medical surveillance program, and is appropriate as part of the employer's overall obligation to provide a safe and healthful workplace. The provisions of MRP benefits during the employee's removal period may, however, be conditioned upon participation in medical surveillance.

On rare occasions, an employee's blood lead level may not acceptably decline within 18 months of removal. This situation will arise only in unusual circumstances, thus the standard relies on an individual medical examination to determine how to protect such an employee. This medical determination is to be based on both laboratory values, including lead levels, zinc protoporphyrin levels, blood counts, and other tests felt to be warranted, as well as the physician's judgment that any symptoms or findings on physical examination are a result of lead toxicity. The medical determination may be that the employee is incapable of ever safely returning to his or her former job status. The medical determination may provide additional removal time past 18 months for some employees or specify special protective measures to be implemented.

The lead standard provides for a multiple physician review in cases where the employee wishes a second opinion concerning potential lead poisoning or toxicity. If an employee wishes a second opinion, he or she can make an appointment with a physician of his or her choice. This second physician will review the findings, recommendations or determinations of the first physician and conduct any examinations, consultations or tests deemed necessary in an attempt to make a final medical determination. If the first and second physicians do not agree in their assessment they must try to resolve their differences. If they cannot reach an agreement then they must designate a third physician to resolve the dispute.

The employer must provide examining and consulting physicians with the following specific information: a copy of the lead regulations and all appendices, a description of the employee's duties as related to exposure, the exposure level to lead and any other toxic substances (if applicable), a description of personal protective

equipment used, blood lead levels, and all prior written medical opinions regarding the employee in the employer's possession or control. The employer must also obtain from the physician and provide the employee with a written medical opinion containing blood lead levels, the physician's opinion as to whether the employee is at risk of material impairment to health, any recommended protective measures for the employee if further exposure is permitted, as well as any recommended limitations upon an employee's use of respirators.

Employers must instruct each physician not to reveal to the employer in writing or in any other way his or her findings, laboratory results, or diagnoses which are felt to be unrelated to occupational lead exposure. They must also instruct each physician to advise the employee of any occupationally or non-occupationally related medical condition requiring further treatment or evaluation.

The standard provides for the use of respirators where engineering and other primary controls have not been fully implemented. However, the use of respirator protection shall not be used in lieu of temporary medical removal due to elevated blood lead levels or findings that an employee is at risk of material health impairment. This is based on the numerous inadequacies of respirators including skin rash where the facepiece makes contact with the skin, unacceptable stress to breathing in some workers with underlying cardiopulmonary impairment, difficulty in providing adequate fit, the tendency for respirators to create additional hazards by interfering with vision, hearing, and mobility, and the difficulties of assuring the maximum effectiveness of a complicated work practice program involving respirators. Respirators do, however, serve a useful function where engineering and work practice controls are inadequate by providing supplementary, interim, or short-term protection, provided they are properly selected for the environment in which the employee will be working, properly fitted to the employee, maintained and cleaned periodically, and worn by the employee when required.

In its final standard on occupational exposure to inorganic lead, OSHA has prohibited prophylactic chelation. Diagnostic and therapeutic chelation are permitted only under the supervision of a licensed physician with appropriate medical monitoring in an acceptable clinical setting. The decision to initiate chelation therapy must be made on an individual basis and take into account the severity of symptoms felt to be a result of lead toxicity along with blood lead levels, ZPP levels, and other laboratory tests as appropriate. EDTA and penicillamine which are the primary chelating agents used in the therapy of occupational lead poisoning have significant potential side effects and their use must be justified on the basis of expected benefits to the worker. Unless frank and severe symptoms are present, therapeutic chelation is not recommended given the opportunity to remove a worker from exposure and allow the body to naturally excrete accumulated lead. As a diagnostic aid, the chelation mobilization test using CA-EDTA has limited applicability. According to some investigators, the test can differentiate between lead-induced and other nephropathies. The test may also provide an estimation of the mobile fraction of the total body lead burden.

Employers are required to assure that accurate records are maintained on exposure monitoring, medical surveillance, and medical removal for each employee. Exposure monitoring and medical surveillance records must be kept for 40 years or the duration of employment plus 20 years, whichever is longer, while medical removal records must be maintained for the duration of employment. All records required under the standard must be made available upon request to the Assistant Secretary of Labor for Occupational Safety and Health and the Director of the National Institute for Occupational Safety and Health. Employers must also make environmental and biological monitoring and medical removal records available to affected employees and to former employees or their authorized employee representatives. Employees or their specifically designated representatives have access to their entire medical surveillance records.

In addition, the standard requires that the employer inform all workers exposed to lead at or above the action level of the provisions of the standard and all its appendices, the purpose and description of medical surveillance and provisions for medical removal protection if temporary removal is required. An understanding of the potential health effects of lead exposure by all exposed employees along with full understanding of their rights under the lead standard is essential for an effective monitoring program.

#### II. ADVERSE HEALTH EFFECTS OF INORGANIC LEAD

Although the toxicity of lead has been known for 2,000 years, the knowledge of the complex relationship between lead exposure and human response is still being refined. Significant research into the toxic properties of lead continues throughout the world, and it should be anticipated that our understanding of thresholds of effects and margins of safety will be improved in future years. The provisions of the lead standard are founded on two prime medical judgments: first, the prevention of adverse health effects from exposure to lead throughout a working lifetime requires that worker blood lead levels be maintained at or below 40 g/100 g and second, the blood lead levels of workers, male or female, who intend to parent in the near future should be maintained below 30 ug/100 g to minimize adverse reproductive health effects to the parents and developing fetus. The adverse effects of lead on reproduction are being actively researched and OSHA encourages the physician to remain abreast of recent developments in the area to best advise pregnant workers or workers planning to conceive children.

The spectrum of health effects caused by lead exposure can be subdivided into five developmental stages: normal, physiological changes of uncertain significance, pathophysiological changes, overt symptoms (morbidity), and mortality. Within this process there are no sharp distinctions, but rather a continuum of effects. Boundaries between categories overlap due to the wide variation of individual responses and exposures in the working population. OSHA's development of the lead standard focused on pathophysiological changes as well as later stages of disease.

1. Heme Synthesis Inhibition. The earliest demonstrated effect of lead involves its ability to inhibit at least two enzymes of the heme synthesis pathway at very low blood levels. Inhibition of delta aminolevulinic acid dehydrase (ALA-D) which catalyzes the conversion of delta-aminolevulinic acid (ALA) to protoporphyrin is observed at a blood lead level below 20 ug/100 g whole blood. At a blood lead level of 40 ug/100 g, more than 20% of the population would have 70% inhibition of ALA-D. There is an exponential increase in ALA excretion at blood lead levels greater than 40 ug/100 g.

Another enzyme, ferrochelatase, is also inhibited at low blood lead levels. Inhibition of ferrochelatase leads to increased free erythrocyte protoporphyrin (FEP) in the blood which can then bind to zinc to yield zinc protoporphyrin. At a blood lead level of 50 ug/100 g or greater, nearly 100% of the population will have an increase in FEP. There is also an exponential relationship between blood lead levels greater than 40 ug/100 g and the associated ZPP level, which has led to the development of the ZPP screening test for lead exposure.

While the significance of these effects is subject to debate, it is OSHA's position that these enzyme disturbances are early stages of a disease process which may eventually result in the clinical symptoms of lead poisoning. Whether or not the effects do progress to the later stages of clinical disease, disruption of these enzyme processes over a working lifetime is considered to be a material impairment of health.

One of the eventual results of lead-induced inhibition of enzymes in the heme synthesis pathway is anemia which can be asymptomatic if mild but associated with a wide array of symptoms including dizziness, fatigue, and tachycardia when more severe. Studies have indicated that lead levels as low as 50 ug/100 g can be associated with a definite decreased hemoglobin, although most cases of lead-induced anemia, as well as shortened red-cell survival times, occur at lead levels exceeding 80 ug/100 g. Inhibited hemoglobin synthesis is more common in chronic cases whereas shortened erythrocyte life span is more common in acute cases.

In lead-induced anemias, there is usually a reticulocytosis along with the presence of basophilic stippling, and ringed sideroblasts, although none of the above are pathognomonic for lead-induced anemia.

2. Neurological Effects. Inorganic lead has been found to have toxic effects on both the central and peripheral nervous systems. The earliest stages of lead-induced central nervous system effects first manifest themselves in the form of behavioral disturbances and central nervous system symptoms including irritability, restlessness, insomnia and other sleep disturbances, fatigue, vertigo, headache, poor memory, tremor, depression, and apathy. With more severe exposure, symptoms can progress to drowsiness, stupor, hallucinations, delirium, convulsions and coma.

The most severe and acute form of lead poisoning which usually follows ingestion or inhalation of large amounts of lead is acute encephalopathy which may arise precipitously with the onset of intractable seizures, coma, cardiorespiratory arrest, and death within 48 hours.

While there is disagreement about what exposure levels are needed to produce the earliest symptoms, most experts agree that symptoms definitely can occur at blood lead levels of 60 ug/100 g whole blood and therefore recommend a 40 ug/100 g maximum. The central nervous system effects frequently are not reversible following discontinued exposure or chelation therapy and when improvement does occur, it is almost always only partial.

The peripheral neuropathy resulting from lead exposure characteristically involves only motor function with minimal sensory damage and has a marked predilection for the extensor muscles of the most active extremity. The peripheral neuropathy can occur with varying degrees of severity. The earliest and mildest form which can be detected in workers with blood lead levels as low as 50 ug/100 g is manifested by slowing of motor nerve conduction velocity often without clinical symptoms. With progression of the neuropathy there is development of painless extensor muscle weakness usually involving the extensor muscles of the fingers and hand in the most active upper extremity, followed in severe cases by wrist drop or, much less commonly, foot drop.

In addition to slowing of nerve conduction, electromyographical studies in patients with blood lead levels greater than 50 ug/100 g have demonstrated a decrease in the number of acting motor unit potentials, an increase in the duration of motor unit potentials, and spontaneous pathological activity including fibrillations and fasciculations. Whether these effects occur at levels of 40 ug/100 g is undetermined.

While the peripheral neuropathies can occasionally be reversed with therapy, again such recovery is not assured particularly in the more severe neuropathies and often improvement is only partial. The lack of reversibility is felt to be due in part to segmental demyelination.

- 3. Gastrointestinal. Lead may also affect the gastrointestinal system producing abdominal colic or diffuse abdominal pain, constipation, obstipation, diarrhea, anorexia, nausea and vomiting. Lead colic rarely develops at blood lead levels below 80 ug/100 g.
- 4. Renal. Renal toxicity represents one of the most serious health effects of lead poisoning. In the early stages of disease nuclear inclusion bodies can frequently be identified in proximal renal tubular cells. Renal function remains normal and the changes in this stage are probably reversible. With more advanced disease there is progressive interstitial fibrosis and impaired renal function. Eventually extensive interstitial fibrosis ensues with sclerotic glomeruli and dilated and atrophied proximal tubules; all represent end stage kidney disease. Azotemia can be progressive, eventually resulting in frank uremia necessitating dialysis. There is occasionally associated hypertension and hyperuricemia with or without gout.

Early kidney disease is difficult to detect. The urinalysis is normal in early lead nephropathy and the blood urea nitrogen and serum creatinine increase only when two-thirds of kidney function is lost. Measurement of creatinine clearance can often detect earlier disease as can other methods of measurement of glomerular filtration rate. An abnormal Ca-EDTA mobilization test has been used to differentiate between lead-induced and other nephropathies, but this procedure is not widely accepted. A form of Fanconi syndrome with aminoaciduria, glycosuria, and hyperphosphaturia indicating severe injury to the proximal renal tubules is occasionally seen in children.

5. Reproductive effects. Exposure to lead can have serious effects on reproductive function in both males and females. In male workers exposed to lead there can be a decrease in sexual drive, impotence, decreased ability to produce healthy sperm, and sterility. Malformed sperm (teratospermia), decreased number of sperm (hypospermia), and sperm with decreased motility (asthenospermia) can all occur. Teratospermia has been noted at mean blood lead levels of 53 ug/100 g and hypospermia and asthenospermia at 41 ug/100 g. Furthermore, there appears to be a dose-response relationship for teratospermia in lead exposed workers.

Women exposed to lead may experience menstrual disturbances including dysmenorrhea, menorrhagia and amenorrhea. Following exposure to lead, women have a higher frequency of sterility, premature births, spontaneous miscarriages, and stillbirths.

Germ cells can be affected by lead and cause genetic damage in the egg or sperm cells before conception and result in failure to implant, miscarriage, stillbirth, or birth defects.

Infants of mothers with lead poisoning have a higher mortality during the first year and suffer from lowered birth weights, slower growth, and nervous system disorders.

Lead can pass through the placental barrier and lead levels in the mother's blood are comparable to concentrations of lead in the umbilical cord at birth. Transplacental passage becomes detectable at 12-14 weeks of gestation and increases until birth.

There is little direct data on damage to the fetus from exposure to lead but it is generally assumed that the fetus and newborn would be at least as susceptible to neurological damage as young children. Blood lead levels of 50-60 ug/100 g in children can cause significant neurobehavioral impairments and there is evidence of hyperactivity at blood levels as low as 25 ug/100 g. Given the overall body of literature concerning the adverse health effects of lead in children, OSHA feels that the blood lead level in children should be maintained below 30 ug/100 g with a population mean of 15 ug/100 g. Blood lead levels in the fetus and newborn likewise should not exceed 30 ug/100 g.

Because of lead's ability to pass through the placental barrier and also because of the demonstrated adverse effects of lead on reproductive function in both the male and female as well as the risk of genetic damage of lead on both the ovum and sperm, OSHA recommends a 30 ug/100 g maximum permissible blood lead level in both males and females who wish to bear children.

6. Other toxic effects. Debate and research continue on the effects of lead on the human body. Hypertension has frequently been noted in occupationally exposed individuals although it is difficult to assess whether this is due to lead's adverse effects on the kidney or if some other mechanism is involved. Vascular and electrocardiographic changes have been detected but have not been well characterized. Lead is thought to impair thyroid function and interfere with the pituitary-adrenal axis, but again these effects have not been well defined.

#### III. MEDICAL EVALUATION

The most important principle in evaluating a worker for any occupational disease including lead poisoning is a high index of suspicion on the part of the examining physician. As discussed in Section 2, lead can affect numerous organ systems and produce a wide array of signs and symptoms, most of which are non-specific and subtle in nature at least in the early stages of disease. Unless serious concern for lead toxicity is present, many of the early clues to diagnosis may easily be overlooked.

The crucial initial step in the medical evaluation is recognizing that a worker's employment can result in exposure to lead. The worker will frequently be able to define exposures to lead and lead containing materials but often will not volunteer this information unless specifically asked. In other situations the worker may not know of any exposures to lead but the suspicion might be raised on the part of the physician because of the industry or occupation of the worker. Potential occupational exposure to lead and its compounds occur in at least 120 occupations, including lead smelting, the manufacture of lead storage batteries, the manufacture of lead pigments and products containing pigments, solder manufacture, shipbuilding and ship repair, auto manufacturing, construction, and painting.

Once the possibility for lead exposure is raised, the focus can then be directed toward eliciting information from the medical history, physical exam, and finally from laboratory data to evaluate the worker for potential lead toxicity.

A complete and detailed work history is important in the initial evaluation. A listing of all previous employment with information on work processes, exposure to fumes or dust, known exposures to lead or other toxic substances, respiratory protection used, and previous medical surveillance should all be included in the worker's record. Where

exposure to lead is suspected, information concerning on-the-job personal hygiene, smoking or eating habits in work areas, laundry procedures, and use of any protective clothing or respiratory protection equipment should be noted. A complete work history is essential in the medical evaluation of a worker with suspected lead toxicity, especially when long term effects such as neurotoxicity and nephrotoxicity are considered.

The medical history is also of fundamental importance and should include a listing of all past and current medical conditions, current medications including proprietary drug intake, previous surgeries and hospitalizations, allergies, smoking history, alcohol consumption, and also non-occupational lead exposures such as hobbies (hunting, riflery). Also known childhood exposures should be elicited. Any previous history of hematological, neurological, gastrointestinal, renal, psychological, gynecological, genetic, or reproductive problems should be specifically noted.

A careful and complete review of systems must be performed to assess both recognized complaints and subtle or slowly acquired symptoms which the worker might not appreciate as being significant. The review of symptoms should include the following:

General-weight loss, fatigue, decreased appetite.

Head, Eyes, Ears, Nose, Throat (HEENT)-headaches, visual disturbances or decreased visual acuity, hearing deficits or tinnitus, pigmentation of the oral mucosa, or metallic taste in mouth.

Cardio-pulmonary-shortness of breath, cough, chest pains, palpitations, or orthopnea.

Gastrointestinal-nausea, vomiting, heartburn, abdominal pain, constipation or diarrhea.

Neurologic-irritability, insomnia, weakness (fatigue), dizziness, loss of memory, confusion, hallucinations, incoordination, ataxia, decreased strength in hands or feet, disturbances in gait, difficulty in climbing stairs, or seizures.

Hematologic-pallor, easy fatigability, abnormal blood loss, melena.

Reproductive (male and female and spouse where relevant)-history of infertility, impotence, loss of libido, abnormal menstrual periods, history of miscarriages, stillbirths, or children with birth defects.

Musculo-skeletal-muscle and joint pains.

The physical examination should emphasize the neurological, gastrointestinal, and cardiovascular systems. The worker's weight and blood pressure should be recorded and the oral mucosa checked for pigmentation characteristic of a possible Burtonian or lead line on the gingiva. It should be noted, however, that the lead line may not be present even in severe lead poisoning if good oral hygiene is practiced.

The presence of pallor on skin examination may indicate an anemia, which if severe might also be associated with a tachycardia. If an anemia is suspected, an active search for blood loss should be undertaken including potential blood loss through the gastrointestinal tract.

A complete neurological examination should include an adequate mental status evaluation including a search for behavioral and psychological disturbances, memory testing, evaluation for irritability, insomnia, hallucinations, and mental clouding. Gait and coordination should be examined along with close observation for tremor. A detailed evaluation of peripheral nerve function including careful sensory and motor function testing is warranted. Strength testing particularly of extensor muscle groups of all extremities is of fundamental importance.

Cranial nerve evaluation should also be included in the routine examination.

The abdominal examination should include auscultation for bowel sounds and abdominal bruits and palpation for organomegaly, masses, and diffuse abdominal tenderness.

Cardiovascular examination should evaluate possible early signs of congestive heart failure. Pulmonary status should be addressed particularly if respirator protection is contemplated.

As part of the medical evaluation, the lead standard requires the following laboratory studies:

- 1. Blood lead level
- 2. Hemoglobin and hematocrit determinations, red cell indices, and examination of the peripheral blood smear to evaluate red blood cell morphology
- 3. Blood urea nitrogen
- 4. Serum creatinine
- 5. Routine urinalysis with microscopic examination.
- 6. A zinc protoporphyrin level.

In addition to the above, the physician is authorized to order any further laboratory or other tests which he or she deems necessary in accordance with sound medical practice. The evaluation must also include pregnancy testing or laboratory evaluation of male fertility if requested by the employee.

Additional tests which are probably not warranted on a routine basis but may be appropriate when blood lead and ZPP levels are equivocal include delta aminolevulinic acid and coproporphyrin concentrations in the urine, and dark-field illumination for detection of basophilic stippling in red blood cells.

If an anemia is detected further studies including a careful examination of the peripheral smear, reticulocyte count, stool for occult blood, serum iron, total iron binding capacity, bilirubin, and, if appropriate, vitamin B12 and folate may be of value in attempting to identify the cause of the anemia.

If a peripheral neuropathy is suspected, nerve conduction studies are warranted both for diagnosis and as a basis to monitor any therapy.

If renal disease is questioned, a 24 hour urine collection for creatinine clearance, protein, and electrolytes may be indicated. Elevated uric acid levels may result from lead-induced renal disease and a serum uric acid level might be performed.

An electrocardiogram and chest x-ray may be obtained as deemed appropriate.

Sophisticated and highly specialized testing should not be done routinely and where indicated should be under the direction of a specialist.

### IV. LABORATORY EVALUATION

The blood lead level at present remains the single most important test to monitor lead exposure and is the test used in the medical surveillance program under the lead standard to guide employee medical removal. The ZPP has several advantages over the blood lead level. Because of its relatively recent development and the lack of extensive data concerning its interpretation, the ZPP currently remains an ancillary test.

This section will discuss the blood lead level and ZPP in detail and will outline their relative advantages and disadvantages. Other blood tests currently available to evaluate lead exposure will also be reviewed.

The blood lead level is a good index of current or recent lead absorption when there is no anemia present and when the worker has not taken any chelating agents. However, blood lead levels along with urinary lead levels do not necessarily indicate the total body burden of lead and are not adequate measures of past exposure. One reason for this is that lead has a high affinity for bone and up to 90% of the body's total lead is deposited there. A very important component of the total lead body burden is lead in soft tissue (liver, kidney, and brain). This fraction of the lead body burden, the biologically active lead, is not entirely reflected by blood lead levels since it is a function of the dynamics of lead absorption, distribution, deposition in bone and excretion. Following discontinuation of exposure to lead, the excess body burden is only slowly mobilized from bone and other

relatively stable body stores and excreted. Consequently, a high blood lead level may only represent recent heavy exposure to lead without a significant total body excess and likewise a low blood lead level does not exclude an elevated total body burden of lead.

Also due to its correlation with recent exposures, the blood lead level may vary considerably over short time intervals.

To minimize laboratory error and erroneous results due to contamination, blood specimens must be carefully collected after thorough cleaning of the skin with appropriate methods using lead-free blood containers and analyzed by a reliable laboratory. Under the standard, samples must be analyzed in laboratories which are approved by the Center for Disease Control (CDC) or which have received satisfactory grades in proficiency testing by the CDC in the previous year. Analysis is to be made using atomic absorption spectrophotometry, anodic stripping voltammetry or any method which meets the accuracy requirements set forth by the standard.

The determination of lead in urine is generally considered a less reliable monitoring technique than analysis of whole blood primarily due to individual variability in urinary excretion capacity as well as the technical difficulty of obtaining accurate 24 hour urine collections. In addition, workers with renal insufficiency, whether due to lead or some other cause, may have decreased lead clearance and consequently urine lead levels may underestimate the true lead burden. Therefore, urine lead levels should not be used as a routine test.

The zinc protoporphyrin test, unlike the blood lead determination, measures an adverse metabolic effect of lead and as such is a better indicator of lead toxicity than the level of blood lead itself. The level of ZPP reflects lead absorption over the preceding 3 to 4 months, and therefore is a better indicator of lead body burden. The ZPP requires more time than the blood lead to read significantly elevated levels; the return to normal after discontinuing lead exposure is also slower. Furthermore, the ZPP test is simpler, faster, and less expensive to perform and no contamination is possible. Many investigators believe it is the most reliable means of monitoring chronic lead absorption.

Zinc protoporphyrin results from the inhibition of the enzyme ferrochelatase which catalyzes the insertion of an iron molecule into the protoporphyrin molecule, which then becomes heme. If iron is not inserted into the molecule then zinc, having a greater affinity for protoporphyrin, takes the place of the iron, forming ZPP.

An elevation in the level of circulating ZPP may occur at blood lead levels as low as 20-30 ug/100 g in some workers. Once the blood lead level has reached 40 ug/100 g there is more marked rise in the ZPP value from its normal range of less than 100 ug/100 ml. Increases in blood lead levels beyond 40 ug/100 g are associated with exponential increases in ZPP.

Whereas blood lead levels fluctuate over short time spans, ZPP levels remain relatively stable. ZPP is measured directly in red blood cells and is present for the cell's entire 120 day life-span. Therefore, the ZPP level in blood reflects the average ZPP production over the previous 3-4 months and consequently the average lead exposure during that time interval.

It is recommended that a hematocrit be determined whenever a confirmed ZPP of 50 ug/100 ml whole blood is obtained to rule out a significant underlying anemia. If the ZPP is in excess of 100 ug/100 ml and not associated with abnormal elevations in blood lead levels, the laboratory should be checked to be sure that blood leads were determined using atomic absorption spectrophotometry anodic stripping voltammetry, or any method which meets the accuracy requirements set forth by the standard by a CDC approved laboratory which is experienced in lead level determinations. Repeat periodic blood lead studies should be obtained in all individuals with elevated ZPP levels to be certain that an associated elevated blood lead level has not been missed due to transient fluctuations in blood leads.

ZPP has a characteristic fluorescence spectrum with a peak at 594 nm which is detectable with a hematofluorimeter. The hematofluorimeter is accurate and portable and can provide on-site, instantaneous results for workers who can be frequently tested via a finger prick.

However, careful attention must be given to calibration and quality control procedures. Limited data on blood lead-ZPP correlations and the ZPP levels which are associated with the adverse health effects discussed in Section 2 are the major limitations of the test. Also it is difficult to correlate ZPP levels with environmental exposure and there is some variation of response with age and sex. Nevertheless, the ZPP promises to be an important diagnostic test for the early detection of lead toxicity and its value will increase as more data is collected regarding its relationship to other manifestations of lead poisoning.

Levels of delta-aminolevulinic acid (ALA) in the urine are also used as a measure of lead exposure. Increasing concentrations of ALA are believed to result from the inhibition of the enzyme delta-aminolevulinic acid dehydrase (ALA-D). Although the test is relatively easy to perform, inexpensive, and rapid, the disadvantages include variability in results, the necessity to collect a complete 24 hour urine sample which has a specific gravity greater than 1.010, and also the fact that ALA decomposes in the presence of light.

The pattern of porphyrin excretion in the urine can also be helpful in identifying lead intoxication. With lead poisoning, the urine concentrations of coproporphyrins I and II, porphobilinogen and uroporphyrin I rise. The most important increase, however, is that of coproporphyrin III; levels may exceed 5,000 ug/1 in the urine in lead poisoned individuals, but its correlation with blood lead levels and ZPP are not as good as those of ALA. Increases in urinary porphyrins are not diagnostic of lead toxicity and may be seen in porphyria, some liver diseases, and in patients with high reticulocyte counts.

Summary. The Occupational Safety and Health Administration's standard for inorganic lead places significant emphasis on the medical surveillance of all workers exposed to levels of inorganic lead above the action level of 30 ug/m(3) TWA. The physician has a fundamental role in this surveillance program, and in the operation of the medical removal protection program.

Even with adequate worker education on the adverse health effects of lead and appropriate training in work practices, personal hygiene and other control measures, the physician has a primary responsibility for evaluating potential lead toxicity in the worker. It is only through a careful and detailed medical and work history, a complete physical examination and appropriate laboratory testing that an accurate assessment can be made. Many of the adverse health effects of lead toxicity are either irreversible or only partially reversible and therefore early detection of disease is very important.

This document outlines the medical monitoring program as defined by the occupational safety and health standard for inorganic lead. It reviews the adverse health effects of lead poisoning and describes the important elements of the history and physical examinations as they relate to these adverse effects. Finally, the appropriate laboratory testing for evaluating lead exposure and toxicity is presented.

It is hoped that this review and discussion will give the physician a better understanding of the OSHA standard with the ultimate goal of protecting the health and well-being of the worker exposed to lead under his or her care.

[56 FR 24686, May 31, 1991; 60 FR 52856, Oct. 11, 1995]

# UNITED STATES DEPARTMENT OF LABOR

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# **Lead in Construction**





Employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.

This publication provides a general overview of a particular standards-related topic. This publication does not alter or determine compliance responsibilities which are set forth in OSHA standards, and the *Occupational Safety and Health Act of 1970*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements the reader should consult current OSHA administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

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# **Lead in Construction**



U.S. Department of Labor

Occupational Safety and Health Administration

OSHA 3142-12R 2004

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# **Health Hazards of Lead Exposure**

Pure lead (Pb) is a heavy metal at room temperature and pressure. A basic chemical element, it can combine with various other substances to form numerous lead compounds.

Lead has been poisoning workers for thousands of years. Lead can damage the central nervous system, cardiovascular system, reproductive system, hematological system, and kidneys. When absorbed into the body in high enough doses, lead can be toxic.

In addition, workers' lead exposure can harm their children's development.

Short-term (acute) overexposure—as short as days—can cause acute encephalopathy, a condition affecting the brain that develops quickly into seizures, coma, and death from cardiorespiratory arrest. Short-term occupational exposures of this type are highly unusual but not impossible.

Extended, long-term (chronic) overexposure can result in severe damage to the central nervous system, particularly the brain. It can also damage the blood-forming, urinary, and reproductive systems. There is no sharp dividing line between rapidly developing acute effects of lead and chronic effects that take longer to develop.

#### SYMPTOMS OF CHRONIC OVEREXPOSURE

Some of the common symptoms include:

- Loss of appetite;
- Constipation;
- Nausea;
- Excessive tiredness;
- Headache;
- Fine tremors;
- Colic with severe abdominal pain;
- Metallic taste in the mouth;
- Weakness;
- Nervous irritability;
- Hyperactivity;



- Muscle and joint pain or soreness;
- Anxiety;
- Pallor:
- Insomnia;
- Numbness; and
- Dizziness.

#### REPRODUCTIVE RISKS

Lead is toxic to both male and female reproductive systems. Lead can alter the structure of sperm cells and there is evidence of miscarriage and stillbirth in women exposed to lead or whose partners have been exposed. Children born to parents who were exposed to excess lead levels are more likely to have birth defects, mental retardation, or behavioral disorders or to die during the first year of childhood.

Workers who desire medical advice about reproductive issues related to lead should contact qualified medical personnel to arrange for a job evaluation and medical followup--particularly if they are pregnant or actively seeking to have a child. Employers whose employees may be exposed to lead and who have been contacted by employees with concerns about reproductive issues must make medical examinations and consultations available.

#### **CHELATING AGENTS**

Under certain limited circumstances, a physician may prescribe special drugs called chelating agents to reduce the amount of lead absorbed in body tissues. Using chelation as a preventive measure--that is, to lower blood level but continue to expose a worker--is prohibited and therapeutic or diagnostic chelations of lead that are required must be done under the supervision of a licensed physician in a clinical setting, with thorough and appropriate medical monitoring. The employee must be notified in writing before treatment of potential consequences and allowed to obtain a second opinion.



# **Worker Exposure**

Lead is most commonly absorbed into the body by inhalation. When workers breathe in lead as a dust, fume, or mist, their lungs and upper respiratory tract absorb it into the body. They can also absorb lead through the digestive system if it enters the mouth and is ingested.

A significant portion of the lead inhaled or ingested gets into the bloodstream. Once in the bloodstream, lead circulates through the body and is stored in various organs and body tissues. Some of this lead is filtered out of the body quickly and excreted, but some remains in the blood and tissues. As exposure continues, the amount stored will increase if the body absorbs more lead than it excretes. The lead stored in the tissue can slowly cause irreversible damage, first to individual cells, then to organs and whole body systems.

# **Construction Workers and Lead Exposure**

#### **HOW LEAD IS USED**

In construction, lead is used frequently for roofs, cornices, tank linings, and electrical conduits. In plumbing, soft solder, used chiefly for soldering tinplate and copper pipe joints, is an alloy of lead and tin. Soft solder has been banned for many uses in the United States. In addition, the Consumer Product Safety Commission bans the use of lead-based paint in residences. Because lead-based paint inhibits the rusting and corrosion of iron and steel, however, lead continues to be used on bridges, railways, ships, lighthouses, and other steel structures, although substitute coatings are available.

Construction projects vary in their scope and potential for exposing workers to lead and other hazards. Projects such as removing paint from a few interior residential doors may involve limited exposure. Others projects, however, may involve removing or stripping substantial quantities of lead-based paints on large bridges and other structures.

#### MOST VULNERABLE WORKERS

Workers potentially at risk for lead exposure include those involved in iron work; demolition work; painting; lead-based paint



abatement; plumbing; heating and air conditioning maintenance and repair; electrical work; and carpentry, renovation, and remodeling work. Plumbers, welders, and painters are among those workers most exposed to lead. Significant lead exposures also can arise from removing paint from surfaces previously coated with lead-based paint such as bridges, residences being renovated, and structures being demolished or salvaged. With the increase in highway work, bridge repair, residential lead abatement, and residential remodeling, the potential for exposure to lead-based paint has become more common.

Workers at the highest risk of lead exposure are those involved in:

- Abrasive blasting and
- Welding, cutting, and burning on steel structures.

Other operations with the potential to expose workers to lead include:

- Lead burning;
- Using lead-containing mortar;
- Power tool cleaning without dust collection systems;
- Rivet busting;
- Cleanup activities where dry expendable abrasives are used;
- Movement and removal of abrasive blasting enclosures;
- Manual dry scraping and sanding;
- Manual demolition of structures;
- Heat-gun applications;
- Power tool cleaning with dust collection systems; and
- Spray painting with lead-based paint.

# **OSHA's Lead Standard**

OSHA's Lead Standard for the Construction Industry, Title 29 Code of Federal Regulations 1926.62, covers lead in a variety of forms, including metallic lead, all inorganic lead compounds, and organic lead soaps.



#### **EXPOSURE LIMITS**

The standard establishes maximum limits of exposure to lead for all workers covered, including a permissible exposure limit (PEL) and action level (AL).

The PEL sets the maximum worker exposure to lead: 50 micrograms of lead per cubic meter of air (50µg/m3) averaged over an eight-hour period. If employees are exposed to lead for more than eight hours in a workday, their allowable exposure as a TWA for that day must be reduced according to this formula:

Employee exposure (in  $\mu$ g/m3) = 400 divided by the hours worked in the day.

The AL, regardless of respirator use, is an airborne concentration of 30µg/m3, averaged over an eight-hour period. The AL is the level at which an employer must begin specific compliance activities outlined in the standard.

#### APPLICABILITY TO CONSTRUCTION

OSHA's lead in construction standard applies to all construction work where an employee may be exposed to lead. All work related to construction, alteration, or repair, including painting and decorating, is included. Under this standard, construction includes, but is not limited to:

- Demolition or salvage of structures where lead or materials containing lead are present;
- Removal or encapsulation of materials containing lead;
- New construction, alteration, repair, or renovation of structures, substrates, or portions or materials containing lead;
- Installation of products containing lead;
- Lead contamination from emergency cleanup;
- Transportation, disposal, storage, or containment of lead or materials containing lead where construction activities are performed; and
- Maintenance operations associated with these construction activities.

# **Employer Responsibilities**

#### **WORKER PROTECTIONS**

Employers of construction workers are responsible for developing and implementing a worker protection program. At a minimum, the employer's worker protection program for employees exposed to lead above the PEL should include:

- Hazard determination, including exposure assessment;
- Medical surveillance and provisions for medical removal;
- Job-specific compliance programs;
- Engineering and work practice controls;
- Respiratory protection;
- Protective clothing and equipment;
- Housekeeping;
- Hygiene facilities and practices;
- Signs;
- Employee information and training; and
- Recordkeeping.

Because lead is a cumulative and persistent toxic substance and health effects may result from exposure over prolonged periods, employers must use these precautions where feasible to minimize employee exposure to lead.

The employer should, as needed, consult a qualified safety and health professional to develop and implement an effective, site-specific worker protection program. These professionals may work independently or may be associated with an insurance carrier, trade organization, or on-site consultation program.

#### **ELEMENTS OF A COMPLIANCE PROGRAM**

For each job where employee exposure exceeds the PEL, the employer must establish and implement a written compliance program to reduce employee exposure to the PEL or below. The compliance program must provide for frequent and regular inspections of job sites, materials, and equipment by a competent person. Written programs, which must be reviewed and updated at least every six months, must include:



- A description of each activity in which lead is emitted (such as equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices);
- The means to be used to achieve compliance and engineering plans and studies used to determine the engineering controls selected where they are required;
- Information on the technology considered to meet the PEL;
- Air monitoring data that document the source of lead emissions;
- A detailed schedule for implementing the program, including copies of documentation (such as purchase orders for equipment, construction contracts);
- A work practice program;
- An administrative control schedule, if applicable; and
- Arrangements made among contractors on multi-contractor sites to inform employees of potential lead exposure.

#### **Hazard Assessment**

An employer is required to conduct an initial employee exposure assessment of whether employees are exposed to lead at or above the AL based on:

- Any information, observation, or calculation that indicates employee exposure to lead;
- Any previous measurements of airborne lead; and
- Any employee complaints of symptoms attributable to lead exposure.

Objective data and historical measurements of lead may be used to satisfy the standard's initial monitoring requirements.

#### INITIAL EMPLOYEE EXPOSURE ASSESSMENT

Initial monitoring may be limited to a representative sample of those employees exposed to the greatest concentrations of airborne lead. Representative exposure sampling is permitted when there are a number of employees performing the same job, with



lead exposure of similar duration and level, under essentially the same conditions. For employees engaged in similar work, the standard requires that the members of the group reasonably expected to have the highest exposure levels be monitored. This result is then attributed to the other employees of the group.

The employer must establish and maintain an accurate record documenting the nature and relevancy of previous exposure data. Instead of performing initial monitoring, the employer may in some cases rely on objective data that demonstrate that a particular lead-containing material or product cannot result in employee exposure at or above the action level when it is processed, used, or handled.

#### **BIOLOGICAL MONITORING TESTS**

Analysis of blood lead samples must be conducted by an OSHA-approved lab and be accurate (to a confidence level of 95 percent) within plus or minus 15 percent, or 6 µg/dl, whichever is greater. If an employee's airborne lead level is at or above the AL for more than 30 days in any consecutive 12 months, the employer must make biological monitoring available on the following schedule:

- At least every two months for the first six months and every six months thereafter for employees exposed at or above the action level for more than 30 days annually;
- At least every two months for employees whose last blood sampling and analysis indicated a blood lead level at or above 40 µg/dl; and
- At least monthly while an employee is removed from exposure due an elevated blood lead level.

#### PENDING EMPLOYEE EXPOSURE ASSESSMENT

Until the employer performs an exposure assessment and documents that employees are not exposed above the PEL, OSHA requires some degree of interim protection for employees. This means providing respiratory protection, protective work clothing and equipment, hygiene facilities, biological monitoring, and training—as specified by the standards—for certain tasks prone to produce high exposure. These include:



- Manual demolition of structures such as dry wall, manual scraping, manual sanding, and use of a heat gun where leadcontaining coatings or paints are present;
- Power tool cleaning with or without local exhaust ventilation;
- Spray painting with lead-containing paint;
- Lead burning;
- Use of lead-containing mortar;
- Abrasive blasting, rivet busting, welding, cutting, or torchburning on any structure where lead-containing coatings or paint are present;
- Abrasive blasting enclosure movement and removal;
- Cleanup of activities where dry expendable abrasives are used;
   and
- Any other task the employer believes may cause exposures in excess of the PEL.

#### TEST RESULTS SHOWING NO OVEREXPOSURES

If the initial assessment indicates that no employee is exposed above the AL, the employer may discontinue monitoring. Further exposure testing is not required unless there is a change in processes or controls that may result in additional employees being exposed to lead at or above the AL, or may result in employees already exposed at or above the AL being exposed above the PEL. The employer must keep a written record of the determination, including the date, location within the work site, and the name and social security number of each monitored employee.

#### **EMPLOYEE NOTIFICATION OF MONITORING RESULTS**

The employer must notify each employee in writing of employee exposure assessment results within five working days of receiving them. Whenever the results indicate that the representative employee exposure, without the use of respirators, is above the PEL, the employer must include a written notice stating that the employee's exposure exceeded the PEL and describing corrective action taken or to be taken to reduce exposure to or below the PEL.



#### **Medical Surveillance**

When an employee's airborne exposure is at or above the AL for more than 30 days in any consecutive 12 months, an immediate medical consultation is required when the employee notifies the employer that he or she:

- Has developed signs or symptoms commonly associated with lead-related disease;
- Has demonstrated difficulty in breathing during respirator use or a fit test;
- Desires medical advice concerning the effects of past or current lead exposure on the employee's ability to have a healthy child; and
- Is under medical removal and has a medically appropriate need.

#### MEDICAL EXAMS

The best indicator of personal lead exposure is through a blood test to indicate elevated blood lead levels. A medical exam must also include:

- Detailed work and medical histories, with particular attention to past lead exposure (occupational and nonoccupational), personal habits (smoking and hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive, and neurological problems;
- A thorough physical exam, with particular attention to gums, teeth, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems; evaluation of lung function if respirators are used;
- A blood pressure measurement;
- A blood sample and analysis to determine blood lead level;
  - Hemoglobin and hematocrit determinations, red cell indices, and an exam of peripheral smear morphology; and
  - Zinc protopor-phyrin; blood urea nitrogen; and serum creatinine;
- A routine urinalysis with microscopic exam; and
- Any lab or other test the examining physician deems necessary.



#### INFORMATION FOR THE EXAMINING PHYSICIAN

The employer must provide all examining physicians with a copy of the lead in construction standard, including all appendices, a description of the affected employee's duties as they relate to the employee's exposure, the employee's lead exposure level or anticipated exposure level, a description of personal protective equipment used or to be used, prior blood lead determinations, and all prior written medical opinions for the employee.

# WHEN MONITORING SHOWS EMPLOYEE EXPOSURES ABOVE THE AL

Employers must make available, at no cost to the employee, initial medical surveillance for employees exposed to lead on the job at or above the action level on any one day per year. This initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporyrin (ZPP) levels. In addition, a medical surveillance program with biological monitoring must be made available to any employee exposed at or above the action level for more than 30 days in any consecutive 12 months.

#### AFTER THE MEDICAL EXAMINATION

Employers must obtain and provide the employee a copy of a written opinion from each examining or consulting physician that contains only information related to occupational exposure to lead and must include:

- Whether the employee has any detected medical condition that would increase the health risk from lead exposure;
- Any special protective measures or limitations on the worker's exposure to lead,
- Any limitation on respirator use; and
- Results of the blood lead determinations.

In addition, the written statement may include a statement that the physician has informed the employee of the results of the consultation or medical examination and any medical condition that may require further examination or treatment.



The employer must instruct the physician that findings, including lab results or diagnoses unrelated to the worker's lead exposure, must not be revealed to the employer or included in the written opinion to the employer. The employer must also instruct the physician to advise employees of any medical condition, occupational or non-occupational, that necessitates further evaluation or treatment. In addition, some states also require laboratories and health care providers to report cases of elevated blood lead concentrations to their state health departments.

#### Medical Removal Provisions

Temporary medical removal can result from an elevated blood level or a written medical opinion. More specifically, the employer is required to remove from work an employee with a lead exposure at or above the AL each time periodic and follow-up (within two weeks of the periodic test) blood sampling tests indicate that the employee's blood level is at or above 50 µg /dl. The employer also must remove from work an employee with lead exposure at or above the AL each time a final medical determination indicates that the employee needs reduced lead exposure for medical reasons. If the physician who is implementing the employer's medical program makes a final written opinion recommending the employee's removal or other special protective measures, the employer must implement the physician's recommendation.

For an employee removed from exposure to lead at or above the AL due to a blood lead level at or above 50  $\mu$ g/dl, the employer may return that employee to former job status when two consecutive blood sampling tests indicate that the employee's blood lead level is below 40  $\mu$ g /dl. For an employee removed from exposure to lead due to a final medical determination, the employee must be returned when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition that places the employee at increased risk of lead exposure.

The employer must remove any limitations placed on employees or end any special protective measures when a subsequent final



medical determination indicates they are no longer necessary. If the former position no longer exists, the employee is returned consistent with whatever job assignment discretion the employer would have had if no removal occurred.

#### **WORKER PROTECTIONS AND BENEFITS**

The employer must provide up to 18 months of medical removal protection (MRP) benefits each time an employee is removed from lead exposure or medically limited. As long as the position/job exists, the employer must maintain the earnings, seniority, and other employment rights and benefits as though the employee had not been removed from the job or otherwise medically limited. The employer may condition medical removal protection benefits on the employee's participation in followup medical surveillance.

If a removed employee files a worker's compensation claim or other compensation for lost wages due to a lead-related disability, the employer must continue medical removal protection benefits until the claim is resolved. However, the employer's MRP benefits obligation will be reduced by the amount that the employee receives from these sources. Also, the employer's MRP benefits obligation will be reduced by any income the employee receives from employment with another employer made possible by virtue of the employee's removal.

#### RECORDS REQUIREMENTS INVOLVING MEDICAL REMOVAL

In the case of medical removal, the employer's records must include:

- The worker's name and social security number,
- The date of each occasion that the worker was removed from current exposure to lead,
- The date when the worker was returned to the former job status,
- A brief explanation of how each removal was or is being accomplished, and
- A statement indicating whether the reason for the removal was an elevated blood lead level.



### Recordkeeping

#### **EMPLOYER REQUIREMENTS**

The employer must maintain any employee exposure and medical records to document ongoing employee exposure, medical monitoring, and medical removal of workers. This data provides a baseline to evaluate the employee's health properly. Employees or former employees, their designated representatives, and OSHA must have access to exposure and medical records in accordance with 29 CFR 1910.1020. Rules of agency practice and procedure governing OSHA access to employee medical records are found in 29 CFR 1913.10.

#### **EXPOSURE ASSESSMENT RECORDS**

The employer must establish and maintain an accurate record of all monitoring and other data used to conduct employee exposure assessments as required by this standard and in accordance with 29 CFR 1910.1020. The exposure assessment records must include:

- The dates, number, duration, location, and results of each sample taken, including a description of the sampling procedure used to determine representative employee exposure;
- A description of the sampling and analytical methods used and evidence of their accuracy;
- The type of respiratory protection worn, if any;
- The name, social security number, and job classification of the monitored employee and all others whose exposure the measurement represents; and
- Environmental variables that could affect the measurement of employee exposure.

#### MEDICAL SURVEILLANCE RECORDS

The employer must maintain an accurate record for each employee subject to medical surveillance, including:

- The name, social security number, and description of the employee's duties;
- A copy of the physician's written opinions;



- The results of any airborne exposure monitoring done for the employee and provided to the physician; and
- Any employee medical complaints related to lead exposure. In addition, the employer must keep or ensure that the examining physician keeps the following medical records:
- A copy of the medical examination results including medical and work history;
- A description of the laboratory procedures and a copy of any guidelines used to interpret the test results; and
- A copy of the results of biological monitoring.

The employer or physician or both must maintain medical records in accordance with 29 CFR 1910.1020.

#### DOCUMENTS FOR EMPLOYEES SUBJECT TO MEDICAL REMOVAL

The employer must maintain--for at least the duration of employment-an accurate record for each employee subject to medical removal, including:

- The name and social security number of the employee;
- The date on each occasion that the employee was removed from current exposure to lead and the corresponding date which the employee was returned to former job status;
- A brief explanation of how each removal was or is being accomplished; and
- A statement about each removal indicating whether the reason for removal was an elevated blood level.

#### EMPLOYER REQUIREMENTS RELATED TO OBJECTIVE DATA

The employer must establish and maintain an accurate record documenting the nature and relevancy of objective data relied on to assess initial employee exposure in lieu of exposure monitoring. The employer must maintain the record of objective data relied on for at least 30 years.

#### **DOCUMENTS FOR OSHA AND NIOSH REVIEW**

The employer must make all records--including exposure monitoring, objective data, medical removal, and medical records--



available upon request to affected employees, former employees, and their designated representatives and to the OSHA Assistant Secretary and the Director of the National Institute for Occupational Safety and Health (NIOSH) for examination and copying in accordance with 29 CFR 1910.1020.

#### WHEN CLOSING A BUSINESS

When an employer ceases to do business, the successor employer must receive and retain all required records. If no successor is available, these records must be sent to the Director of NIOSH.

# **Exposure Reduction and Employee Protection**

The most effective way to protect workers is to minimize their exposure through engineering controls, good work practices and training, and use of personal protective clothing and equipment, including respirators, where required. The employer needs to designate a competent person capable of identifying existing and predictable lead hazards and who is authorized to take prompt corrective measures to eliminate such problems. The employer should, as needed, consult a qualified safety and health professional to develop and implement an effective worker protection program. These professionals may work independently or may be associated with an insurance carrier, trade organization, or on-site consultation program.

# **Engineering Controls**

Engineering measures include local and general exhaust ventilation, process and equipment modification, material substitution, component replacement, and isolation or automation. Examples of recommended engineering controls that can help reduce worker exposure to lead are described as follows.

#### **EXHAUST VENTILATION**

Equip power tools used to remove lead-based paint with dust collection shrouds or other attachments so that paint is exhausted



through a high-efficiency particulate air (HEPA) vacuum system. For operations such as welding, cutting/burning, or heating, use local exhaust ventilation. Use HEPA vacuums during cleanup operations.

For abrasive blasting operations, build a containment structure that is designed to optimize the flow of clean ventilation air past the workers' breathing zones. This will help reduce the exposure to airborne lead and increase visibility. Maintain the affected area under negative pressure to reduce the chances that lead dust will contaminate areas outside the enclosure. Equip the containment structure with an adequately sized dust collector to control emissions of particulate matter into the environment.

#### **ENCLOSURE OR ENCAPSULATION**

One way to reduce the lead inhalation or ingestion hazard posed by lead-based paint is to encapsulate it with a material that bonds to the surface, such as acrylic or epoxy coating or flexible wall coverings. Another option is to enclose it using systems such as gypsum wallboard, plywood paneling, and aluminum, vinyl, or wood exterior siding. Floors coated with lead-based paint can be covered using vinyl tile or linoleum.

The building owner or other responsible person should oversee the custodial and maintenance staffs and contractors during all activities involving enclosed or encapsulated lead-based paint. This will minimize the potential for an inadvertent lead release during maintenance, renovation, or demolition.

#### SUBSTITUTION

Choose materials and chemicals that do not contain lead for construction projects. Among the options are:

- Use zinc-containing primers covered by an epoxy intermediate coat and polyurethane topcoat instead of lead-containing coatings.
- Substitute mobile hydraulic shears for torch cutting under certain circumstances.
- Consider surface preparation equipment such as needle guns with multiple reciprocating needles completely enclosed within an adjustable shroud, instead of abrasive blasting under certain



conditions. The shroud captures dust and debris at the cutting edge and can be equipped with a HEPA vacuum filtration with a self-drumming feature. One such commercial unit can remove lead-based paint from flat steel and concrete surfaces, outside edges, inside corners, and pipes.

Choose chemical strippers in lieu of hand scraping with a heat gun for work on building exteriors, surfaces involving carvings or molding, or intricate iron work. Chemical removal generates less airborne lead dust. (Be aware, however, that these strippers themselves can be hazardous and that the employer must review the material safety data sheets (MSDSs) for these stripping agents to obtain information on their hazards.)

#### COMPONENT REPLACEMENT

Replace lead-based painted building components such as windows, doors, and trim with new components free of lead-containing paint. Another option is to remove the paint off site and then repaint the components with zinc-based paint before replacing them.

#### PROCESS OR EQUIPMENT MODIFICATION

When applying lead paints or other lead-containing coatings, use a brush or roller rather than a sprayer. This application method introduces little or no paint mist into the air to present a lead inhalation hazard. (Note that there is a ban on the use of lead-based paint in residential housing.)

Use non-silica-containing abrasives such as steel or iron shot/grit sand instead of sand in abrasive blasting operations when practical. The free silica portion of the dust presents a respiratory health hazard.

When appropriate for the conditions, choose blasting techniques that are less dusty than open-air abrasive blasting. These include hydro- or wet-blasting using high-pressure water with or without an abrasive or surrounding the blast nozzle with a ring of water, and vacuum blasting where a vacuum hood for material removal is positioned around the exterior of the blasting nozzle.

When using a heat gun to remove lead-based paints in residential housing units, be sure it is of the flameless electrical softener



type. Heat guns should have electronically controlled temperature settings to allow usage below 700 degrees F. Equip heat guns with various nozzles to cover all common applications and to limit the size of the heated work area.

When using abrasive blasting with a vacuum hood on exterior building surfaces, ensure that the configuration of the heads on the blasting nozzle match the configuration of the substrate so that the vacuum is effective in containing debris.

Ensure that HEPA vacuum cleaners have the appropriate attachments for use on unusual surfaces. Proper use of brushes of various sizes, crevice and angular tools, when needed, will enhance the quality of the HEPA-vacuuming process and help reduce the amount of lead dust released into the air.

#### **ISOLATION**

Although it is not feasible to enclose and ventilate some abrasive blasting operations completely, it is possible to isolate many operations to help reduce the potential for lead exposure. Isolation consists of keeping employees not involved in the blasting operations as far away from the work area as possible, reducing the risk of exposure.

# Housekeeping and Personal Hygiene

Lead is a cumulative and persistent toxic substance that poses a serious health risk. A rigorous housekeeping program and the observance of basic personal hygiene practices will minimize employee exposure to lead. In addition, these two elements of the worker protection program help prevent workers from taking lead-contaminated dust out of the worksite and into their homes where it can extend the workers' exposures and potentially affect their families' health.

#### HOUSEKEEPING PRACTICES

An effective housekeeping program involves a regular schedule to remove accumulations of lead dust and lead-containing debris. The schedule should be adapted to exposure conditions at a particular worksite. OSHA's Lead Standard for Construction requires



employers to maintain all surfaces as free of lead contamination as practicable. Vacuuming lead dust with HEPA-filtered equipment or wetting the dust with water before sweeping are effective control measures. Compressed air may not be used to remove lead from contaminated surfaces unless a ventilation system is in place to capture the dust generated by the compressed air.

In addition, put all lead-containing debris and contaminated items accumulated for disposal into sealed, impermeable bags or other closed impermeable containers. Label bags and containers as lead-containing waste. These measures provide additional help in controlling exposure.

#### PERSONAL HYGIENE PRACTICES

Emphasize workers' personal hygiene such as washing their hands and face after work and before eating to minimize their exposure to lead. Provide and ensure that workers use washing facilities. Provide clean change areas and readily accessible eating areas. If possible, provide a parking area where cars will not be contaminated with lead. These measures:

- Reduce workers' exposure to lead and the likelihood that they will ingest lead,
- Ensure that the exposure does not extend beyond the worksite,
- Reduce the movement of lead from the worksite, and
- Provide added protection to employees and their families.

#### **CHANGE AREAS**

The employer must provide a clean change area for employees whose airborne exposure to lead is above the PEL. The area must be equipped with storage facilities for street clothes and a separate area with facilities for the removal and storage of lead-contaminated protective work clothing and equipment. This separation prevents cross-contamination of the employee's street and work clothing.

Employees must use a clean change area for taking off street clothes, suiting up in clean protective work clothing, donning respirators before beginning work, and dressing in street clothes after work. No lead-contaminated items should enter this area.



Work clothing must not be worn away from the jobsite. Under no circumstances should lead-contaminated work clothes be laundered at home or taken from the worksite, except to be laundered professionally or for disposal following applicable federal, state, and local regulations.

#### SHOWERS AND WASHING FACILITIES

When feasible, showers must be provided for use by employees whose airborne exposure to lead is above the permissible exposure limit so they can shower before leaving the worksite. Where showers are provided, employees must change out of their work clothes and shower before changing into their street clothes and leaving the worksite. If employees do not change into clean clothing before leaving the worksite, they may contaminate their homes and automobiles with lead dust, extending their exposure and exposing other members of their household to lead.

In addition, employers must provide adequate washing facilities for their workers. These facilities must be close to the worksite and furnished with water, soap, and clean towels so employees can remove lead contamination from their skin.

Contaminated water from washing facilities and showers must be disposed of in accordance with applicable local, state, or federal regulations.

#### PERSONAL PRACTICES

The employer must ensure that employees do not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed. HEPA vacuuming and use of a downdraft booth are examples of cleaning methods that limit the dispersion of lead dust from contaminated work clothing.

In all areas where employees are exposed to lead above the PEL, employees must observe the prohibition on the presence and consumption or use of food, beverages, tobacco products, and cosmetics. Employees whose airborne exposure to lead is above the PEL must wash their hands and face before eating, drinking, smoking, or applying cosmetics.



#### **END-OF-DAY PROCEDURES**

Employers must ensure that workers who are exposed to lead above the permissible exposure limit follow these procedures at the end of their workday:

- Place contaminated clothes, including work shoes and personal protective equipment to be cleaned, laundered, or disposed of, in a properly labeled closed container.
- Take a shower and wash their hair. Where showers are not provided, employees must wash their hands and face at the end of the workshift.
- Change into street clothes in clean change areas.

### **Protective Clothing and Equipment**

#### **EMPLOYER REQUIREMENTS**

Employers must provide workers who are exposed to lead above the PEL or for whom the possibility of skin or eye irritation exists with clean, dry protective work clothing and equipment that are appropriate for the hazard. Employers must provide these items at no cost to employees. Appropriate protective work clothing and equipment used on construction sites includes:

- Coveralls or other full-body work clothing;
- Gloves, hats, and shoes or disposable shoe coverlets;
- Vented goggles or face shields with protective spectacles or goggles;
- Welding or abrasive blasting helmets; and
- Respirators.

Clean work clothing must be issued daily for employees whose exposure levels to lead are above 200  $\mu g/m3$ , weekly if exposures are above the PEL but at or below 200  $\mu g/m3$  or where the possibility of skin or eye irritation exists.

#### HANDLING CONTAMINATED PROTECTIVE CLOTHING

Workers must not be allowed to leave the worksite wearing leadcontaminated protective clothing or equipment. This is an essential



step in reducing the movement of lead contamination from the workplace into the worker's home and provides added protection for employees and their families.

Disposable coveralls and separate shoe covers may be used, if appropriate, to avoid the need for laundering. Workers must remove protective clothing in change rooms provided for that purpose.

Employers must ensure that employees leave the respirator use area to wash their faces and respirator facepieces as necessary. In addition, employers may require their employees to use HEPA vacuuming, damp wiping, or another suitable cleaning method before removing a respirator to clear loose particle contamination on the respirator and at the face-mask seal.

Place contaminated clothing that is to be cleaned, laundered, or disposed of by the employer in closed containers. Label containers with the warning: "Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead-contaminated wash water in accordance with applicable local, state, or federal regulations."

Workers responsible for handling contaminated clothing, including those in laundry services or subcontractors, must be informed in writing of the potential health hazard of lead exposure. At no time shall lead be removed from protective clothing or equipment by brushing, shaking, or blowing. These actions disperse the lead into the work area.

#### PREVENTING HEAT STRESS

Workers wearing protective clothing, particularly in hot environments or within containment structures, can face a risk from heat stress if proper control measures are not used.

Heat stress is caused by several interacting factors, including environmental conditions, type of protective clothing worn, the work activity required and anticipated work rate, and individual employee characteristics such as age, weight, and fitness level. When heat stress is a concern, the employer should choose lighter, less insulating protective clothing over heavier clothing, as long as



it provides adequate protection. Other measures the employer can take include: discussing the possibility of heat stress and its signs and symptoms with all workers; using appropriate work/rest regimens; and providing heat stress monitoring that includes measuring employees' heart rates, body temperatures, and weight loss. Employers must provide a source of water or electrolyte drink in a non-contaminated eating and drinking area close to the work area so workers can drink often throughout the day. Workers must wash their hands and face before drinking any fluid if their airborne exposure is above the PEL.

### **Respiratory Protection**

Although engineering and work practice controls are the primary means of protecting workers from exposure to lead, source control at construction sites sometimes is insufficient to control exposure. In these cases, airborne lead concentrations may be high or may vary widely. Respirators often must be used to supplement engineering controls and work practices to reduce worker lead exposures below the PEL. When respirators are required, employers must provide them at no cost to workers.

The standard requires that respirators be used during periods when an employee's exposure to lead exceeds the PEL, including

- Periods necessary to install or implement engineering or work practice controls, and
- Work operations for which engineering and work practice controls are insufficient to reduce employee exposures to or below the PEL.

Respirators also must be provided upon employee request. A requested respirator is included as a requirement to provide increased protection for those employees who wish to reduce their lead burden below what is required by the standard, particularly if they intend to have children in the near future. In addition, respirators must be used when performing previously indicated high exposure or "trigger" tasks, before completion of the initial assessment.



#### PROVIDING ADEQUATE RESPIRATORY PROTECTION

Before any employee first starts wearing a respirator in the work environment, the employer must perform a fit test. For all employees wearing negative or positive pressure tight-fitting facepiece respirators, the employer must perform either qualitative or quantitative fit tests using an OSHA-accepted fit testing protocol. In addition, employees must be fit tested whenever a different respirator facepiece is used, and at least annually thereafter.

Where daily airborne exposure to lead exceeds 50  $\mu$ g/m3, affected workers must don respirators before entering the work area and should not remove them until they leave the high-exposure area or have completed a decontamination procedure. Employers must assure that the respirator issued to the employee is selected and fitted properly to ensure minimum leakage through the facepiece-to-face seal.

#### RESPIRATORY PROTECTION PROGRAMS

When respirators are required at a worksite, the employer must establish a respiratory protection program in accordance with the OSHA standard on respiratory protection, 29 CFR 1910.134. At a minimum, an acceptable respirator program for lead must include:

- Procedures for selecting respirators appropriate to the hazard;
- Fit testing procedures;
- Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations, including cartridge change schedules:
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
- Training of employees in the respiratory hazard to which they are potentially exposed during routine and emergency situations;
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations of their use, and their maintenance;



- Procedures for regularly evaluating the effectiveness of the program;
- Procedures to ensure air quality when supplied air is used;
- A written program and designation of a program administrator;
   and
- Recordkeeping procedures.

In addition, the construction industry lead standard stipulates medical evaluations of employees required to use respirators.

If an employee has difficulty in breathing during a fit test or while using a respirator, the employer must make a medical examination available to that employee to determine whether he or she can wear a respirator safely.

#### **SELECTING A RESPIRATOR**

The employer must select the appropriate respirator from Table 1 of the lead standard, 29 CFR 1926.62(f)(3)(i). The employer must provide a powered air-purifying respirator when an employee chooses to use this respirator and it will provide the employee adequate protection. A NIOSH-certified respirator must be selected and used in compliance with the conditions of its certification. In addition, if exposure monitoring or experience indicates airborne exposures to contaminants other than lead such as silica, solvents, or polyurethane coatings, these exposures must be considered when selecting respiratory protection.

Select type CE respirators approved by NIOSH for abrasive blasting operations. Currently, there are two kinds of CE respirators with the following assigned protection factors (APFs): a continuous-flow respirator with a loose-fitting hood, APF 25; and a full facepiece supplied-air respirator operated in a positive-pressure mode, APF 2,000. (Note: OSHA recognizes Bullard Helmets, Models 77 and 88 (1995); Clemco Appollo, Models 20 and 60 (1997); and 3M Model 8100 (1998) as having APFs of 1,000.)

For any airline respirator, it is important to follow the manufacturer's instructions regarding air quality, air pressure, and inside diameter and length of hoses. Be aware that using longer hoses or smaller inside diameter hoses than the manufacturer specifies or



hoses with bends or kinks may reduce or restrict the airflow to a respirator.

# **Employee Information and Training**

The employer must inform employees about lead hazards according to the requirement of OSHA's Hazard Communication standard for the construction industry, 29 CFR 1926.59, including-but not limited to--the requirements for warning signs and labels, material safety data sheets (MSDSs), and employee information and training. (Refer to 29 CFR 1910.1200.)

#### PROGRAM REQUIREMENTS

Employers must institute an information and training program and ensure that all employees subject to exposure to lead or lead compounds at or above the action level on any day participate. Also covered under information and training are employees who may suffer skin or eye irritation from lead compounds. Initial training must be provided before the initial job assignment. Training must be repeated at least annually and, in brief summary, must include:

- The content of the OSHA lead standard and its appendices;
- The specific nature of operations that could lead to lead exposure above the action level;
- The purpose, proper selection, fit, use, and limitations of respirators;
- The purpose and a description of the medical surveillance program, and the medical removal protection program;
- Information concerning the adverse health effects associated with excessive lead exposure;
- The engineering and work practice controls associated with employees' job assignments;
- The contents of any lead-related compliance plan in effect;
- Instructions to employees that chelating agents must not be used routinely to remove lead from their bodies and when necessary only under medical supervision and at the direction of a licensed physician; and



 The right to access records under "Access to Employee Exposure and Medical Records," 29 CFR 1910.1020.

All materials relating to the training program and a copy of the standard and its appendices must be made readily available to all affected employees.

#### **WARNING SIGNS**

Employers are required to post these warning signs in each work area where employee exposure to lead is above the PEL:

- WARNING
- LEAD WORK AREA
- POISON
- NO SMOKING OR EATING

All signs must be well lit and kept clean so that they are easily visible. Statements that contradict or detract from the signs' meaning are prohibited. Signs required by other statutes, regulations, or ordinances, however, may be posted in addition to, or in combination with, this sign.

### **OSHA** Assistance

OSHA can provide extensive help through a variety of programs, including technical assistance about effective safety and health programs, state plans, workplace consultations, voluntary protection programs, strategic partnerships, training and education, and more. An overall commitment to workplace safety and health can add value to your business, to your workplace and to your life.

#### SAFETY AND HEALTH PROGRAM MANAGEMENT GUIDELINES

Effective management of employee safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. In fact, an effective safety and health program forms the basis of good employee protection can save time and money, increase productivity, reduce employee injuries, illnesses and related workers' compensation costs.



To assist employers and employees in developing effective safety and health programs, OSHA published recommended Safety and Health Program Management Guidelines (54 Federal Register (16): 3904-3916, January 26, 1989). These voluntary guidelines apply to all places of employment covered by OSHA.

The guidelines identify four general elements critical to the development of a successful safety and health management system:

- Management leadership and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements, to achieve an effective safety and health program. The Federal Register notice is available online at www.osha.gov.

#### STATE PROGRAMS

The Occupational Safety and Health Act of 1970 (OSH Act) encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans. Twenty-four states, Puerto Rico, and the Virgin Islands currently operate approved state plans: 22 cover both private and public (state and local government) employment; Connecticut, New Jersey, New York and the Virgin Islands cover the public sector only. States and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the Federal OSHA standards.

#### **CONSULTATION SERVICES**

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state governments employing professional safety and health



consultants. Comprehensive assistance includes an appraisal of all mechanical systems, work practices and occupational safety and health hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service offers assistance to employers in developing and implementing an effective safety and health program. No penalties are proposed or citations issued for hazards identified by the consultant. OSHA provides consultation assistance to the employer with the assurance that his or her name and firm and any information about the workplace will not be routinely reported to OSHA enforcement staff.

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation in SHARP includes receiving a comprehensive consultation visit, demonstrating exemplary achievements in workplace safety and health by abating all identified hazards, and developing an excellent safety and health program.

Employers accepted into SHARP may receive an exemption from programmed inspections (not complaint or accident investigation inspections) for a period of one year. For more information concerning consultation assistance, see the OSHA website at www.osha.gov.

#### **VOLUNTARY PROTECTION PROGRAMS**

Voluntary Protection Programs and on-site consultation services, when coupled with an effective enforcement program, expand employee protection to help meet the goals of the OSH Act. The VPPs motivate others to achieve excellent safety and health results in the same outstanding way as they establish a cooperative relationship between employers, employees and OSHA.

For additional information on VPP and how to apply, contact the OSHA regional offices listed at the end of this publication.

#### STRATEGIC PARTNERSHIP PROGRAM

OSHA's Strategic Partnership Program, the newest member of OSHA's cooperative programs, helps encourage, assist and recognize the efforts of partners to eliminate serious workplace



hazards and achieve a high level of employee safety and health. Whereas OSHA's Consultation Program and VPP entail one-on-one relationships between OSHA and individual worksites, most strategic partnerships seek to have a broader impact by building cooperative relationships with groups of employers and employees. These partnerships are voluntary, cooperative relationships between OSHA, employers, employee representatives and others (e.g., trade unions, trade and professional associations, universities and other government agencies).

For more information on this and other cooperative programs, contact your nearest OSHA office, or visit OSHA's website at www.osha.gov.

#### **ALLIANCE PROGRAM**

Through the Alliance Program, OSHA works with groups committed to safety and health, including businesses, trade or professional organizations, unions and educational institutions, to leverage resources and expertise to develop compliance assistance tools and resources and share information with employers and employees to help prevent injuries, illnesses and fatalities in the workplace.

Alliance program agreements have been established with a wide variety of industries including meat, apparel, poultry, steel, plastics, maritime, printing, chemical, construction, paper and telecommunications. These agreements are addressing many safety and health hazards and at-risk audiences, including silica, fall protection, amputations, immigrant workers, youth and small businesses. By meeting the goals of the Alliance Program agreements (training and education, outreach and communication, and promoting the national dialogue on workplace safety and health), OSHA and the Alliance Program participants are developing and disseminating compliance assistance information and resources for employers and employees such as electronic assistance tools, fact sheets, toolbox talks, and training programs.

#### **OSHA TRAINING AND EDUCATION**

OSHA area offices offer a variety of information services, such



as compliance assistance, technical advice, publications, audiovisual aids and speakers for special engagements. OSHA's Training Institute in Arlington Heights, IL, provides basic and advanced courses in safety and health for Federal and state compliance officers, state consultants, Federal agency personnel, and private sector employers, employees and their representatives.

The OSHA Training Institute also has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other federal agencies. These centers include colleges, universities and nonprofit training organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on grants, training and education, contact the OSHA Training Institute, Directorate of Training and Education, 2020 South Arlington Heights Road, Arlington Heights, IL 60005, (847) 297-4810 or see Training on OSHA's website at www.osha.gov. For further information on any OSHA program, contact your nearest OSHA regional office listed at the end of this publication.

#### INFORMATION AVAILABLE ELECTRONICALLY

OSHA has a variety of materials and tools available on its website at www.osha.gov. These include electronic compliance assistance tools, such as *Safety and Health Topics Pages, eTools, Expert Advisors;* regulations, directives, publications and videos; and other information for employers and employees. OSHA's software programs and compliance assistance tools walk you through challenging safety and health issues and common problems to find the best solutions for your workplace.

A wide variety of OSHA materials, including standards, interpretations, directives, and more can be purchased on CD-ROM from the U.S. Government Printing Office, Superintendent of Documents, toll-free phone (866) 512-1800.



#### **OSHA PUBLICATIONS**

OSHA has an extensive publications program. For a listing of free or sales items, visit OSHA's website at www.osha.gov or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210. Telephone (202) 693-1888 or fax to (202) 693-2498.

#### **CONTACTING OSHA**

To report an emergency, file a complaint or seek OSHA advice, assistance or products, call (800) 321-OSHA or contact your nearest OSHA regional or area office listed at the end of this publication. The teletypewriter (TTY) number is (877) 889-5627.

Written correspondence can be mailed to the nearest OSHA Regional or Area Office listed at the end of this publication or to OSHA's national office at: U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Avenue, N.W., Washington, DC 20210.

By visiting OSHA's website at www.osha.gov, you can also:

- File a complaint online,
- Submit general inquiries about workplace safety and health electronically, and
- Find more information about OSHA and occupational safety and health.

# **OSHA Regional Offices**

#### Region I

(CT,\* ME, MA, NH, RI, VT\*) JFK Federal Building, Room E340 Boston, MA 02203 (617) 565-9860

#### Region II

(NJ,\* NY,\* PR,\* VI\*) 201 Varick Street, Room 670 New York, NY 10014 (212) 337-2378

#### Region III

(DE, DC, MD,\* PA,\* VA,\* WV) The Curtis Center 170 S. Independence Mall West Suite 740 West Philadelphia, PA 19106-3309 (215) 861-4900

#### Region IV

(AL, FL, GA, KY,\* MS, NC,\* SC,\* TN\*) 61 Forsyth Street, SW, Room 6T50 Atlanta, GA 30303 (404) 562-2300

#### Region V

(IL, IN,\* MI,\* MN,\* OH, WI) 230 South Dearborn Street, Room 3244 Chicago, IL 60604 (312) 353-2220

#### Region VI

(AR, LA, NM,\* OK, TX) 525 Griffin Street, Room 602 Dallas, TX 75202 (972) 850-4145

#### Region VII

(IA,\* KS, MO, NE) Two Pershing Square 2300 Main Street, Suite 1010 Kansas City, MO 64108-2416 (816) 283-8745

#### Region VIII

(CO, MT, ND, SD, UT,\* WY\*) 1999 Broadway, Suite 1690 PO Box 46550 Denver, CO 80202-5716 (720) 264-6550

#### Region IX

(AZ,\* CA,\* HI, NV,\* and American Samoa, Guam and the Northern Mariana Islands) 90 7th Street, Suite 18-100 San Francisco, CA 94103 (415) 625-2547

#### Region X

(AK,\* ID, OR,\* WA\*) 1111 Third Avenue, Suite 715 Seattle, WA 98101-3212 (206) 553-5930

\* These states and territories operate their own OSHA-approved job safety and health programs and cover state and local government employees as well as private sector employees. The Connecticut, New Jersey, New York and Virgin Islands plans cover public employees only. States with approved programs must have standards that are identical to, or at least as effective as, the Federal OSHA standards.

**Note:** To get contact information for OSHA Area Offices, OSHA-approved State Plans and OSHA Consultation Projects, please visit us online at www.osha.gov or call us at 1-800-321-0SHA.



U.S. Department of Labor www.osha.gov

# Appendix F Simple Green Safety Data Sheet

Version No. 2101032-17A Issue Date: March 1, 2017 Supersedes Date: N/A OSHA HCS-2012 / GHS

### **Section 1: IDENTIFICATION**

**Product Name:** Simple Green® Pro HD Ready-To-Use

Additional Names: Simple Green® Pro HD Heavy-Duty Cleaner Ready-To-Use

**Manufacturer's Part Number:** \*Please refer to Section 16

**Recommended Use:** Cleaner and degreaser formulated to safely remove, oil, grease, and grime from surfaces

**Restrictions on Use:** Do not use on non-rinsable or asphalt surfaces

**Company:** Sunshine Makers, Inc. **Telephone:** 800-228-0709 ● 562-795-6000 *Mon – Fri, 8am – 5pm PST* 

15922 Pacific Coast Highway **Fax:** 562-592-3830

Huntington Beach, CA 92649 USA **Email:** <u>info@simplegreen.com</u>

**Emergency Phone:** Chem-Tel 24-Hour Emergency Service: 800-255-3924

#### **Section 2: HAZARDS IDENTIFICATION**

This product is considered hazardous (Eye Corrosive/Irritant – Category 2B) by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

OSHA HCS 2012 Label Elements

Signal Word: Warning Hazard Symbol(s)/Pictogram(s): None required

**Hazard Statements:** 

H320 – Causes Eye Irritation.

#### **Precautionary Statements:**

P264 – Wash hands thoroughly after handling.

P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

P337+P313 – If eye irritation persists: Get medical advice.

Hazards Not Otherwise Classified (HNOC): No hazards not otherwise classified were identified

Other Information: None Known.

#### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

| <u>Ingredient</u>            | <u>CAS Number</u> | Percent Range |
|------------------------------|-------------------|---------------|
| Water                        | 7732-18-5         | > 86%*        |
| Triethanolamine              | 102-71-6          | ≤ 5%*         |
| Ethoxylated Alcohol          | 68439-46-3        | ≤ 5%*         |
| Propylene Glycol Butyl Ether | 5131-66-8         | < 1%*         |
| Tetrapotassium Pyrophosphate | 7320-34-5         | < 1%*         |
| Potassium Silicate           | 1312-76-1         | < 1%*         |
| Colorant                     | Proprietary       | < 1%*         |

<sup>\*</sup>specific percentages of composition are being withheld as a trade secret

#### **Section 4: FIRST-AID MEASURES**

**Inhalation:** Not expected to cause respiratory irritation. If adverse effect occurs, move to fresh air. **Skin Contact:** Not expected to cause skin irritation. If adverse effect occurs, rinse skin with water.

**Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice.

**Ingestion:** May cause upset stomach. Drink plenty of water to dilute. See section 11.

Most Important Symptoms/Effects, Acute and Delayed: None known.

Indication of Immediate Medical Attention and Special Treatment Needed, if necessary: Treat symptomatically

Version No. 2101032-17A Issue Date: March 1, 2017 Supersedes Date: N/A OSHA HCS-2012 / GHS

## Section 5: FIRE-FIGHTING MEASURES

Suitable & Unsuitable Extinguishing Media: Specific Hazards Arising from Chemical: Special Protective Actions for Fire-Fighters: Use Dry chemical, CO2, water spray or "alcohol" foam. Avoid high volume jet water. In event of fire, fire created carbon oxides and oxides of phosphorus may be formed. Wear positive pressure self-contained breathing apparatus; Wear full protective

clothing.

This product is non-flammable. See Section 9 for Physical Properties.

#### Section 6: ACCIDENTAL RELEASE MEASURES

#### Personal Precautions, Protective Equipment and Emergency Procedures:

*For non-emergency personnel:* See section 8 – personal protection.

For emergency responders: Avoid eye contact. Safety goggles suggested if splashing or misting is likely to occur.

Environmental Precautions: Do not allow into open waterways and ground water systems.

Methods and Materials for Containment and Clean Up: Dike or soak up with inert absorbent material. See section 13 for disposal considerations.

#### Section 7: HANDLING AND STORAGE

**Precautions for Safe Handling:** Ensure adequate ventilation. Keep out of reach of children. Keep away from heat, sparks, open flame and direct sunlight. Do not pierce any part of the container. Do not mix or contaminate with any other chemical. Do not eat, drink or smoke while using this product.

**Conditions for Safe Storage including Incompatibilities:** Keep container tightly closed. Keep in cool dry area. Avoid prolonged exposure to sunlight. Do not store at temperatures above 109°F (42.7°C). If separation occurs, mix the product for reconstitution.

#### Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limit Values: Triethanolamine (102-71-6) 5 mg/m³ PEL California

Diethanolamine (111-42-2) 3 ppm TWA; 15 mg/m³ TWA Connecticut, Michigan, Minnesota, OSHA,

Tennessee, Vermont, Washington

0.46 ppm PEL; 2 mg/m³ PEL California

6 ppm STEL Washington

**Appropriate Engineering Controls:** Showers, eyewash stations, ventilation systems

#### Individual Protection Measures / Personal Protective Equipment (PPE)

Eye Contact: Use protective glasses or safety goggles if splashing or spray-back is likely.

Respiratory: Use in well ventilated areas or local exhaust ventilations when cleaning small spaces.

Skin Contact: Use protective gloves (any material) when used for prolonged periods or dermally sensitive.

General Hygiene Considerations: Wash thoroughly after handling and before eating or drinking.

#### Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:Purple LiquidPartition Coefficient: n-octanol/water:Not determinedOdor:No added odorAutoignition Temperature:Non-flammable

**Odor Threshold:** Not determined **Decomposition Temperature:** 109°F

**pH:** 9.5-10.7 **Viscosity:** Like water

Freezing Point:  $0^{\circ}C(32^{\circ}F)$  Specific Gravity: 0.995 - 1.01

**Boiling Point & Range:** 98°C (210°F) **VOCs:** \*\*Water & fragrance exemption in calculation

Flash Point: > 212°F SCAQMD 304-91 / EPA 24: Not tested

Evaporation Rate:Not determinedCARB Method 310\*\*:5 g/L0.042 lb/gal0.5%Flammability (solid, gas):Not applicableSCAQMD Method 313:5.1 g/L0.042 lb/gal0.51%

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# Section 9: PHYSICAL AND CHEMICAL PROPERTIES - continued

Upper/Lower Flammability or Explosive Limits: Not applicable VOC Composite Partial Pressure: 0.102207135

Vapor Pressure: 20.7 mmHg Nutrient Content:

Vapor Density:Not determinedNitrogen -<0.1% (0% by formula)Relative Density:8.29 - 8.42 lb/galPhosphorous -<0.25% (by formula)Solubility:100% in waterSulfur -<0.1% (0% by formula)

#### Section 10: STABILITY AND REACTIVITY

**Reactivity:** Non-reactive.

Chemical Stability: Stable under normal conditions 70°F (21°C) and 14.7 psig (760 mmHg).

**Possibility of Hazardous Reactions:** None known.

**Conditions to Avoid:** Excessive heat or cold.

**Incompatible Materials:** Do not mix with oxidizers, acids, bathroom cleaners, or disinfecting agents.

Hazardous Decomposition Products: Normal products of combustion - CO, CO2, oxides of phosphorus.

#### Section 11: TOXICOLOGICAL INFORMATION

**Likely Routes of Exposure:** Inhalation - Overexposure may cause headache.

Skin Contact - Not expected to cause irritation.

Eye Contact - Causes minimal/mild eye irritation.

Ingestion - May cause upset stomach.

Symptoms related to the physical, chemical and toxicological characteristics: no symptoms expected under typical use conditions. Delayed and immediate effects and or chronic effects from short term exposure: no symptoms expected under typical use conditions. Delayed and immediate effects and or chronic effects from long term exposure: headache, dry skin, or skin irritation may occur. Interactive effects: Not known.

#### **Numerical Measures of Toxicity**

Acute Toxicity: Oral LD<sub>50</sub> (rat) > 5 g/kg body weight

Dermal LD<sub>50</sub> (rabbit) > 5 g/kg body weight

 ${\it Calculated\ via\ OSHA\ HCS\ 2012\ /\ Globally\ Harmonized\ System\ of\ Classification\ and\ Labelling\ of\ Chemicals}$ 

Skin Corrosion/Irritation: Non-irritant per Dermal Irritection® assay modeling. No animal testing performed.

**Eye Damage/Irritation:** Minimal/Mild irritant per Ocular Irritection® assay modeling. *No animal testing performed.* 

**Germ Cell Mutagenicity:** Mixture does not classify under this category.

Carcinogenicity: Volume of ingredients does not trigger or classify under this category. This product contains trace

amounts of Diethanolamine (IARC 2B and ACGIH A3)

Reproductive Toxicity: Mixture does not classify under this category.

STOT-Single Exposure: Mixture does not classify under this category.

STOT-Repeated Exposure: Mixture does not classify under this category.

Aspiration Hazard: Mixture does not classify under this category.

## Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of

Classification and Labelling of Chemicals.

**Aquatic:** Not tested on finished formulation. **Terrestrial:** Not tested on finished formulation.

Persistence and Degradability: Based on similar formulations, expected to be Readily Biodegradable

Bioaccumulative Potential:No data available.Mobility in Soil:No data available.Other Adverse Effects:No data available.

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#### Section 13: DISPOSAL CONSIDERATIONS

**Unused or Used Liquid:** May be considered hazardous in your area depending on usage and tonnage of disposal – check with local, regional, and or national regulations for appropriate methods of disposal.

Empty Containers: May be offered for recycling.

Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

#### Section 14: TRANSPORT INFORMATION

U.N. Proper Shipping Name: Cleaning Compound, Liquid NOI

Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Marine Pollutant - NO

Transport in Bulk (according to Annex II of MARPOL 73/78 and IBC Code): Unknown.

Special precautions which user needs to be aware of/comply with, in connection None known.

with transport or conveyance either within or outside their premises:

U.S. (DOT) / Canadian TDG: Not Regulated for shipping. ICAO/ IATA: Not classified as Hazardous IMO / IDMG: Not classified as Hazardous ADR/RID: Not classified as Hazardous

#### Section 15: REGULATORY INFORMATION

All components are listed on: TSCA and DSL Inventory.

**SARA Title III:** Sections 311/312 – Not applicable.

Sections 313 Superfunds Amendments and Reauthorizations Act of 1986 - Diethanolamine (1142-2) < 0.01%

Sections 302 – Not applicable.

Clean Air Act (CAA): Triethanolamine (102-71-6), Diethanolamine (111-42-2), Propylene Glycol Butyl Ether (5131-66-8)

<u>Clean Water Act (CWA):</u> Not applicable

CERCLA: Diethanolamine (111-42-2) 100 lb RQ

State Right To Know Lists: Triethanolamine (102-71-6) Massachusetts, New Jersey, Pennsylvania

Diethanolamine (111-42-2) Massachusetts, New Jersey, Pennsylvania

<u>CA Proposition 65:</u> Diethanolamine (111-42-2) < 0.01%

**Texas ESL:** 

Triethanolamine 102-71-6 5 μg/m<sup>3</sup> long term 50 µg/m<sup>3</sup> short term **Ethoxylated Alcohol** 68439-46-3 60 μg/m<sup>3</sup> long term 600 µg/m<sup>3</sup> short term Propylene Glycol Butyl Ether 5131-66-8 73 μg/m³ long term 730 μg/m<sup>3</sup> short term 50 μg/m<sup>3</sup> short term Tetrapotassium Pyrophosphate 7320-34-5 5 μg/m<sup>3</sup> long term 5 μg/m<sup>3</sup> short term Potassium Silicate 1312-76-1 Diethanolamine 111-42-2 1 μg/m<sup>3</sup> long term 10 μg/m<sup>3</sup> short term

#### **Section 16: OTHER INFORMATION**

<u>Size</u> <u>UPC</u>

32 fl oz 043318003295

USA part numbers listed only. Not all part numbers listed. USA part numbers may not be valid for international sale.

NFPA:

Health – Eye Irritant Stability – Stable Flammability – Non-flammable Special - None



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# Section 16: OTHER INFORMATION - continued

#### **Acronyms**

NTP National Toxicology Program IARC International Agency for Research on Cancer

OSHA Occupational Safety and Health Administration CPSC Consumer Product Safety Commission

TSCA Toxic Substances Control Act DSL Domestic Substances List

Prepared / Revised By: Sunshine Makers, Inc., Regulatory Department. This SDS has been revised in the following sections: SDS created

**DISCLAIMER**: The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

# Appendix G Emergency Contact and Procedure Information

Table 1A: Emergency Response Telephone Roster

| PERSONNEL                                                                        | Office                 | Cell         |
|----------------------------------------------------------------------------------|------------------------|--------------|
| AKT Peerless Environmental Services, LLC (Environmental Consultant)              |                        |              |
| Site Manager: Mike Koenig                                                        | 248-615-1333           | 440-655-4130 |
| Site Manager: Kara Farris                                                        | 248-615-1333           | 330-654-9651 |
| Health & Safety Coordinator: Mike Koenig                                         | 248-615-1333           | 440-655-4130 |
| Health & Safety Director: Karl Primdahl                                          | 989-754-9896           | 989-239-0255 |
| Jones Lang LaSalle (Property Management Company)                                 |                        |              |
| Building Manager: Bill Pratt                                                     | 614-460-4405           | 614-309-7361 |
| Building Management Coordinator: Kelly Tamulonis                                 | 614-460-4405           | 614-390-9708 |
| Garrison Southfield Park LLC (Property and Building Owner)                       |                        |              |
| Building Owner Contact: Kristi Mazejy                                            | 212-372-9566           | 201-410-3363 |
|                                                                                  |                        |              |
| EMERGENCY RESPONSE AGENCIES                                                      | 911                    |              |
| Hospital: Grant Medical Center                                                   | 911 or<br>614-566-9000 |              |
| Fire Department: Columbus Fire Station 22                                        | 911 or<br>614-221-3132 |              |
| Police Department: Columbus Police                                               | 911 or<br>614-645-4545 |              |
| Health Department: Franklin County Health & Wellness Center                      | 911 or<br>614-645-3131 |              |
| Ambulance Service: Life Medical Response                                         | 911 or<br>614-469-8300 |              |
| Other:                                                                           |                        |              |
| OTHER EMERGENCY ASSISTANCE                                                       | 911                    |              |
| CHEMTREC (24 Hours)                                                              | 800-424-9300           |              |
| National Response Center (Oil and Chemical Spills)                               | 800-424-8802           |              |
| Poison Control Center                                                            | 614-228-1323           |              |
| U.S. Department of Transportation (Office of Hazardous Materials Transportation) | 202-366-4488           |              |
| U.S. Environmental Protection Agency (Region 5)                                  | 312-353-2000           |              |
| Ohio Environmental Protection Agency (Central District Office)                   | 614-644-2270           |              |

# **Table 1B Emergency Services Instructions**

# For Emergency Medical Incidents, Emergency Fire Response, or Hazardous Materials Incidents

#### **Emergency Telephone Numbers:**

Hospital: 911Police: 911

• Fire Department: 911

- 1. Remember to speak SLOWLY and CLEARLY. Do NOT hang up first: let the dispatcher conclude the call.
- 2. Provide the following information:
  - A Your location: 1655 & 1675 Watkins Road, Columbus, Ohio
  - B. Your name and phone number
- 3. Describe nature of Incident:
  - A. Emergency Medical Incident
    - How many victims
    - Type of incident physical injury, etc.
    - Assessment of victims' condition if known (whether victim is conscious/unconscious, breathing/not breathing, pulse/no pulse, nature of injuries, first aid measures used, etc.)
    - Where incident occurred
  - B. Fire:
    - Location of Fire
    - Injured or Trapped On-site Personnel
  - C. Hazardous Materials Incident:
    - This is a hazardous materials incident requiring dispatch of HAZMAT unit
    - Type of incident (fire, explosion, spill, etc.)
    - Type of material (specific chemicals or general description)
    - Whether there is also a Medical Emergency
- 4. Give your location at the site

Note: Security, Site Supervisor or designee must meet the emergency personnel at the staging area to brief them on the situation.

# Figure 1: Route Description and Map to Hospital

## **Hospital Information:**

Hospital Name: Grand Medical Center

Hospital Address: 111 South Grand Avenue, Columbus, Ohio

Hospital Phone Number: 614-566-9000

#### **Directions to Area Hospital:**

Follow Watkins Road to Alum Creek Drive

| •  | Head east on Watkins Road toward New World Drive                    | go 0.6 mi |
|----|---------------------------------------------------------------------|-----------|
| •  | Turn Left to stay on Watkins Road                                   | go 0.7 mi |
| Co | ontinue on Alum Creek Drive – Take I-70 West to South Grant Avenue. |           |
| •  | Turn left onto Alum Creek Drive                                     | go 3.2 mi |
| •  | Turn right onto East Livingston Avenue                              | go 0.1 mi |
| •  | Turn left to merge onto I-70 West toward Downtown                   | go 2.1 mi |
| •  | Take exit 101B toward Hospital/Downtown                             | go 0.4 mi |
| •  | Continue onto East Mound Street                                     | go 0.2 mi |
| •  | Turn right onto Grant Avenue                                        | go 0.3 mi |

End: 111 South Grant Avenue, Columbus, OH (Destination will be on the left)

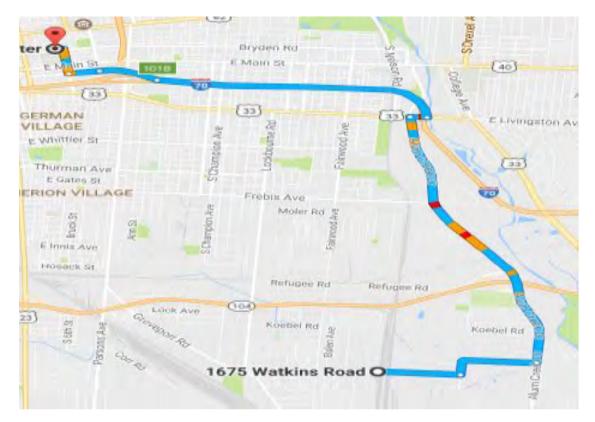


Figure 2: Support Zone and Rally Point Drawing SCALE: 1"= 10 FIGURE 1 S DRAWN BY ZONE FLOW 3 Secondary Rally Point is the west parking lot area located west of the initial Rally Point DATE PPE MASS DECONTAMINATION ZONE (MENS) -EXIT OF EXCLUSION ZONE (MENS) SUPPORT ZONE PPE REMOVAL ZONE (MENS) MENS WASH ZONE SUPPORT ZONES & RALLY POINT **1655 & 1675 WATKINS ROAD** PROJECT NUMBER: 137530 COLUMBUS, OHIO PPE DON ZONE EXIT OF EXCLUSION ZONE (WOMENS) PPE MASS DECONTAMINATION ZONE (WOMENS) RALLY 1675 WATKINS ROAD EXCLUSION ZONE ENTRANCE TO EXCLUSION ZONE AKTPEERLESS 1655 WATKINS ROAD OFFICE AREA 1ST LEVEL VIEW OF BUILDING LAYOUT SCALE: 1"= 300'

# Appendix H Incident/Accident/Exposure Report Form



# Contractor or subcontractor Incident report of equal detail may be used

| Check                               | x incident                                                                        |                                                                                             |                                                                |                                                    |
|-------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------|
| _<br>_<br>_                         | Class I<br>Class II<br>Class III                                                  |                                                                                             |                                                                |                                                    |
|                                     |                                                                                   | Preliminary Incid                                                                           | dent Report                                                    |                                                    |
| Person Coi                          | mpleting Report:                                                                  |                                                                                             | Date:                                                          | Incident Date:                                     |
| Incident Ti                         | me:Location                                                                       | 1:                                                                                          |                                                                |                                                    |
| Person Inv                          | olved in Incident:                                                                |                                                                                             | Telephon                                                       | e:                                                 |
| Driver Nan                          | ne (if motor vehicle accid                                                        | lent):                                                                                      | _Telephone:                                                    |                                                    |
| Type of Inc                         | cident:                                                                           |                                                                                             |                                                                |                                                    |
| □ Chemi<br>□ Equipi<br>□ Spill/Ro   | nal Injury/Illness<br>ical Exposure<br>ment Damage<br>elease<br>t/Code Compliance | □ Near Miss Event □ Unsafe Condition □ Motor Vehicle Ad □ Property Damage □ Newspaper/Radio | ccident<br>e                                                   | ☐ Other☐ Fire/Explosion☐ Theft☐ Customer Incident☐ |
|                                     |                                                                                   | VIN # Preventable/Non-prevent                                                               |                                                                |                                                    |
|                                     | _                                                                                 | o, go to next section) (If AK                                                               |                                                                | e complete First Report)                           |
| ☐ First Ai<br>☐ Hospita<br>☐ Medica | d Only                                                                            | , go to next section, (ii / iii                                                             | Person Injured:  AKT Peerless Er  Subcontractor  Customer/Publ | nployee                                            |
| Nature of                           | Injury, Illness or Exposure                                                       | 2:                                                                                          |                                                                |                                                    |
|                                     |                                                                                   |                                                                                             |                                                                |                                                    |
|                                     |                                                                                   |                                                                                             |                                                                |                                                    |
|                                     |                                                                                   |                                                                                             |                                                                |                                                    |
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|                                     |                                                                                   |                                                                                             |                                                                |                                                    |
|                                     |                                                                                   |                                                                                             |                                                                |                                                    |



|        | be nature of incident, how it occurred, w<br>h additional sheets if necessary) | rho was invol  | ved, witnesses and possible causal factors: |
|--------|--------------------------------------------------------------------------------|----------------|---------------------------------------------|
|        |                                                                                |                |                                             |
|        |                                                                                |                |                                             |
|        |                                                                                |                |                                             |
|        |                                                                                |                |                                             |
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|        |                                                                                |                |                                             |
|        |                                                                                |                |                                             |
|        |                                                                                |                |                                             |
|        | First Report of Injury Attached                                                |                | Police Report Attached                      |
| Descri | be immediate actions taken and persons                                         | notified: (Att | ach additional sheets if necessary)         |
|        |                                                                                |                |                                             |
|        |                                                                                |                |                                             |
|        |                                                                                |                |                                             |
|        |                                                                                |                |                                             |
| Line M | fanager (Responsible for Follow-up):                                           |                | Office:                                     |

# Incident Reporting Guide

| Class of Incident                                                |                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Class I: A minor incident that is dealt with at the local level. |                                                                                                                   | Class II: A serious incident requiring immediate distribution and notification as described below and on the first page.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Class III: A highly significant incident requiring immediate notification and assistance from Company Health and Safety Officer                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| •                                                                | First Aid injury  Minor damage <\$200  Non-reportable quantity spill  Near miss event  Unsafe condition or action | <ul> <li>Personal injury (more than first aid to employee, subcontractor or public)</li> <li>Any motor vehicle accident</li> <li>Damage to or theft of property valued greater than \$200, but less than \$10,000</li> <li>Near miss incident that could have been very serious</li> <li>Fire/Explosion</li> <li>Non-emergency notification of regulatory agency is required</li> <li>Served with subpoena or a citation by a regulating agency. (DO NOT ACCEPT. Have subpoena delivered to the Farmington, Michigan office; no written investigation report is required for a subpoena)</li> </ul> | <ul> <li>Possible Lost Work Day Injury</li> <li>Hospitalization (of one or more persons)</li> <li>Multiple injury of employees, subcontractors or public</li> <li>Unprotected chemical exposure</li> <li>Death</li> <li>Damage to or theft of property valued greater than \$10,000</li> <li>Reportable quantity spill release</li> <li>Emergency notification of regulatory agency</li> <li>Regulatory agency response to incident site (inspection)</li> <li>Contact or appearance of news or public media</li> </ul> |  |  |  |
|                                                                  |                                                                                                                   | Notification Actions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| •                                                                | On-scene person notifies Project Manager immediately by phone                                                     | On-scene person notifies     Project Manager immediately     by phone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | On-scene person notifies     Project Manager immediately     by phone                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| ?                                                                | Provide PIR form to Project<br>Manager and H&S<br>Representative immediately<br>following the incident            | <ul> <li>Project Manager notifies the<br/>HSO with PIR form<br/>immediately following the<br/>incident</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <ul> <li>Project Manager immediately<br/>notifies Location Manager and<br/>HSO. PIR form is provided by<br/>fax immediately to (248) 615-<br/>1334</li> </ul>                                                                                                                                                                                                                                                                                                                                                           |  |  |  |
| ?                                                                | Project Manager investigates<br>and follows up within 48<br>hours                                                 | <ul> <li>Project Manager provides a<br/>detailed final investigation<br/>report within 48 hours after<br/>the original PIR is submitted</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                  | An incident management team conferences by phone and formulates an action plan                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  |

Appendix I

Daily Site Safety Meeting Record Form

Site Safety Meeting Checklist

Weekly Contractor Equipment Evaluation Form

# **Daily Site Safety Meeting Record**

All personnel participating in the project must receive initial on-site Health and Safety Orientation. Thereafter, daily site safety briefings (tailgate meetings) are required prior to the start of each work day or work shift for personnel to discuss health and safety issues, project procedures, exposure incidents, potential up-coming changes in operations, or site conditions not accounted for in this HASP and/or more stringent contractor or subcontractor HASPs associated with this project. All site personnel must acknowledge attendance of the daily site safety briefings by signing below. Insert additional pages as necessary.

| Date | Topics | Name of Attendee | Firm Name | Signature |
|------|--------|------------------|-----------|-----------|
|      |        |                  |           |           |
|      |        |                  |           |           |
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|      |        |                  |           |           |

# **Safety Meeting Checklist**

The SM should consider discussing the following topics with all personnel conducting work as part of this HASP, as applicable.

| CK TOPIC(S) DISCUSSED:                                                                                                                                                                                    |                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HASP Content  ☐ Chemicals of Concern  ☐ Tasks to be Performed  ☐ Location of Tasks  ☐ Hazards/Risks of Tasks  ☐ Site Limitations (e.g., cell phone use)  First Aid  ☐ Facilities  ☐ Reporting and Records | HASP Content  Personnel On-Site (Introductions) Responsibilities Monitoring equipment Other Other Industrial Sanitation and Hygiene Drinking water Restrooms/Porta toilets   |
| ☐ Treatment of                                                                                                                                                                                            | ☐ Personal Cleanliness                                                                                                                                                       |
| Personal Protective Equipment  Glasses, Goggles, and Shields Hard Hats Gloves Gloves Other                                                                                                                | Housekeeping  ☐ Waste Containers  ☐ Waste Materials  ☐ Other                                                                                                                 |
| Emergency Procedures                                                                                                                                                                                      | Fire Prevention                                                                                                                                                              |
| <ul> <li>□ Communications</li> <li>□ Primary Rally Point:</li> <li>□ Secondary Rally Point:</li> <li>□ Headcount</li> <li>□ Hospital Location/Route</li> <li>□ PPE/Decon</li> <li>□ Other</li> </ul>      | <ul> <li>Extinguisher Locations</li> <li>Designated Smoking Areas</li> <li>Hot Work</li> <li>Flammable Liquids Present</li> <li>Explosives Present</li> <li>Other</li> </ul> |
| Special Tools / Equipment                                                                                                                                                                                 | Vehicles/Heavy Equipment                                                                                                                                                     |
| □ Other                                                                                                                                                                                                   | <ul> <li>Transportation of Personnel</li> <li>Operation and Inspection</li> <li>Preventative Maintenance</li> <li>Other</li> </ul>                                           |

# **Equipment Pre-Operation Inspection Form**

A manufactures equipment specific checklist can be used in lieu of this form. Completed copies of this form must be provided to and maintained by the contractor's supervisor.

| Date:      | Hours Start: |
|------------|--------------|
| Equipment: | Hours End:   |
| Operator:  | Shift:       |

| Check Before Operating                               | OK | NR | Comments |
|------------------------------------------------------|----|----|----------|
| Seat Belts                                           |    |    |          |
| Back-up Alarm                                        |    |    |          |
| Brakes                                               |    |    |          |
| Pins                                                 |    |    |          |
| Steering Components                                  |    |    |          |
| Speedometer                                          |    |    |          |
| Tires (Air Pressure, Lug Nuts)                       |    |    |          |
| Fluid Leaks                                          |    |    |          |
| Fluid Levels                                         |    |    |          |
| Lights (head, tail, brake, clearance, hazard, panel) |    |    |          |
| Fire Extinguisher                                    |    |    |          |
| Glass/Mirrors                                        |    |    |          |
| Horn Operable                                        |    |    |          |
| Grab Irons/Handles/Steps/Ladders                     |    |    |          |
| Operators Seat                                       |    |    |          |
| Suspension                                           |    |    |          |
| Doors                                                |    |    |          |
| Exhaust System                                       |    |    |          |
| Air Cleaners                                         |    |    |          |
| Hoist Cylinders                                      |    |    |          |
| Canopy/Guards                                        |    |    |          |
| Gauges and All Other warning Devices                 |    |    |          |
| Starter                                              |    |    |          |
| Switches                                             |    |    |          |
| Wiring                                               |    |    |          |
| Other:                                               |    |    |          |
| Other:                                               |    |    |          |
| Other:                                               |    |    |          |

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Appendix D
Safety Data Sheets

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Version No. 13000-18C Issue Date: August 8, 2018 Supersedes Date: May 31, 2018 OSHA HCS-2012 / GHS

#### **Section 1: IDENTIFICATION**

**Product Name:** Simple Green® All-Purpose Cleaner

**Additional Names:** 

**Manufacturer's Part Number:** \*Please refer to Section 16

**Recommended Use:** Cleaner & Degreaser for water tolerant surfaces.

**Restrictions on Use:** Do not use on non-rinsable surfaces.

**Company:** Sunshine Makers, Inc. **Telephone:** 800-228-0709 ● 562-795-6000 *Mon – Fri, 8am – 5pm PST* 

15922 Pacific Coast Highway Fax: 562-592-3830

Huntington Beach, CA 92649 USA **Email:** info@simplegreen.com

**Emergency Phone:** Chem-Tel 24-Hour Emergency Service: 800-255-3924

#### Section 2: HAZARDS IDENTIFICATION

This product has been assessed in accordance to 2012 OSHA Hazard Communication Standards (29 CFR 1910.1200) and has been determined to not be classifiable as hazardous.

OSHA HCS 2012 Label Elements

Signal Word: None Hazard Symbol(s)/Pictogram(s): None required

**Hazard Statements:** None **Precautionary Statements:** None

Hazards Not Otherwise Classified (HNOC): None

Other Information: None Known

#### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

| <u>Ingredient</u>               | CAS Number          | Percent Range |
|---------------------------------|---------------------|---------------|
| Water                           | 7732-18-5           | > 84.8%*      |
| C9-11 Alcohols Ethoxylated      | 68439-46-3          | < 5%*         |
| Sodium Citrate                  | 68-04-2             | < 5%*         |
| Sodium Carbonate                | 497-19-8            | < 1%*         |
| Tetrasodium Glutamate Diacetate | 51981-21-6          | < 1%*         |
| Citric Acid                     | 77-92-9             | < 1%*         |
| Methylchloroisothiazolinone     | 26172-55-4          | < 0.002%*     |
| Methylisothiazolinone           | 2682-20-4           | < 0.001%*     |
| Fragrance                       | Proprietary Mixture | < 1%*         |
| Liquitint Colorant              | Proprietary Mixture | < 1%*         |

stspecific percentages of composition are being withheld as a trade secret

#### **Section 4: FIRST-AID MEASURES**

Inhalation:Not expected to cause respiratory irritation. If adverse effect occurs, move to fresh air.Skin Contact:Not expected to cause skin irritation. If adverse effect occurs, rinse skin with water.Eye Contact:Not expected to cause eye irritation. If adverse effect occurs, flush eyes with water.

**Ingestion:** May cause upset stomach. Drink plenty of water to dilute. See section 11.

**Most Important Symptoms/Effects, Acute and Delayed:** None known.

Indication of Immediate Medical Attention and Special Treatment Needed, if necessary: Treat symptomatically

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## Section 5: FIRE-FIGHTING MEASURES

Suitable & Unsuitable Extinguishing Media: Use Dry of

Specific Hazards Arising from Chemical:

Use Dry chemical, CO2, water spray or "alcohol" foam. Avoid high volume jet water.

In event of fire, fire created carbon oxides may be formed.

**Special Protective Actions for Fire-Fighters:** Wear positive pressure self-contained breathing apparatus; Wear full protective

clothing.

This product is non-flammable. See Section 9 for Physical Properties.

#### Section 6: ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures:** For non-emergency and emergency personnel: See section 8 – personal protection. Avoid eye contact. Safety goggles suggested.

**Environmental Precautions:** Do not allow into open waterways and ground water systems.

Methods and Materials for Containment and Clean Up: Dike or soak up with inert absorbent material. See section 13 for disposal considerations.

### **Section 7: HANDLING AND STORAGE**

**Precautions for Safe Handling:** Ensure adequate ventilation. Keep out of reach of children. Keep away from heat, sparks, open flame and direct sunlight. Do not pierce any part of the container. Do not mix or contaminate with any other chemical. Do not eat, drink or smoke while using this product.

**Conditions for Safe Storage including Incompatibilities:** Keep container tightly closed. Keep in cool dry area. Avoid prolonged exposure to sunlight. Do not store at temperatures above 109°F (42.7°C). If separation occurs, mix the product for reconstitution.

#### Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure Limit Values:** No components listed with TWA or STEL values under OSHA or ACGIH.

**Appropriate Engineering Controls:** Showers, eyewash stations, ventilation systems

Individual Protection Measures / Personal Protective Equipment (PPE)

Eye Contact: Use protective glasses or safety goggles if splashing or spray-back is likely.

Respiratory: Use in well ventilated areas or local exhaust ventilations when cleaning small spaces.

Skin Contact: Use protective gloves (any material) when used for prolonged periods or dermally sensitive.

General Hygiene Considerations: Wash thoroughly after handling and before eating or drinking.

#### Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| Appearance:                               |                                                             | Green Liquid       |                                                | Partition Coefficient: n-octanol/water:  |                            |                                         | r: Not determined |       |
|-------------------------------------------|-------------------------------------------------------------|--------------------|------------------------------------------------|------------------------------------------|----------------------------|-----------------------------------------|-------------------|-------|
| Odor:                                     |                                                             | Added sa           | assafras odor                                  | Autoignition Temperature:                |                            |                                         | Non-flammable     |       |
| Odor Threshold:                           |                                                             | Not dete           | rmined                                         | Decomposition Temperatur                 | Decomposition Temperature: |                                         | 42.7°C (109°F)    |       |
| <b>pH</b> ASTM D-1293:                    |                                                             | 8.5 – 9.2          |                                                | Viscosity:                               | Viscosity:                 |                                         | Like water        |       |
| Freezing Point ASTM D-1177:               |                                                             | 0-3.33°C (32-38°F) |                                                | 1.01 – 1.03                              |                            |                                         |                   |       |
| <b>Boiling Point &amp; Range</b> ASTM D-1 | 120:                                                        | 101°C (213.8°F)    |                                                | VOCs:                                    | **Water &                  | *Water & fragrance exemption in calcula |                   |       |
| Flash Point ASTM D-93:                    |                                                             | > 212°F            |                                                | SCAQMD 304-91 / EPA 24:                  | 0 g/l                      | - [                                     | 0 lb/gal          | 0%    |
| Evaporation Rate ASTM D-1901:             |                                                             | ½ Butyl /          | Acetate @ 25°C                                 | CARB Method 310**:                       | 2.5 g/                     | L.                                      | 0.021 lb/gal      | 0.25% |
| Flammability (solid, gas):                |                                                             | Not applicable     |                                                | SCAQMD Method 313: Not tested            |                            | Not tested                              |                   |       |
| Upper/Lower Flammability or Ex            | /Lower Flammability or Explosive Limits: Not applicable VOC |                    | VOC Composite Partial Pressure: Not determined |                                          | determined                 |                                         |                   |       |
| Vapor Pressure ASTM D-323:                | 0.60 PS                                                     | SI @77°F,          | 2.05 PSI @100°F                                | Relative Density ASTM D-4017: 8.42 – 8.5 |                            | 2 – 8.59 lb/gal                         |                   |       |
| Vapor Density:                            |                                                             | Not dete           | rmined                                         | Solubility: 100                          |                            | 1009                                    | 0% in water       |       |

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#### Section 10: STABILITY AND REACTIVITY

**Reactivity:** Non-reactive.

Chemical Stability: Stable under normal conditions 70°F (21°C) and 14.7 psig (760 mmHg).

Possibility of Hazardous Reactions: None known.

**Conditions to Avoid:** Excessive heat or cold.

**Incompatible Materials:** Do not mix with oxidizers, acids, bathroom cleaners, or disinfecting agents.

Hazardous Decomposition Products: Normal products of combustion - CO, CO2.

#### Section 11: TOXICOLOGICAL INFORMATION

**Likely Routes of Exposure:** Inhalation - Overexposure may cause headache.

Skin Contact - Not expected to cause irritation, repeated contact may cause dry skin.

Eye Contact - Not expected to cause irritation. Ingestion - May cause upset stomach.

Symptoms related to the physical, chemical and toxicological characteristics: no symptoms expected under typical use conditions. Delayed and immediate effects and or chronic effects from short term exposure: no symptoms expected under typical use conditions. Delayed and immediate effects and or chronic effects from long term exposure: headache, dry skin, or skin irritation may occur. Interactive effects: Not known.

**Numerical Measures of Toxicity** 

Acute Toxicity: Oral LD<sub>50</sub> (rat) > 5 g/kg body weight

Dermal LD<sub>50</sub> (rabbit) > 5 g/kg body weight

Calculated via OSHA HCS 2012 / Globally Harmonized System of Classification and Labelling of Chemicals

**Skin Corrosion/Irritation:** Non-irritant per Dermal Irritection® assay modeling. No animal testing performed.

**Eye Damage/Irritation:** Non/Minimal irritant per Ocular Irritection® assay modeling. No animal testing performed.

Germ Cell Mutagenicity: Mixture does not classify under this category.
Carcinogenicity: Mixture does not classify under this category.
Reproductive Toxicity: Mixture does not classify under this category.
STOT-Single Exposure: Mixture does not classify under this category.
STOT-Repeated Exposure: Mixture does not classify under this category.
Aspiration Hazard: Mixture does not classify under this category.

#### Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of

Classification and Labelling of Chemicals.

Aquatic: Aquatic Toxicity - Low, based on OECD 201, 202, 203 + Microtox: EC<sub>50</sub> & IC<sub>50</sub> ≥100 mg/L. Volume of ingredients used

does not trigger toxicity classifications under the Globally Harmonized System of Classification and Labelling of

Chemicals.

**Terrestrial:** Not tested on finished formulation.

Persistence and Degradability: Readily Biodegradable per OCED 301D, Closed Bottle Test. Reaches 100% biodegradability within

1 year or less.

Bioaccumulative Potential:No data available.Mobility in Soil:No data available.Other Adverse Effects:No data available.

#### Section 13: DISPOSAL CONSIDERATIONS

**Unused or Used Liquid:** May be considered hazardous in your area depending on usage and tonnage of disposal – check with local, regional, and or national regulations for appropriate methods of disposal.

**Empty Containers:** May be offered for recycling.

Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

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#### **Section 14: TRANSPORT INFORMATION**

**U.N. Number:** Not applicable

U.N. Proper Shipping Name: Cleaning Compound, Liquid NOI

Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Marine Pollutant - NO

Transport in Bulk (according to Annex II of MARPOL 73/78 and IBC Code): Unknown.

Special precautions which user needs to be aware of/comply with, in connection None known.

with transport or conveyance either within or outside their premises:

U.S. (DOT) / Canadian TDG: Not Regulated for shipping. ICAO/ IATA: Not classified as Hazardous IMO / IDMG: Not classified as Hazardous ADR/RID: Not classified as Hazardous

#### **Section 15: REGULATORY INFORMATION**

All components are listed on: TSCA and DSL Inventory.

**SARA Title III:** Sections 311/312 Hazard Categories – Not applicable.

Sections 313 Superfunds Amendments and Reauthorizations Act of 1986 – Not applicable.

Sections 302 – Not applicable.

<u>Clean Air Act (CAA):</u> Not applicable <u>Clean Water Act (CWA):</u> Not applicable

<u>State Right To Know Lists:</u> No ingredients listed <u>California Proposition 65:</u> No ingredients listed

**Texas ESL:** 

**Ethoxylated Alcohol** 68439-46-3 60 μg/m<sup>3</sup> long term 600 μg/m<sup>3</sup> short term **Sodium Citrate** 68-04-2 5 μg/m<sup>3</sup> long term 50 μg/m<sup>3</sup> short term Sodium Carbonate 497-19-8 5 μg/m<sup>3</sup> long term 50 μg/m<sup>3</sup> short term Citric Acid 77-92-9 10 μg/m³ long term 100 μg/m<sup>3</sup> short term

This product has been classified as "not classifiable as hazardous" in accordance with Consumer Product Safety Commission (16 CFR Chapter 2), and labelled and packaged accordingly.

#### **Section 16: OTHER INFORMATION**

| <u>Size</u> | <u>UPC</u>   | <u>Size</u>                    | <u>UPC</u>   |
|-------------|--------------|--------------------------------|--------------|
| 2 fl. oz.   | 043318131035 | 67.6 fl. oz.                   | 043318130144 |
| 4 fl. oz.   | 043318130014 | 67.6 fl. oz.                   | 043318000393 |
| 16 fl. oz.  | 043318130021 | 1 gallon                       | 043318000799 |
| 22 fl. oz.  | 043318130229 | 1 gallon                       | 043318130052 |
| 24 fl. oz.  | 043318130137 | 1 gallon                       | 043318004957 |
| 32 fl. oz.  | 043318002557 | 1 gallon w/ dilution bottle    | 043318480492 |
| 32 fl. oz.  | 043318130335 | 140 fl. oz. w/ dilution bottle | 043318001468 |
| 32 fl. oz.  | 043318000652 | 2.5 gallon                     | 043318004889 |
|             |              |                                |              |

USA items listed only. Not all items listed. USA items may not be valid for international sale.

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#### Section 16: OTHER INFORMATION - continued

NFPA:

Health – None Stability – Stable Flammability – Non-flammable Special - None



**Acronyms** 

NTP National Toxicology Program IARC International Agency for Research on Cancer OSHA Occupational Safety and Health Administration CPSC Consumer Product Safety Commission

TSCA Toxic Substances Control Act DSL Domestic Substances List

**Prepared / Revised By:** Sunshine Makers, Inc., Regulatory Department.

This SDS has been revised in the following sections: Clarification on hazards in section 2, expanded transparency in section 3, revised layout in

section 9, 14 & 16, added statement in section 15.

**DISCLAIMER**: The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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Appendix E
Sampling and Analysis Plan

# SAMPLING AND ANALYSIS PLAN

CLOSED LOOP REFINING & RECOVERY 1655 AND 1675 WATKINS ROAD COLUMBUS, OHIO 43207

EPA ID No. OHR000167718

EnSafe Project Number: 0888823935/007

Prepared for:

Garrison Southfield Park LLC 1290 Avenue of the Americas Suite 914 New York, New York 10104

April 2020

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# **ATTACHMENTS**

Attachment A Standard Operating Procedures



#### 1.0 INTRODUCTION

The purpose of this Sampling and Analysis Plan (SAP) is to present the procedures for conducting and documenting sample collection and analytical procedures for the Closed Loop Refining & Recovery (Closed Loop) facility in Columbus, Ohio (referred to herein as the "subject property" or the "Closed Loop facility"), as shown in Figure 1. Closed Loop accepted electronic waste (e-waste) at the subject property from 2012 through early 2016, when they ceased operations and abandoned the subject property. Closed Loop's principal operations involved the receipt, storage, and disassembling cathode ray tubes (CRTs), projection televisions, and other electronic waste (collectively referred to as "CRT-related materials"). The subject property currently maintains containerized CRT-related materials (including processed CRT-glass), CRT demanufacturing areas, and residual lead dust contamination that will be addressed as part of the Resource Conservation Recovery Act (RCRA) Closure Plan associated with this SAP. This SAP also fulfills the requirements for sampling and analysis plans for Comprehensive Environmental Response, Compensation and Liability Act removal actions under Title 40 Code of Federal Regulations Section 300.415.

A description of the facility history, previous investigation results, and the removal/decontamination activities proposed for the Closed Loop facility may be found in the RCRA Closure Plan to which this work plan is attached. Figures 2 and 3 show the layout of the facility warehouse and an approximate delineation of accumulated e-waste, associated processing areas, anticipated decontamination areas, and anticipated shipping areas.

As described in the RCRA Closure Plan, available information indicates that the Closed Loop facility previously generated lead-containing materials as a D008 hazardous waste.

As summarized in the RCRA Closure Plan, remaining RCRA metals are not anticipated to be present in waste materials associated with the subject property.







#### 2.0 SAMPLING PROTOCOLS

This section describes field methods for sample collection, sample preservation, sample shipment, sample analysis, and documentation requirements. These protocols are designed to achieve the program objectives without introducing cross contamination artifacts into the process. Table 1 provides the sampling activities anticipated for this project. Changes to sampling scope or analyte lists may require amendment of this SAP.

| Table 1 Anticipated Sampling Activities                   |                                                               |                                             |                                                               |                                  |  |  |  |
|-----------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------|----------------------------------|--|--|--|
| Monitoring Activity/<br>Classification                    | Parameter                                                     | Sampling<br>Method                          | Number of<br>Locations/Samples                                | Field Quality<br>Control Samples |  |  |  |
| Waste characterization (offsite analysis)                 | Waste characterization parameters (see Table 2)               | Waste stream sampling                       | Based on subject property reconnaissance and waste inventory  | None planned                     |  |  |  |
| Wastewater<br>Confirmation Sampling<br>(offsite analysis) | Wastewater<br>characterization<br>parameters<br>(see Table 2) | Containerized processed wastewater sampling | 100% of containerized processed wastewater prior to discharge | None planned                     |  |  |  |

Field measurements collected to assess personnel safety during invasive sampling activities are documented in the Site-Specific Health and Safety Plan (SSHP).

Data quality objectives (DQOs) for sampling activities are presented in Section 3. Detailed sampling procedures for field activities are outlined in the RCRA Closure Plan and the standard operating procedures included as Attachment A. Detailed standard operating procedures include:

- Making entries in the site logbook
- Field equipment decontamination
- Sample collection
- Packing and shipping environmental samples

### 2.1 Waste Characterization Sampling

During the Phase I and Phase II removal actions and subsequent Phase III decontamination, solid and liquid waste materials will be collected and containerized pending offsite disposal.



Prior to offsite disposal, these materials will be characterized to determine the appropriate management method.

It is currently anticipated that solid materials will consist of the following materials:

- Dust and fine-grained materials stored in 55-gallon drums or Gaylord containers
- Solid wastes contaminated with lead-containing dust
- Settled solids and filter media associated with treatment of wastewater prior to discharge to
  the City of Columbus sanitary sewer system. The wastewater treatment system is anticipated
  to include a settling tank to remove solids and a storage tank to retain treated water for
  testing prior to discharge. Depending on the efficacy of the above system, a sand filter to
  remove fines and a carbon canister to remove dissolved lead may also be required.

It is currently anticipated that liquid materials will consist of treated decontamination fluids that will be disposed via an anticipated City of Columbus industrial discharge permit; these liquids may be stored in 55-gallon drums, totes, or larger portable containers prior to discharge.

Representative samples of waste will be collected to determine the appropriate disposal methodology. The specific sampling methods selected will be dependent on the nature of the waste, its container, and its location. Only trained personnel will perform sampling. To the extent possible, disposable sampling tools will be used for sampling waste material.

Characterization samples will be analyzed for the eight RCRA metals. Analytical results will be compared against the hazardous waste regulatory levels specified in Table 5 to determine appropriate waste management. If one or more analytes exceed regulatory standards for hazardous waste, the waste will be managed as hazardous for the analytes that exceed regulatory standards. If analytical results do not meet regulatory criteria, the waste will be managed as non-hazardous.

### 2.2 Closure Performance Sampling

During the Phase III decontamination, portions of the subject property will be washed and triple rinsed. As stated in the RCRA Closure Plan, decontamination activities will be performed to a "clean debris surface;" therefore, closure performance sampling will not be required.



### 2.3 Wastewater System Sampling

During the Phase I and Phase II removal actions and subsequent Phase III decontamination, liquid wastewater with suspended solids will be collected and containerized pending appropriate waste management. It is currently anticipated that wastewater management will include onsite treatment to remove lead with subsequent verification analysis and disposal in the City of Columbus sanitary sewer system.

In the event that wastewater will be managed by disposal to the City of Columbus sanitary sewer system, untreated wastewater may be stored in 55-gallon drums, 500-gallon totes, or large portable containers (more than 1,000 gallons). Treated wastewater pending disposal in the City of Columbus sanitary sewer system will be stored in portable frac tanks up to approximately 20,000 gallons in capacity pending wastewater characterization analysis and subsequent disposal. The actual size of tanks and containers will depend on the volume of generated wastewater and treatment capacity.

Analytical results will be compared against the City of Columbus industrial discharge pretreatment standards in an effort to ensure that analytes are below regulatory limits and the wastewater can be discharged in compliance with the anticipated industrial discharge permit. If analytical results do not meet regulatory criteria, the wastewater will be retreated, or will be transported offsite for disposal as a wastewater at a commercial disposal facility, in accordance with the analytical results.

In addition to wastewater samples, accumulated solids and filter media associated with wastewater treatment, may be sampled and analyzed in accordance with Section 2.1, prior to offsite transportation and disposal.

#### 2.4 Health and Safety Sampling

Health and safety precautions including personnel protective equipment and air monitoring to be implemented while sampling will be in accordance with procedures specified in the SSHP.







#### 3.0 QUALITY ASSURANCE/QUALITY CONTROL

The overall quality assurance objective for this project is to develop and implement procedures for field sampling, chain-of-custody (COC), laboratory analysis, and reporting that will provide results that are scientifically valid at levels that are sufficient to meet DQOs. Specific procedures for sampling, COC, laboratory analysis, data reporting, internal quality control, preventive maintenance of field equipment, and corrective action are described in other sections of this SAP.

In combination, quality assurance/quality control (QA/QC) represents a set of procedures designed to produce analytical data of known and measurable quality. A useful distinction between QA and QC can be made as follows: QC represents the set of measurement procedures (spikes, blanks, replicates, calibration, etc.) used to provide overall evidence of the quality of a particular analytical batch; QA represents the set of procedures used in an effort to ensure that this evidence is available and used properly to evaluate and, if necessary, to qualify the data quality.

### 3.1 Data Quality Objectives

The QA objectives during closure of the warehouses will be in an effort to ensure that the data meet the DQOs in Table 2.

#### 3.2 Measurement Performance Criteria

Performance criteria selected for the analytical measurement systems will be in an effort to ensure the project objectives in Section 2.1 are met. The analytical data will be evaluated to achieve an acceptable level of confidence in the decisions derived from the data. The methods and the procedures used to implement and achieve the DQOs are described throughout this SAP. Data quality indicators are qualitative and quantitative descriptors used to interpret the degree of acceptability or usability of data. The five principal data quality indicators are (1) precision, (2) accuracy, (3) representativeness, (4) comparability, and (5) completeness, as described in Table 3.



|                                                                                                                                                                                                                                                 | Table 2                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                      |                                                                                                         |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--|--|--|--|
|                                                                                                                                                                                                                                                 | Data Quality Objectives                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                      |                                                                                                         |  |  |  |  |
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| Waste characterization sampling will be performed when characterization is required for disposal.  Results will be used to assess proper waste identification and will be evaluated against applicable regulatory disposal criteria in Table 5. | Does material exhibit hazardous characteristics or contain contaminants at levels above associated regulatory levels provided in Table 5? | Hazardous substance sampling for definitive waste characterization will be conducted in an effort to ensure proper disposal is completed. By identifying the contaminants present in the waste streams, proper waste identification and subsequent disposal can be completed.  Decision inputs needed for definitive waste characterization include samples from materials intended for offsite disposal, laboratory results for each analyte, and COC information. Each sample will be labeled with a distinctive sample identification before shipment for laboratory for analysis. | Initial waste characterization (generator knowledge or analytical testing) will be performed on each waste stream; subsequent analyses will be performed to identify containers that may be managed as non-hazardous waste.¹  Analytical results will be compared with the appropriate regulatory levels identified in Table 5 and as discussed in Section 2.  IF analytical results exceed regulatory levels, then waste will be identified by the appropriate waste code associated with the analyte.  Results will be reported to the Project Coordinator (or designee) and the disposal contractor who will discuss proper disposal options with field staff.  Null Hypothesis Waste concentration of each analyte is less than associated regulatory levels.  H0: Waste Concentration ≤ Waste Concentration listed in Table 5  H1: Waste Concentration > Waste Concentration listed in Table 5 | A false positive decision may cause inappropriate rejection of the null hypothesis and the inappropriate cost of waste disposal.  A false negative is the release of pollutants due to improper disposal activities. | Waste sampling locations will be selected to obtain a representative sample of the entire waste stream. |  |  |  |  |



|                                                                                                                                                                                                | Table 2                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                      |                                                                                                                |  |  |  |  |
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| 1. Problem Statement                                                                                                                                                                           | 2. Decision<br>Statement                                                                                     | 3. Data Needs and Inputs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Data Quality Objectives  4. Decision Rule                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5. Limits on<br>Decision Error                                                                                                                                                                                       | 6. Optimize<br>Sample Design                                                                                   |  |  |  |  |
| Wastewater sampling will be performed in an effort to ensure that wastewater meets discharge criteria.  Results will be evaluated against applicable regulatory discharge criteria in Table 5. | Does material contain contain contaminants at levels above associated regulatory levels provided in Table 5? | Wastewater sampling will be conducted in an effort to ensure proper disposal is completed. By identifying the contaminants and associated concentrations present in wastewater before discharge, compliance with the wastewater discharge permit will be maintained.  Decision inputs needed for definitive wastewater sample, laboratory results for each analyte, and COC information. Each sample will be labeled with a distinctive sample identification before shipment for laboratory for analysis. | <ul> <li>Wastewater sampling will be performed on treated wastewater prior to discharge to the City of Columbus sanitary sewer system.<sup>3</sup></li> <li>Analytical results will be compared with the regulatory discharge criteria identified in Table 5 and as discussed in Section 2.</li> <li>IF the analytical results exceed regulatory levels, then wastewater will be retreated and retested or will be managed for offsite disposal pursuant to analytical results.</li> <li>Results will be reported to the Project Coordinator (or designee) and the disposal contractor who will discuss disposal options with field staff.</li> <li>Null Hypothesis</li> <li>Waste concentration of each individual analyte is less than associated regulatory levels for each analyte.</li> <li>H0: Waste Concentration ≤ Waste Concentration listed in Table 5</li> <li>H1: Waste Concentration &gt; Waste Concentration listed in Table 5</li> </ul> | A false positive decision may cause inappropriate rejection of the null hypothesis and the inappropriate cost of waste disposal.  A false negative is the release of pollutants due to improper disposal activities. | Wastewater sample locations will be selected to obtain a representative sample of the entire wastewater batch. |  |  |  |  |

#### Notes:

- <sup>1</sup> Each waste stream will be characterized following Title 40 Code of Federal Regulations Sections 261.21 through 261.24, as described in Table 5.
- <sup>2</sup> Closure performance samples will be characterized as described in Table 5.
- <sup>3</sup> Wastewater samples will be characterized following Title 40 Code of Federal Regulations Part 136 and amendments thereto, as described in Table 5.

Samples will be submitted to a laboratory certified under the National Environmental Laboratory Accreditation Program or an Ohio Voluntary Action program Certified Laboratory.

COC = Chain-of-Custody H0 = Null hypothesis

H1 = Alternative hypothesis



# Table 3 Data Quality Indicators

**Precision** measures the reproducibility of measurements and methods and is defined for qualitative data as a group of values' variability compared with its average value. Precision will be assessed by comparing the laboratory duplicate results and results between matrix spike and MS. The RPD will be calculated for each pair of duplicate analysis using the following equation:

$$RPD = \frac{(S-D)}{(S+D)/2} \times 100$$

Where:

S = sample result D = duplicate result

**Accuracy** is the degree to which a given result agrees with the true value. The accuracy of an entire measurement system is an indication of any bias that exists. Spiked sample results provide information needed to assess the accuracy of analyses. Specifically, MS, and LCS %Rs are used to assess accuracy. Five % of samples analyzed are spiked with target chemicals for the MS. If the calculated %Rs for the known spike concentrations are within defined control limits set by each method, the reported sample concentrations are considered accurate. Accuracy is calculated using the following equation.

$$\% R = \frac{(SSR - SR)}{SA} \times 100$$

Where:

SSR = spike sample recovery SR = sample recovery

SA = concentration of spike added

**Representativeness** expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Representativeness is a qualitative parameter that is dependent upon the proper design of the sampling program and proper laboratory protocol. The sampling approach was designed to provide data representative of site conditions. During development of this approach, consideration was given to past waste disposal practices, existing analytical data, physical setting, and facility processes. Representativeness will be satisfied by ensuring that the RCRA Closure Plan, this sampling and analysis plan, and proper sampling techniques are used, proper analytical procedures are followed, and holding times of the samples are not exceeded by the laboratory.

**Comparability** expresses the confidence with which one data set can be compared to another. Comparability is also dependent on similar QA objectives. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring proper sampling techniques are used.

The objective of this plan is to produce a high level of comparability between data sets. Heterogeneous investigative samples make it difficult to obtain consistently high comparability values. However, the use of standard methods for sampling and analysis, reporting data in standard units, and using standard and comprehensive reporting formats will optimize the potential for high levels of data comparability.

**Completeness** is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under correct normal conditions. It is expected that 100% of the planned sampling points will be collected. Sampling locations at the facility are expected to be accessible. Laboratory analysis for this project will have a completeness goal greater than 95% to account for unanticipated results that may be rejected. Completeness can be calculated using the following equation:

$$%Completeness = \frac{No. of Valid Tests}{Total Tests Taken} x100$$

**Sensitivity** is the ability of an analytical method to detect the analyte of concern and other target compounds at the level of interest. Analytical methods will be selected that have the ability to meet regulatory levels of detection.

Notes:

%R = Percent Recovery

LCS = Laboratory Control Sample
MS = Matrix Spike Sample
OA = Ouality Assurance

RCRA = Resource Conservation Recovery Act

RPD = Relative Percent Difference

To evaluate if field or laboratory conditions may be impacting analytical sample results, reusable duplicate samples will be collected during closure performance (Section 2.2) sampling activities.



### **Duplicate Samples**

Duplicate samples are used to assess the precision of the laboratory. Parameters from both the original and duplicate set will be collected at the same time. When a duplicate sample is collected, one-half of the sampling container yield will be used to fill sample containers, while the second half of the sampling container will be used to fill the container for the same parameter in the duplicate set. One duplicate sample may be collected for every 20 wastewater samples collected.

### 3.3 Quality Control

Data quality indicators (precision, accuracy, representativeness, comparability, completeness, and sensitivity) are presented in Table 3. The fundamental QA objective with respect to accuracy, precision, and sensitivity of analytical data is to achieve the QC acceptance criteria of the analytical protocols. The laboratory will be the primary reviewer of quality control results and they will document these finding in the data package case narrative. Accuracy will be assessed by evaluating surrogate spike, MS, and LCS percent recoveries. Precision will be assessed by evaluating the results of the laboratory duplicate and matrix spike duplicate results. Duplicate samples are not planned but may be collected to assess sampling and analytical reproducibility; if collected, duplicate locations will be determined based on field conditions. Measurement performance criteria for precision and accuracy, presented in Table 5, are based on laboratory statistically derived control limits that are updated annually.

The QA objectives are that measurements be representative of the medium or operation being tested and that data resulting from sampling and analysis be comparable. Representativeness and comparability will be satisfied by adhering to the DQOs in Table 2, ensuring that proper sampling techniques are used, and following proper analytical procedures. Laboratory analysis for this project will have a completeness goal greater than 95% to account for unanticipated results that may be rejected due to elevated detection limits or severe matrix interference (which potentially may inhibit valid measurements). Sensitivity requirements are the regulatory limits presented in Table 5.







#### 4.0 SAMPLE MANAGEMENT

### 4.1 Sample Handling

Samples will generally be collected in certified, pre-cleaned, pre-preserved (if applicable) containers provided by the contracted analytical laboratory. To the extent possible, disposable sampling tools will be used for sampling waste material. Table 4 shows the sample containers, holding times, and preservation requirements for samples collected during this sampling effort.

| Table 4 Sample Containers, Holding Times, and Preservation Requirements |                                 |                             |                                                                                           |               |  |  |  |  |  |
|-------------------------------------------------------------------------|---------------------------------|-----------------------------|-------------------------------------------------------------------------------------------|---------------|--|--|--|--|--|
| Analyte                                                                 | Analytical<br>Method            | Sample Volume,<br>Container | Holding Time                                                                              | Preservation  |  |  |  |  |  |
| Waste Charac                                                            | Waste Characterization Sampling |                             |                                                                                           |               |  |  |  |  |  |
| TCLP Metals                                                             | 1311/6010D/<br>7470A            | 150 grams; plastic or glass | 180 days from collection to TCLP extraction;<br>180 days from TCLP extraction to analysis | Cool to 0-6°C |  |  |  |  |  |
| TCLP Mercury                                                            | 1311/7470A                      | 150 grams; plastic or glass | 28 days from collection to TCLP extraction;<br>28 days from TCLP extraction to analysis   | Cool to 0-6°C |  |  |  |  |  |
| Wastewater Sampling                                                     |                                 |                             |                                                                                           |               |  |  |  |  |  |
| Total Lead                                                              | E200.7                          | 500 ml plastic              | 180 days                                                                                  | Cool to 0-6°C |  |  |  |  |  |

#### Notes:

°C = Degrees Celsius

TCLP = Toxicity Characteristic Leaching Procedure

mL = Milliliter

### 4.2 Sample Identification

Samples collected during this project will be identified by a unique sample identification code. That identification code will be recorded on the sample label affixed to the sample container, in the field log and on the analytical COC form. The sample identification code will be used to track each sample as well as cross-reference sample data with other activities.

Sample identification nomenclature will include the matrix code and container identification/sample number. Matrix codes may be found at the bottom of the EnSafe Inc. COC and the following matrix codes may be applicable for this project:

LH = Liquid Waste

SC = Cement/Concrete

SL = Sludge

SN = Miscellaneous Solid/Building Materials

SQ = Soil/Solid QC Matrix

ST = Solid Waste



WQ = Water QC Matrix

WW = Waste Water

Sample identification code examples:

LH01 = Indicates a liquid waste sample collected at container identification number 1

ST15 = Indicates a solid waste sample collected at container identification number 15

An example sample label is shown on Figure 4.

### 4.3 Packaging Samples

Samples must be packed to avoid breakage during transport and prevent cross-contamination. A clean shipping container in good condition will be used. Samples will be wrapped in bubble wrap or other suitable packaging materials to prevent breakage. Sample containers will be placed inside the cooler so that they do not touch each other and cooling material (e.g., bagged ice) will be placed around and between the samples to chill them to 0-6° Celsius. Any remaining space will be filled with additional inert packaging material. A COC record describing the contents of each container will be placed in a plastic bag and placed in each container. The container will be sealed with tape and custody seals so that it cannot be opened without breaking the seal.

#### 4.4 Sample Custody

Custody is one of several factors necessary for the admissibility of environmental data as evidence in a court of law. Custody procedures help to satisfy the two major requirements for admissibility: relevance and authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final project files. Final project files, including originals of each laboratory report and purge file, are maintained under document control in a secure area.

A sample or project file is under your custody if:

- The item is in actual possession of a person
- The item is in the view of the person after being in actual possession of the person



- The item was in actual physical possession but is locked up to prevent tampering
- The item is in a designated and identified secure area

### 4.5 Field-Specific Custody Procedures

The field sampling team will be responsible for the care and custody of the collected samples until they are properly dispatched. The field team leader will review field activities in an effort to ensure/confirm that proper custody procedures are followed during the field activities. Field staff will complete a COC form to accompany each container shipped from the field to the laboratory. The following sections describe the specific field custody procedures.

### 4.5.1 Initiation of Chain-of-Custody Field Procedures

The laboratory, which is the source of the custody train, will provide pre-cleaned containers in accordance with United States Environmental Protection Agency cleaning requirements. Bottle lot documentation, in the form of bar codes or sample tags, is affixed to each bottle and is traceable throughout the lifespan of the containers. Laboratory-supplied containers are sent into the field with COC documentation, which is kept with the containers during field efforts. The containers will remain in the custody of EnSafe during sampling and will be sent to the laboratory using the COC procedures described in this section. The sampler will keep a written record of the sampling operation and the samples' identities. The sample packaging and shipment procedures summarized below will be performed in an effort to ensure that the samples will arrive at the laboratory with the COC intact.

- The field sampler is personally responsible for the care and custody of the samples until they
  are transferred or properly dispatched. As few people as possible should handle the samples.
- Sample containers will be identified by use of sample labels or tags with sample numbers, sampling locations, date/time of collection, and type of analysis. Sample labels/tags are to be completed for each sample using waterproof ink unless prohibited by weather conditions. The label/tag must remain legible and attached to the sample container, even when wet.
- Samples are accompanied by a properly completed COC form. The sample numbers and locations will be listed on the COC form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents transfer of custody of samples from the sampler to another person, to the permanent laboratory, or to/from a secure storage area.



- Samples will be properly packaged (Section 4.3) and dispatched to the appropriate laboratory
  for analysis, with a separate signed custody record enclosed in each sample container.
  The original COC form will accompany the shipment. At least one copy of the form will be
  retained by the sampler. Shipping containers will be locked and secured with strapping/
  packaging tape and custody seals for shipment to the laboratory.
- Ideally, samples will be transported to the laboratory the same day the samples are collected
  in the field. In some instances, samples may be retained by the sampler beyond the sample
  collection day. In these instances, the samples will be sent and the laboratory will be
  informed, if necessary, so that sample holding times will not be exceeded.

Official custody of samples must be maintained and documented from collection until completion of analysis. The COC will be documented. The COC procedures can provide an accurate record to trace a sample's possession and handling. Sampling personnel will record the following minimum information on the COC form:

- Sample identification number and location
- Signatures of any individuals with control over samples
- Date and time of collection
- Any preservatives used in the samples
- Additional comments (e.g., shipping information, turnaround time requirements)
- Total number of sample containers and the required analysis

Example COC forms and custody seals are shown in Figures 5 and 6, respectively.

### 4.5.2 Laboratory Chain-of-Custody Procedures

The laboratory sample custodian shall inspect the samples and record any problems encountered on the COC form or internal laboratory "discrepancy report." The sample custodian shall inspect and record the following:



- Condition of shipping container
- Temperature of shipping container
- Condition of sample containers
- Condition (including presence or absence) of custody seals on shipping containers
- Presence or absence of COC records
- Conflicting COC and sample container information
- Preservation
- Resolution of problems or discrepancies (e.g., missing documents, conflicting information, broken custody seals, broken/leaking samples, etc.)

The sample custodian shall sign COC forms and discrepancy reports. The laboratory will contact the samplers and/or Project Coordinator to resolve any discrepancies and/or problems upon sample receipt. Samples will be properly identified, logged in, and assigned the correct analyses. In addition, the sample COC will be maintained during the sample receiving and analytical processes.

The laboratory will have a specific method for maintaining identification of samples while they are in the laboratory, including sample containers, extraction/digestion vessel, and sample extract/digestate containers. The laboratory identifier shall be cross-referenced with the field sample identifier on the laboratory reports. Samples will be maintained in a secure location and will be stored in appropriate areas to maintain proper preservation requirements. Analytical data is to be kept secured and released to authorized personnel only.

#### 4.6 Final Project File Custody Procedure

The final project file will be the central repository for documents that document relevant sampling and analysis activities as described in this SAP. The Project Coordinator (or designee) will be the custodian of the project file and will maintain the contents of project files for the subject property, including relevant records, reports, logs, field notebooks, pictures, subcontractor reports, and data



reviews. The project file will be kept in a secured, limited access area that is under EnSafe custody. The final project file will include at a minimum:

- Field logbooks and other field records
- Field data and data deliverables
- Photographs
- Drawings
- Laboratory data deliverables
- Data assessment reports
- Progress reports, QA reports, interim project reports, and other reports generated
- Custody documentation (forms, air bills, etc.)
- Correspondence and other records relevant to the project



### 5.0 ANALYTICAL PROCEDURES

Table 5 provides analytical methods anticipated to be used for this project. Changes to sampling scope or analyte lists may require amendment of this SAP. Samples will be submitted to a laboratory certified under the National Environmental Laboratory Accreditation Program or an Ohio Voluntary Action program certified laboratory. This laboratory will be required to meet the DQOs specified in this plan. The precision and accuracy criteria required will be followed and documented in accordance with laboratory standard operating procedures. The laboratory will be responsible for the final disposition of any sample residuals.

Field measurements, collected to assess personnel safety during invasive sampling activities, are documented in the SSHP.



| Table 5                                                           |                      |                                       |                                            |                                  |       |                         |                        |                               |                            |                          |
|-------------------------------------------------------------------|----------------------|---------------------------------------|--------------------------------------------|----------------------------------|-------|-------------------------|------------------------|-------------------------------|----------------------------|--------------------------|
| Analytes, Regulatory Levels, and Measurement Performance Criteria |                      |                                       |                                            |                                  |       |                         |                        |                               |                            |                          |
| Analyte                                                           | Analytical<br>Method | Regulatory<br>Levels <sup>(1,2)</sup> | Laboratory<br>Method<br>Detection<br>Limit | Laboratory<br>Reporting<br>Limit | Units | LCS<br>Accuracy<br>(%R) | MS<br>Accuracy<br>(%R) | Surrogate<br>Accuracy<br>(%R) | LCS<br>Precision<br>(%RPD) | MS<br>Precision<br>(RPD) |
| Waste Characterization: TCLP Metals                               |                      |                                       |                                            |                                  |       |                         |                        |                               |                            |                          |
| Arsenic                                                           | 1311/6010D           | 5.0                                   | 0.316                                      | 2.00                             | mg/L  | 50-150                  | 75-125                 | _                             | 20                         | 20                       |
| Barium                                                            | 1311/6010D           | 100.0                                 | 0.362                                      | 20.0                             | mg/L  | 50-150                  | 75-125                 | _                             | 20                         | 20                       |
| Cadmium                                                           | 1311/6010D           | 1.0                                   | 0.0480                                     | 0.500                            | mg/L  | 50-150                  | 75-125                 | _                             | 20                         | 20                       |
| Chromium                                                          | 1311/6010D           | 5.0                                   | 0.151                                      | 1.00                             | mg/L  | 50-150                  | 75-125                 | _                             | 20                         | 20                       |
| Lead                                                              | 1311/6010D           | 5.0                                   | 0.282                                      | 1.00                             | mg/L  | 50-150                  | 75-125                 | _                             | 20                         | 20                       |
| Mercury                                                           | 1311/7470A           | 0.2                                   | 0.000130                                   | 0.0330                           | mg/L  | 80-120                  | 80-120                 | _                             | 20                         | 20                       |
| Selenium                                                          | 1311/6010D           | 1.0                                   | 0.469                                      | 1.00                             | mg/L  | 50-150                  | 75-125                 | _                             | 20                         | 20                       |
| Silver                                                            | 1311/6010D           | 5.0                                   | 0.0810                                     | 0.500                            | mg/L  | 50-150                  | 75-125                 | _                             | 20                         | 20                       |
| Wastewater Characterization: Total Metals                         |                      |                                       |                                            |                                  |       |                         |                        |                               |                            |                          |
| Lead                                                              | E200.7               | 4.0                                   | 0.010                                      | 0.100                            | mg/L  | 50-150                  | 75-125                 | _                             | 20                         | 20                       |

#### Notes:

<sup>1</sup> Waste characterization regulatory Levels were obtained from Title 40 Code of Federal Regulations Sections 261.21 through 261.24.

<sup>2</sup> Wastewater regulatory Levels were obtained from Rules and Regulations No. 02-2013 of The City of Columbus Department of Public Utilities.

Waste characterization and closure performance analyses will be performed according to *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods Compendium, SW-846 Update VI.* (U.S. EPA 2018).

Wastewater analyses will be performed according to *Selected Analytical Methods for Environmental Remediation and Recovery (SAM) 2017.* (U.S. EPA 2017). Laboratory method detection and reporting limits and measurement performance criteria are statistically-derived by the laboratory and are updated annually. Laboratory method detection and reporting limits may vary due to sample volume, matrix interferences, or necessary sample dilutions to quantify results. Changes or additions to the analyte list may require amendment of this Plan.

TCLP = Toxicity Characteristic Leaching Procedure

LCS = Laboratory control sample

MS = Matrix spike %R = Percent recovery

%RPD = Relative percent difference

mg/L = Milligrams per liter

— = Not available/not applicable



#### 6.0 FIELD INSTRUMENTATION

### 6.1 Equipment Testing, Inspection, and Maintenance

The field equipment detailed in the SSHP will be used to assess personnel safety during invasive sampling activities.

Field equipment will be checked for operation in accordance with the manufacturer's specifications. This includes battery checks and routine replacement of parts. Equipment will be inspected when first handed out and when returned from use for damage. Field personnel will be responsible for inspecting equipment before use and they will follow the manufacturer's instructions for assembly, operation, and maintenance. If a field instrument proves faulty, the equipment will be taken out-of-service until corrective action can be performed to return the unit to working order. If appropriate, a substitute unit will be delivered to the site in an effort to ensure that the integrity of the work is not compromised.

The preventive maintenance of field equipment is described in detail in the associated manufacturer's equipment manuals. Records of equipment maintenance will be maintained in the field logbook or on field forms. Maintenance records for leased equipment must be kept by the vendor and made available upon request.

Laboratory preventive maintenance will be implemented in accordance with the Laboratory's QA Manual. At a minimum, major instrumentation will have associated records and logbooks, including schedules and criteria for maintenance.

#### 6.2 Instrument/Equipment Calibration and Frequency

Calibration is the process by which the correlation between instrument response and actual value of a measured parameter is determined. The laboratory will calibrate analytical instruments in accordance with the United States Environmental Protection Agency's published methods, the Laboratory QA Manual, and associated procedures.

Field equipment will be calibrated according to manufacturer's specifications. Field personnel will verify that the calibration requirements have been met for instruments used and that equipment is in proper working condition prior to use. They will document acceptable calibration and calibration verification for each instrument unit and field test or analysis, linking this record with affected sample measurements. Instruments may also be re-calibrated during the day if field personnel consider it



necessary. Instrument calibration will be recorded in the field logbook or on project-specific calibration forms.

Whenever field measurements fall outside acceptance limits, corrective action should be taken to bring the analysis back into control. The corrective action should include: (1) finding the cause of the problem, (2) correcting the problem, including replacing equipment, (3) demonstrating the problem has been corrected by reanalyzing appropriate laboratory reference samples, if necessary, and (4) repeating the analyses of any investigative samples that may have been affected by the control problem, if necessary. Any preventative or corrective maintenance completed will be documented in the field logbook or on project-specific calibration forms.

### 6.3 Inspection/Acceptance of Supplies and Consumables

Supplies and consumables will be inspected upon receipt and prior to use. Consumables such as baggies, plastic sheeting, aluminum foil, gloves, tape, etc., are expected to be used during the sampling efforts. No special requirements are needed or expected for consumables or rental equipment/supplies. If used, disposable sampling tools will be decontaminated prior to disposal or added to the waste stream sent to the offsite disposal facility. Consumables such as standards needed for field calibrations will be used only if the shelf-life has not expired. The laboratory's procedures incorporate procedures for critical supplies and consumables, including standard supply sources and acceptance criteria for tracking and retrieving these materials.

#### 6.4 Non-Direct Measurements

No data or information from non-measurement sources are expected to be used for this project.



#### 7.0 DATA MANAGEMENT

Data for this project will be produced in two locations: onsite and at the contracted laboratory.

Planned field measurements, collected to assess personnel safety during sampling activities, are documented in the SSHP. Data collected onsite will be recorded on field data worksheets and/or into field logbooks, if practical for the instrument used. When recorded, this field data will become a part of the project file.

Laboratory data management procedures are outlined in their procedures and the Laboratory QA Manual. Laboratory data will be submitted by the contracted laboratory within 28 calendar days of the laboratory's receipt of the samples. Field records and the analytical report will be submitted to the Project Coordinator (or designee) who will be responsible for ensuring the analytical report meets the RCRA Closure Plan. The procedures identified in previous sections describe recording measurements onto field forms/logbooks and COC forms. This section discusses the monitoring and controls established to track field data through field logbook completion, electronic data management, and error detection and correction.

### 7.1 Field Forms/Logbook Completion

Specific information to be included in the field forms/logbook includes:

- Date, time, and description of site conditions
- Date, time, and description of work activities
- Names of team members present
- Names, time of arrival, and time of departure of any visitors
- Number, type, date, time, and identification of any samples collected
- Health and safety data and any deviation from established standard operating procedures
- Any unusual circumstances, occurrences or SAP deviations



Procedures and instructions included in this SAP provide the guidance necessary to record information and data in field forms/logbooks and COC forms for data collection activities. Upon completion, field data and analytical sampling paperwork will be reviewed for accuracy, completeness, and legibility. Technical personnel will document and review their own work and are accountable for its correctness. Review is performed in an effort to ensure that forms are complete and legible. The Project Coordinator (or designee) will evaluate that the following has been done:

- Forms were completed using a ballpoint pen or indelible marker. Sample labels were completed with an indelible marker.
- If an error was made on any form, it was struck with a single line, the correct value written in close proximity to the old value, and the correction initialed and dated. The incorrect value was not written over or obliterated in any way.
- If any sample shipment or paperwork errors occur, they were documented on the field form/logbook or laboratory receipt documentation.

In addition, the Project Coordinator (or designee) will also evaluate that:

- The correct sample numbers were used
- The correct number and types of sample bottles were used
- Preservation was specified (where necessary)
- Corrections were dated and initialed
- COC forms were relinquished by the sampler with the correct date and time noted

#### 7.2 Electronic Data Management

A systematic approach to data management that saves time, reduces transcription errors, and decreases hard copy analytical data to a more manageable level will be used. After the samples are analyzed, the laboratory produces electronic analytical data files that are loaded into the project database. After data are loaded and checked, they can be accessed for final report preparation.



After project-completion, the database also serves as an archive for analytical data. The project database will be located on a secure network, which will be backed-up routinely.

#### 7.3 Error Detection and Correction

The Project Coordinator (or designee) will review field forms/logbooks. If any document completion errors are found during the review, the incorrect form will be sent to the individual best suited to correct the error. Errors on field forms are struck through with a single line, the correct value inserted, and the correction initialed and dated. The incorrect value will not be written over or obliterated in any way. After the form has been corrected, it will become the final version of the document, suitable for report usage. The laboratory's procedures for error detection and correction are documented in their procedures and QA Manual. Laboratory failures and subsequent actions will be reported in the final laboratory data package.

Electronic data entered into the database are spot-checked for completeness/correctness against the data package submittal. If errors are found between the data package and electronic data, either during the data loading process or during data verification/validation, the laboratory will be contacted and asked to correct and resubmit the data.







#### 8.0 DATA EVALUATION

#### 8.1 Data Review

Data generated by project activities will be reviewed against the DQOs cited in Table 2 and the QA/QC practices cited in Section 3.3. Data will be separated into three categories:

- Category 1 Data meeting each DQO,
- Category 2 Data failing to meet precision or recovery criteria, and
- Category 3 Data failing to meet accuracy criteria.

Data meeting each DQO, but with failures of QA/QC practices (Category 2), will be set aside until the impact of the failure on data quality is determined. Once determined, the data will be moved into either Category 1 or Category 3.

Data meeting each DQO (Category 1) is considered usable by the project. Data failing to meet accuracy criteria (Category 3) is considered not usable. Data failing to meet precision or recovery criteria (Category 2) will have aspects assessed. If sufficient evidence is found supporting data quality for use in this project, Category 2 data will be moved to Category 1, but will be flagged as estimated (with a J-flag) as per U.S. EPA guidelines. The Project Coordinator (or designate) will evaluate the cause of the data failures and make the decision whether to discard the data or re-sample.

#### 8.2 Verification and Validation Methods

The field data package will include logbooks, field records, and measurements obtained onsite. The package will be verified by conducting:

- A review of the field data compiled on sampling logs for completeness. Failure in this area may result in the data being invalidated for the intent of the project.
- A review of the COC forms for proper completion, signatures of field personnel, and the laboratory sample custodian, and dates. Failure in this area may result in the data being invalid for the purpose of the project.

The field team leader will review/validate the field data and any problems identified during this process will be reported to the Project Coordinator (or designate), who will include this information in the management report, as necessary. The contracted laboratory will review/validate the



laboratory data according to its procedures. Any problems identified during this process will be reported in the analytical data report.

The laboratory procedures for data reduction, validation, and reporting are included in the laboratory's Quality Assurance Project Plan. Data reduction, validation, and reporting by the laboratory will meet the criteria needed for internal data evaluation.

The analytical laboratory will provide a data package that meets Ohio EPA Tier I validation criteria and includes a summary documenting any data quality issues. Data may be reviewed externally from the laboratory, if warranted. If data review is performed, the analytical data package will be assessed by the Project Coordinator (or designate). The review will evaluate any out-of-control data points and data omissions and will interact with the laboratory to correct data deficiencies. Decisions to repeat sample collection and analyses may be made by the Project Coordinator based on the extent of the deficiencies and their importance in the overall context of the project. The analytical data package review includes, but is not limited to, review of the following:

| • Data | comp | leteness |
|--------|------|----------|
|--------|------|----------|

Holding times

Instrument tuning

Calibrations

### Blanks

MS or spike/lab duplicates

Field duplicate precision

Internal standard performance

#### Data review also includes:

- Comparison of the data package to the Regulatory Levels (Table 5) to confirm completeness.
- Comparison of sampling dates and analysis dates to check that samples were analyzed within the proper holding times.
- Review of laboratory blanks to evaluate possible contamination sources.
- Review of analytical methods and required detection limits to verify that they agree with the Quality Assurance Project Plan and the laboratory contract.



At this time, other than reviewing data for completeness, samples will not be reviewed externally for data reduction/validation.

#### 8.3 Reconciliation with User Requirements

Once the data results are compiled, the Project Coordinator, or designee, will review the data to determine if they fall within the acceptance limits as defined in this SAP. Completeness will also be evaluated to determine if the completeness goal for this project has been met. If data quality indicators do not meet the project's requirements as outlined in this SAP, the data may be discarded and re-sampling may occur. The Project Coordinator will evaluate the cause of the failure (if possible) and make the decision whether to discard the data and re-sample.





Sampling and Analysis Plan Closed Loop Refining & Recovery Columbus, Ohio Revision 0.0 April 2020



#### 9.0 REPORTING

# 9.1 Analytical Reports

Analytical reports will be generated by the contracted laboratory within 28 calendar days after receipt of the samples. The contracted laboratory will forward the analytical information to the Project Coordinator, or designee.

# 9.2 External Reports

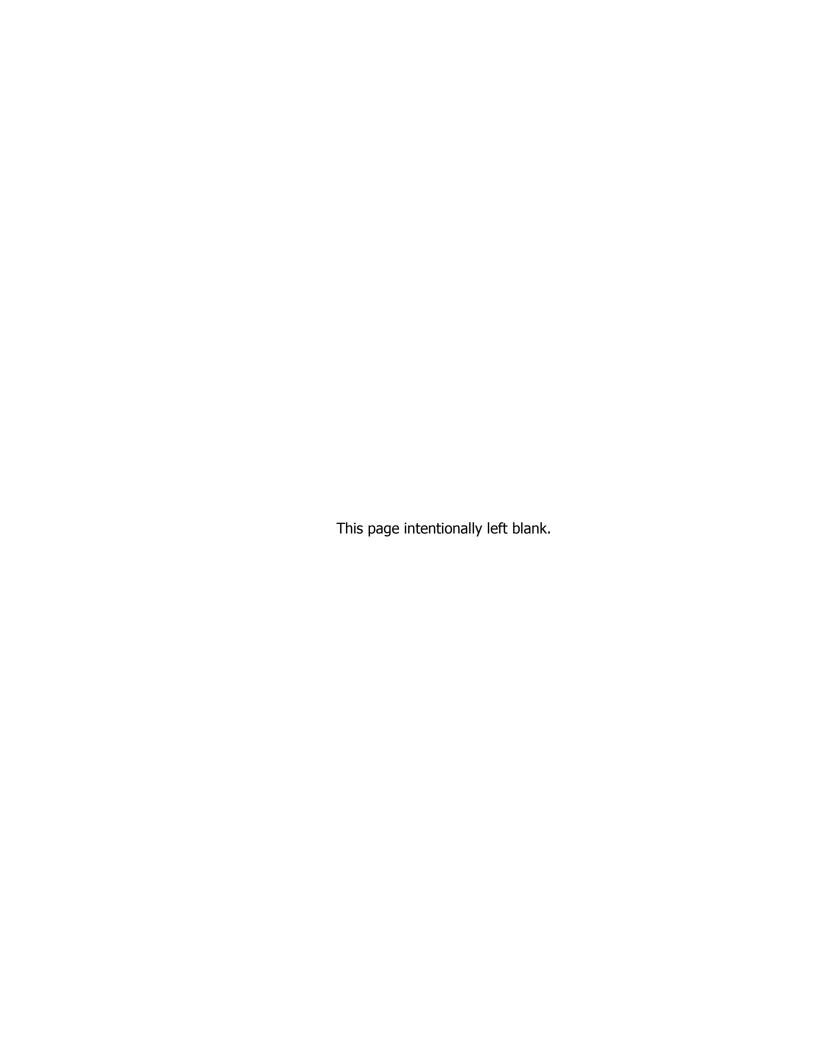
Anticipated reporting schedules are provided in the RCRA Closure Plan. Project reports will be generated by the Project Coordinator (or designate) for inclusion in the project file at the completion of the project. This report will include a summary description of project activities; a summary of data, a discussion of any problems encountered and associated corrective actions, a discussion of the conclusions drawn from the results of this project and the rationale for those conclusions, and the results of the data quality assessment.

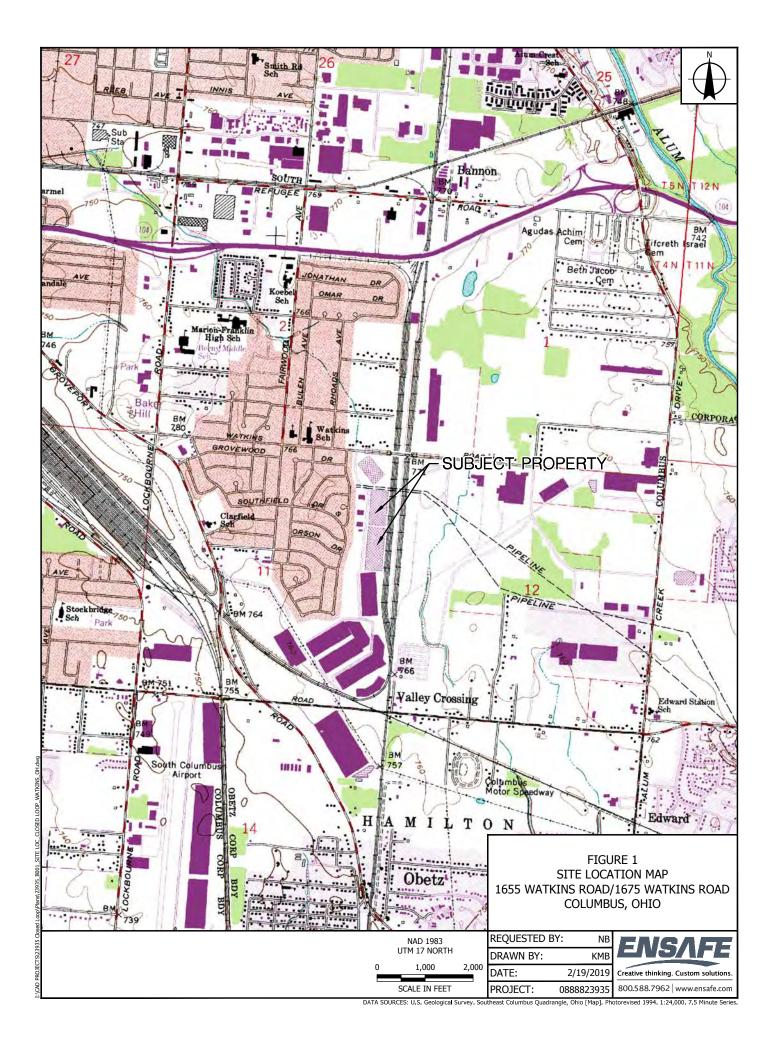




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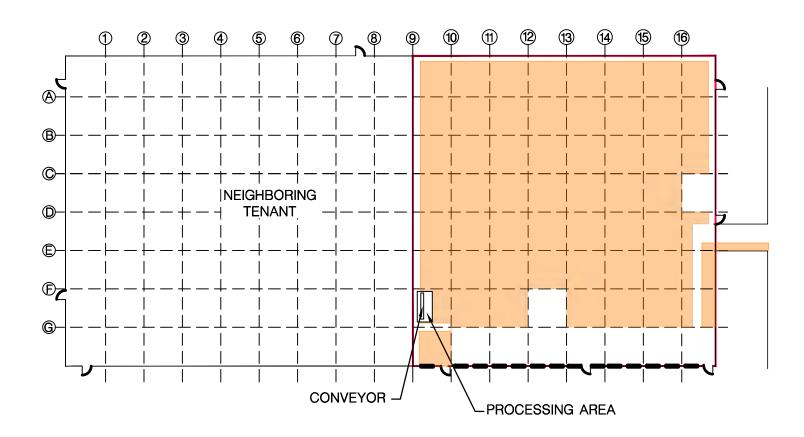


FIGURE 2 SITE LAYOUT MAP 1655 WATKINS ROAD COLUMBUS, OHIO

LEGEND

CLOSED LOOP LEASE SPACE

CRT - RELATED MATERIALS IN BOXES

LOADING DOCK DOORS

NAD 1983 STATE PLANE
OHIO SOUTH FEET

0 50 100

SCALE IN FEET

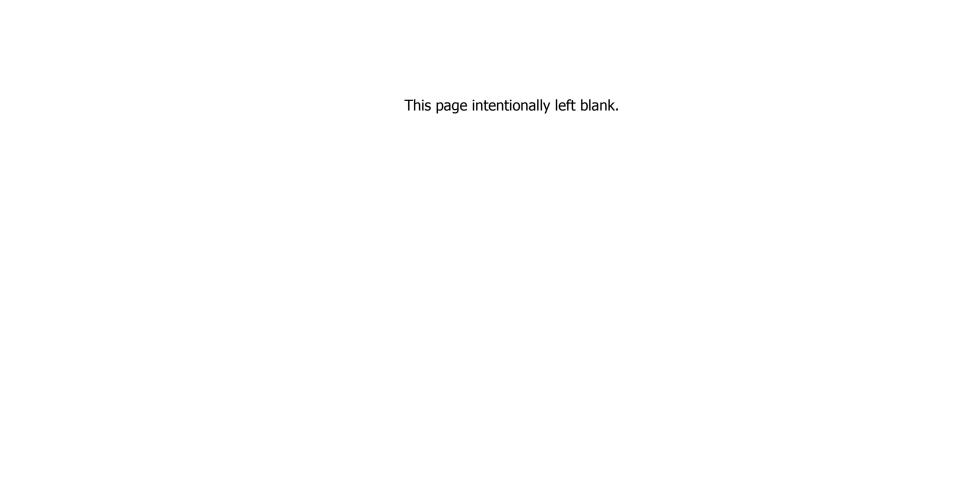
 REQUESTED BY:
 NB

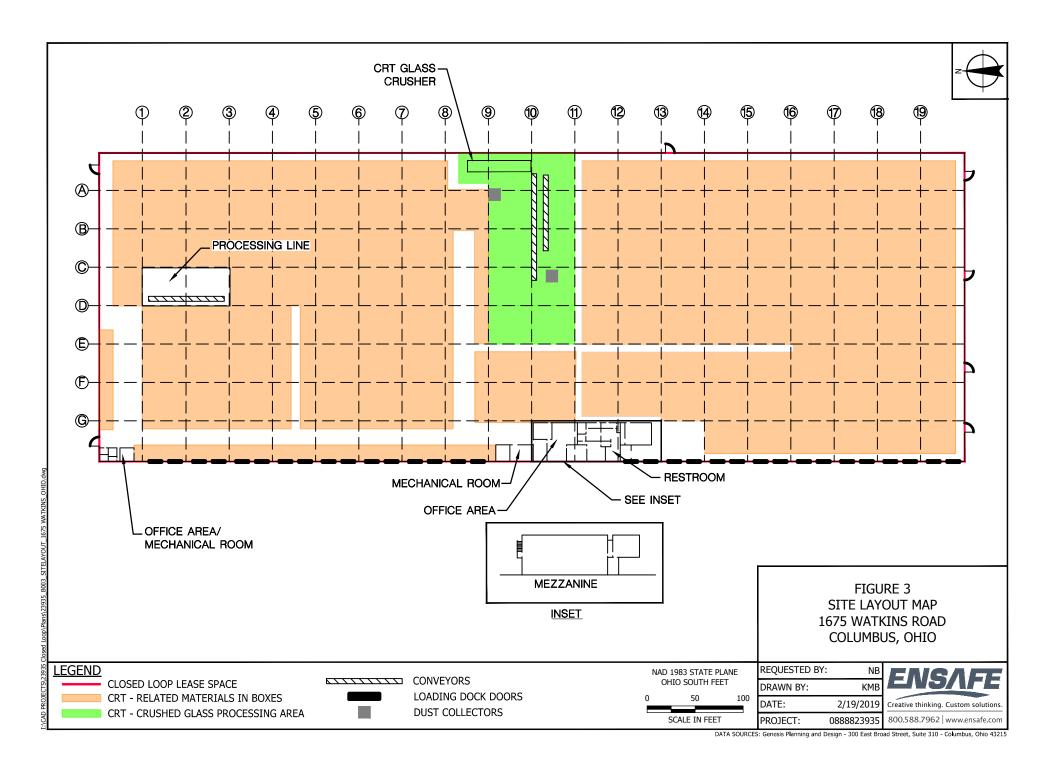
 DRAWN BY:
 KMB

 DATE:
 2/19/2019

 PROJECT:
 0888823935







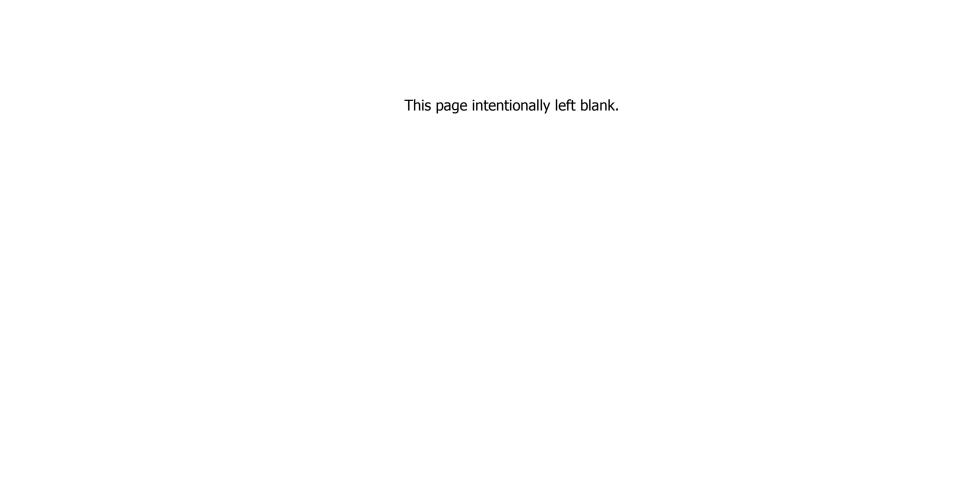


Figure 4 Example Sample Label

| ENSAFE                |              |  |  |  |  |  |
|-----------------------|--------------|--|--|--|--|--|
| EnSafe Inc.           |              |  |  |  |  |  |
| SITE NAME             | DATE         |  |  |  |  |  |
| ANALYSIS              | TIME         |  |  |  |  |  |
|                       | PRESERVATIVE |  |  |  |  |  |
| SAMPLE IDENTIFICATION |              |  |  |  |  |  |
| PROJECT NUMBER        |              |  |  |  |  |  |

# Figure 5 Example Chain of Custody Form

| CHAIN OF CUSTODY AND ANALYTICAL Project Name:  EnSafe Inc. 800-588-7962  Send Results To: |             |  | ALYTICAL R                        | L REQUEST RECORD |                              |                                                                      |                       |                            | COC No.          |              |                                                                      |   |                                                    |               |             | Page of |     |        |         |                         |      |
|-------------------------------------------------------------------------------------------|-------------|--|-----------------------------------|------------------|------------------------------|----------------------------------------------------------------------|-----------------------|----------------------------|------------------|--------------|----------------------------------------------------------------------|---|----------------------------------------------------|---------------|-------------|---------|-----|--------|---------|-------------------------|------|
|                                                                                           |             |  |                                   |                  |                              |                                                                      |                       |                            | PO No. Project N |              |                                                                      |   |                                                    | No. Phase     |             |         |     |        |         |                         |      |
|                                                                                           |             |  |                                   |                  |                              | Sample Analysis Requested (Enter number of containers for each test) |                       |                            |                  |              |                                                                      |   |                                                    |               |             |         |     |        |         |                         |      |
|                                                                                           |             |  |                                   |                  |                              |                                                                      |                       | (3)→                       | ΞĪ               |              |                                                                      |   |                                                    | 111           | LT.         |         |     |        | QSD (SD |                         |      |
| Sampler/                                                                                  | Site Phone# |  |                                   |                  |                              |                                                                      |                       |                            | ners             | TT           |                                                                      |   | - "                                                | 7.4           | 141         | -       | 177 |        |         | MS/N                    |      |
| Lab Name: Turnaround Time(specify):                                                       |             |  |                                   |                  |                              | - 1/3                                                                | of Containers         |                            |                  |              |                                                                      |   |                                                    |               |             |         |     | ne for |         |                         |      |
| Lab ID                                                                                    | Sample III  |  | Location ID<br>(sys_loc_code)     | (mm/dd/yy)       | Time<br>(Military)<br>(hhmm) | Matrix<br>Code<br>(1)                                                | Sample<br>Type<br>(2) | Field<br>Filtered<br>(Y/N) | Total No. of     |              |                                                                      |   |                                                    |               |             |         |     |        |         | Extra Volume for MS/MSD | HOLD |
|                                                                                           |             |  |                                   |                  |                              |                                                                      |                       |                            |                  |              |                                                                      |   |                                                    |               | Ë           |         |     |        |         |                         |      |
|                                                                                           |             |  |                                   |                  |                              |                                                                      |                       |                            |                  |              |                                                                      |   | H                                                  |               |             |         |     |        |         |                         |      |
| ì                                                                                         |             |  |                                   | 11-              |                              |                                                                      |                       | 144                        |                  |              |                                                                      |   |                                                    |               |             |         | Н   |        |         |                         |      |
|                                                                                           |             |  |                                   |                  |                              |                                                                      |                       |                            |                  |              |                                                                      |   |                                                    |               |             |         |     |        |         |                         |      |
|                                                                                           | 1           |  |                                   |                  |                              |                                                                      |                       | 12.1                       |                  |              |                                                                      |   |                                                    | - 1           |             |         | 11  |        |         |                         | Ei   |
|                                                                                           |             |  |                                   |                  |                              |                                                                      |                       |                            |                  |              |                                                                      |   |                                                    |               |             |         |     |        |         |                         |      |
|                                                                                           |             |  |                                   |                  |                              |                                                                      |                       |                            |                  |              |                                                                      |   |                                                    | =             |             |         |     |        |         |                         |      |
|                                                                                           |             |  |                                   |                  |                              |                                                                      |                       |                            |                  |              |                                                                      | Щ |                                                    |               |             |         |     |        |         |                         |      |
|                                                                                           |             |  |                                   |                  |                              |                                                                      |                       |                            |                  | 1            |                                                                      |   |                                                    |               | Щ           |         |     |        |         |                         | -    |
| Field Comments:                                                                           |             |  |                                   | Lab Comments:    |                              |                                                                      |                       |                            |                  | ) - 1<br>- 1 | Sample Shipment and Delivery Details  Number of coolers in shipment: |   |                                                    |               |             |         |     |        |         |                         |      |
| Relinquished by (signature) Date Time 1                                                   |             |  | Received by (signature) Date Time |                  |                              |                                                                      |                       |                            |                  |              |                                                                      |   | Samples Iced?(check) Yes No<br>Method of Shipment: |               |             |         |     |        |         |                         |      |
| 2                                                                                         |             |  |                                   |                  | 2                            |                                                                      |                       |                            |                  |              |                                                                      |   |                                                    | - 11          | Airbill No: |         |     |        |         |                         |      |
| 3                                                                                         |             |  |                                   | - 1              | 3                            |                                                                      |                       |                            |                  |              |                                                                      |   |                                                    | Date Shipped: |             |         |     |        |         |                         |      |

<sup>(1)</sup> Matrix Code: AA-Air, AQ-Air QC Matrix, CK=Caulk, GS-Soil Gas, LF=Free Product, LH=Liquid Waste, MS-Mastic, Oil-Oil, PT-Paint, SC=Cement/Concrete, SE=Sediment, SF=Filter Sandpack, SL=Sludge, SN=Miscellaneous Solid/Building Materials, SO=Soil, SQ=Soil/Soild QC Matrix, ST=Soild Waste, SW=Swab/Wipe, TA=Animal Tissue, TP=Plant Tissue, WG=Ground Water, WL=Leachate, WO=Dcean Water, WP=Drinkling Water, WQ=Water QC Matrix, WS=Surface Water, SU=Surface Water, SU=S

# Figure 6 Example Custody Seal

| ENS/\FE |
|---------|
|         |

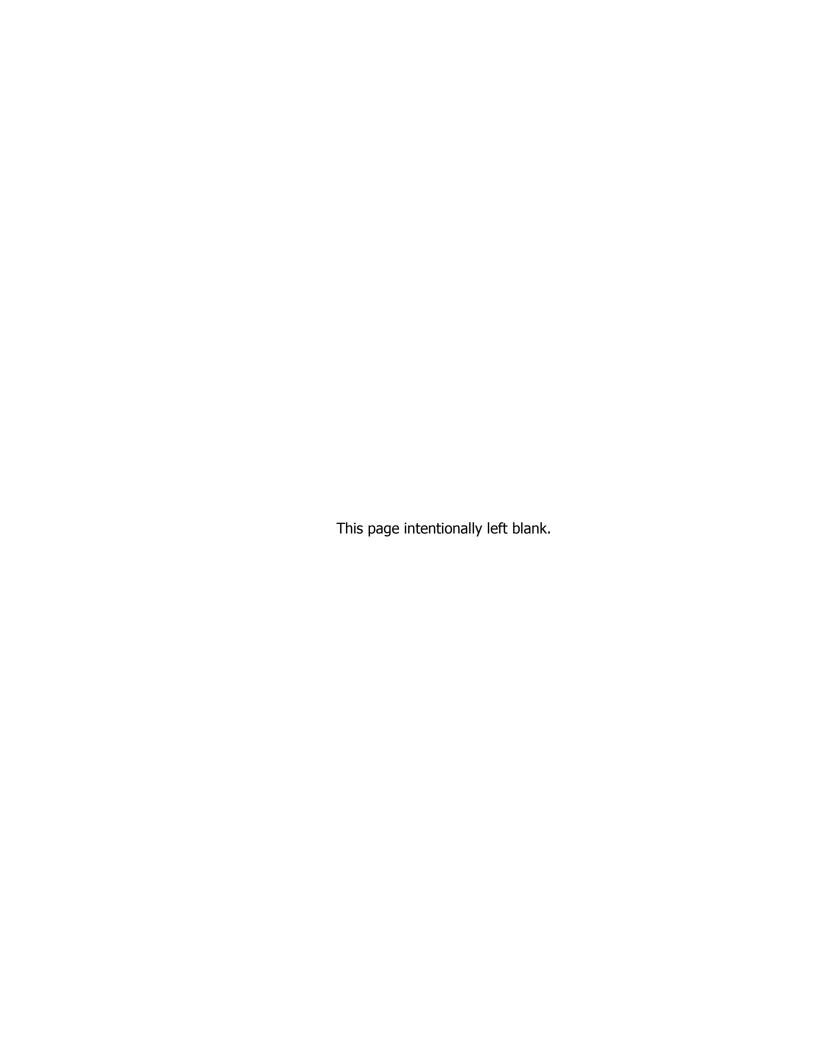
EnSafe, Incorporated 5724 Summer Trees Dr. Memphis, TN 38134

**OFFICIAL SAMPLE SEAL** 

| SAMPLE #            | DATE | SEAL BROKEN BY:     |
|---------------------|------|---------------------|
| 57 III 12 "         | 5,2  | OZNIZ DITORIZIT DIT |
|                     |      |                     |
|                     |      |                     |
| SIGNATURE           |      |                     |
| SIGNATURE           |      |                     |
|                     |      | DATE:               |
|                     |      | 57.12.              |
|                     |      |                     |
| PRINT NAME & TITLE: |      |                     |
|                     |      |                     |
|                     |      |                     |
|                     |      |                     |

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# Attachment A Standard Operating Procedures



# Standard Operating Procedure Logbooks

These standards will ensure continuity within the organization.

#### **Preamble**

This standard operating procedure (SOP) is designed to provide the user standards when making entries into a logbook. The SOP is not intended to tell the user what should be recorded in the logbook.

Before using this SOP and as part of the due diligence, the user is required to check if state and federal minimum record keeping standards need to be met. If a difference exists between state and federal SOPs then those contained herein, the state and federal SOPs takes precedent. If this SOP is modified per agreement between parties associated with the activity being recorded, the agreed changes will become part of the SOP and the modifications will be appended to this SOP for the record.

# 1.0 PURPOSE AND SCOPE

This SOP describes the activities and responsibilities pertaining to the identification, use and control of logbooks. As guidance for specific activities, this procedure does not remove the need for professional judgment. Deviations from this procedure while planning or executing planned activities must be approved by the parties responsible for such activities.

# 2.0 SAFETY

Not applicable

#### 3.0 TERMS AND DEFINITIONS

**Logbook**: A logbook is a bound field notebook with consecutively numbered, water-repellent pages that is clearly identified with the name of the relevant activity, the person assigned responsibility for maintenance of the logbook, and the beginning and ending dates of the entries.

# 4.0 TRAINING AND QUALIFICATIONS (ROLES AND RESPONSIBILITIES)

# 4.1 Project Manager

The Project Manager or project designee will be administratively responsible for logbook(s) used on a project. The Project Manager in consultation with the client will determine if and when a dedicated logbook(s) are required for a particular project. For dedicated logbook(s) the Project Manager or designee will conduct periodic audits over the course of the project to make sure the SOP is being followed. The Project Manager will setup a filing system to archive logbooks and ensure log entries are distributed per the statement of work (SOW), if required.

If the client does not request a dedicated logbook, it will be EnSafe's policy that all field activities be logged in a dedicated logbook maintained by the individual field manager(s). The logbook will contain the author's name, projects' logged, and the interval of time the logbook covers. Pages copied from the logbook will be part of the historical record of the project and achieved as such.

# 4.2 Field Manager

The Field Manager is responsible for ensuring that all field personnel follow these procedures and that the logbook(s) are completed daily and according to this SOP. The Field Manager is also responsible for submitting copies of logbook entries to the Project Manager upon request. After tasks are completed either for the day or activity, the field manager shall review entries in each logbook; and document these reviews by the dated signature of the reviewer on the last page or page immediately following the material reviewed.

If non-dedicated project logbooks are used to record field events, field managers must maintain the logbook(s). Once these books are filled copies of project entries must be distributed to the responsible Project Managers.

# 4.3 Program Quality Manager

The program Quality Manager is responsible for ensuring overall compliance with this procedure.

# 4.4 Logbook Author(s)

The logbook user is responsible for recording pertinent data into the logbook to satisfy project requirements and for attesting to the accuracy of the entries by dated signature. The logbook user is also responsible for safeguarding the logbook while having custody of it. All field personnel are responsible for the implementation of this procedure.

# 5.0 EQUIPMENT AND SUPPLIES

# 5.1 Field Logbooks

Field logbooks shall be bound field notebooks with water-repellent pages.

# 5.2 Writing Instruments

Pens used to record field activities must contain black indelible ink.

#### 6.0 PROCEDURE

#### 6.1 Entries

- Begin each day's activities with a new page in the logbook
- All daily entries should be in chronological order with field segments broken down by time
- A date must be placed on each page of the logbook
- Enter logbook page numbers on each page to facilitate identification of photocopies
- Sufficient detail of the activity needs to be recorded to allow the writer or a knowledgeable reviewer to reconstruct the applicable events for the day
- At the conclusion of each day the author shall draw a diagonal line through the unused portion of the page after the last entry and sign indicating the daily activities have been concluded

#### 6.1.1 Incorrect Entries

Since the logbook provides a historical record of activities being observed it must be accurate. However, when an entry needs to be revised due to a mistake, the author must draw a single line through the incorrect entry then place his/her initial and date by the change. Enter an explanation for the correction if the correction is more than for a mistake.

#### 6.1.2 Acronyms

Acronyms and a person's initial can be used; however, they should be defined on the inside cover of the logbook.

# 6.1.3 Photocopies

To provide a backup if the logbook is lost or damaged, photocopies should be completed at the end of each day. The preparer can use cell phone technology to accomplish this.

#### 6.2 Deviations

Deviations from this SOP shall be documented in the logbook and must be cleared with the Project Manager before being initiated, if possible.

# 6.3 Maintenance and Security

Logbooks will be kept under the control of its author at all times. If it is lost or stolen the Project Manager must be notified as soon as possible. The logbook should be kept away from dirt and/or potential contaminated media. If possible PPE gloves should be removed before making entries.

# 7.0 QUALITY CONTROL AND ASSURANCE

Not applicable

# 7.1 Review

See Section 4

# 8.0 RECORDS, DATA ANALYSIS, CALCULATIONS

See Section 6

# 9.0 ATTACHMENTS OR REFERENCES

Department of Defense, United States (DoD). 2005. *Uniform Federal Policy for Quality Assurance Project Plans, Part 1: UFP-QAPP Manual.* Final Version 1. DoD: DTIC ADA 427785, EPA-505-B-04-900A. In conjunction with the U. S. Environmental Protection Agency and the Department of Energy. Washington: Intergovernmental Data Quality Task Force. March. On-line updates available at: http://www.epa.gov/fedfac/pdf/ufp\_gapp\_v1\_0305.pdf.

# Standard Operating Procedure Packing and Shipping Non-hazardous Environmental Samples

These standards will ensure continuity within the organization.

#### **Preamble**

This standard operating procedure (SOP) is designed to provide the user standards on packing and shipping environmental samples after they have been collected in the field so they arrive at their destination in a condition that meets the quality objectives required by the site's sampling and analysis plan (SAP). This SOP assumes the environmental samples have not been characterized as hazardous. If they are classified as hazardous then additional procedures will have to be followed that are not discussed in this SOP.

Before using this SOP and as part of the due diligence, the user is required to determine whether it meets the state-specific and federal minimum standards. If a difference exists between state and federal SOPs than those contained herein, the state and federal SOPs take precedence. If this SOP is modified per agreement between management-level parties associated with the activity, the agreed changes will become part of the site-specific SOP and the modifications will be appended to this SOP for the record.

#### 1.0 PURPOSE AND SCOPE

This SOP sets forth the methods for use by personnel engaged in handling, packing, and shipping non-hazardous environmental samples. As guidance for specific activities, this procedure does not remove the need for professional judgment. Deviations from this procedure while planning or executing planned activities must be approved by the parties responsible for such activities.

#### 2.0 SAFETY

When in the field, at a minimum, the following personal protective equipment must be worn:

- Gloves, such as blue nitrile and latex, as defined in the site-specific project health and safety plan, when handling sample containers to avoid contacting any materials that may have spilled out of the sample containers
- Safety glasses
- Steel toed boots
- Appropriate clothing to prevent spillage from contacting exposed skin

Additional caution should be implemented, such as:

• To avoid lifting injuries associated with heavy coolers, use the large muscles of the legs, not the back. Use hand carts, if possible or perform the lifting as part of a team of two members.

- When using cutting tools, cut away from yourself. The use of appropriate, task specific cutting tools is recommended.
- Handle glass containers with care. Discard any broken glass in a waste container that cannot be punctured.
- Acid used as preservatives should be cleaned up immediately if spilled. If a spill occurs on exposed skin or clothing use the proper procedure to reduce exposure time.
- Make sure all sample lids and caps are secured before packing into shipping coolers; this will help eliminate potential exposure of laboratory personnel receiving the environmental samples.

# 3.0 TERMS AND DEFINITIONS

• DOT — Department of Transportation

# 4.0 ROLES AND RESPONSIBILITIES

- **4.1** The **Project Manager** is responsible for verifying that these procedures are performed prior to the initiation of sampling active.
- 4.2 The **Program Quality Manager (QM)** is responsible for ensuring overall compliance with this procedure, if one has been designated to the project. The QM may request that audits be conducted to ensure procedures are being properly followed.
- **4.3** The **Field Manager** is responsible for ensuring that sample handling and shipping are performed in accordance with this procedure.
- **4.4** All **Field Personnel** are responsible for the implementation of this procedure.

#### 5.0 PROCEDURES

Environmental samples should be packaged prior to shipment using the following procedures:

- Inspect the cooler for integrity and structural damage, and be sure it is clean. Also check the handles to be sure they are secure. If the shipping cooler is damaged, do not use. Damaged cooler should be made unusable and discarded.
- 2. For a 20-gallon cooler (14"x14"x24") put a clean, 39-gallon + trash bag in the cooler and open it up so that you have complete access to the inside. Smaller cooler will require smaller size plastic trash bag.
- 3. Inside the trash bag build a "nest" with bubble wrap or a similar sheet packing material on the bottom and sides.

- 4. Take double-bagged Ziplocs filled with wet ice and put/layer bags on the bottom of the cooler in the "nest". 1- or 2-gallon bags are ideal for this.
- 5. Next, if applicable, put a temperature blank in the bottom of the nest.
- 6. Glass sample bottles should be wrapped in bubble wrap preferably sealable bubble wrap sample bags, if available. Place bottles in separate and appropriately-sized polyethylene bags and seal the bags. MAKE SURE SAMPLES HAVE BEEN APPROPRIATELY LABLED AND RECORDED ON THE CHAIN OF CUSTODY BEFORE PLACING IN SAMPLE BAGS.
- 7. Place the wrapped sample containers to be shipped to the inside of the nest. Make sure the containers are place in the vertical or upright orientation. Do not lay them on their sides.
- 8. As containers are added to the cooler, continue to strategically place ice filled double-bagged Ziplocs between the sample packages. There is no hard and fast rule on how much ice to use (frequently 2-3 bags at least), but if there is any doubt use more ice than less, and use extra cooler(s) with additional temperature blanks and trip blanks, if necessary, to spread the container load. If possible, put a layer of double bagged ice over the samples before sealing the protective plastic trash bag.
- 9. Pull the trash bag assemblage of "nested" containers-ice-bubble wrap tightly together and then twist the top into a "rat tail" and tie it off. If there are any void spaces remaining in the cooler, insert some type of packing material into them. The samples should not be allowed shift in transit; thus reducing the potential for breakage.
- 10. Put the complete-signed chain-of-custody into a Ziploc, affix/tape the Ziploc to the underside of the cooler lid. DOUBLE CHECK THE NUMBER OF SAMPLES THAT ARE BEING SHIPPED TO WHAT IS ON THE CHAIN OF CUSTODY BEFORE SEALING THE COOLER. TO ENSURE THEY MATCH.
- 11. Pre-tape the lid by holding the cooler lid tightly shut, then run some clear packing tape around it, just enough to hold it closed. Then if possible run lines of tape around both sides of the cooler and around the top seam of the lid-cooler body. If the cooler has a plug, make sure that is taped shut.
- 12. Once pre-taped add signed custody seals, when applicable, across the seam of the lid and body of the cooler in a staggered fashion. One seal on the hinge side of the cooler at one end, and one seal on the opening side of the cooler on the other end.
- 13. Add a sticker or tape a small sign to the cooler with the shipping address and phone# of the laboratory. Then affix any other stickers (perishable, wet ice, etc.).

- 14. Final taping should be done with loops of clear packing tape around the custody seals on each end of the cooler and across the lid-body seam. Use at least 8-10 loops of tape, and more if needed. If there are multiple coolers to multiple destinations, colored tapes on the coolers in each shipment can help to reduce confusion.
- 15. The cooler is ready to be shipped.

#### 6.0 SHIPPING

Follow all appropriate DOT regulations for shipment of air, soil, water, and other samples.

For non-hazardous environmental samples, the samples may be shipped as non-hazardous.

When a cooler is ready for shipment to the laboratory, prepare a standard bill of lading for shipment. Keep a copy of the bill of lading and notify the laboratory the samples are being shipped and the shipping tracking number. Write the tracking number in the field log book with date and time.

Add additional information on the cooler such as:

- Fragile
- This-End-Up (or directional arrows pointing up), and/or
- The number of the cooler if multiple coolers are being shipped under one bill of lading (1 of 3, 2 of 3, and 3 of 3).

#### 7.0 RECORDS

Maintain all copies of chain of custodies and bills of lading with the project file.

# 8.0 ATTACHMENTS OR REFERENCES

None

# Standard Operating Procedure Sampling Procedures

# These standards will ensure continuity within the project

#### **Preamble**

This Standard Operating Procedure (SOP) describes general and specific procedures, methods and considerations to be used and observed when collecting field samples for laboratory analysis. This SOP applies to the following project specific sampling activities:

- Waste Characterization Sampling
- Closure Performance Sampling
- Wastewater Confirmation Sampling

#### 1.0 HEALTH AND SAFETY PRECAUTIONS

Proper safety precautions must be observed when collecting field samples. Engineering and work practice controls will be utilized to eliminate or minimize exposure. Refer to the Site-Specific Health and Safety Plan (SSHP) for guidelines on safety precautions, personal protective equipment (PPE), air monitoring requirements, personnel decontamination, and emergency contingency procedures.

#### 2.0 EQUIPMENT AND SUPPLIES

The field team will ensure proper equipment and supplies are available prior to sample collection. Disposable sampling equipment, spent PPE, and decontamination fluids will be properly containerized and sampled pending offsite disposal.

Disposable sampling equipment will be preferred and selected based on guidance provided in the *Standard Guide for Selection of Sampling Equipment for Wastes and Contaminated Media Data Collection Activities, D 6232* (ASTM International 2016). The following is a list of some conventional sampling equipment that may be needed for collecting the samples:

- Composite Liquid Waste Sampler (COLIWASA), drum thief, bailer, push tube, bucket auger, or screw auger
- Disposable shovels, spatula, scoop, or spoon
- Disposable pipette ("turkey baster")
- Disposable plastic dust pan and brush
- Plastic squeegee bottle or spray bottle
- Polythene sheeting

A Spill Control Kit will be available at the Site during sampling activities to address any accidental spill during sampling activities. The Spill Control Kit will include absorbent pads, granular clay absorbent pellets, booms, gloves, googles, boot covers, disposal bags, and caution tape.

#### 3.0 SAMPLING PROCEDURES

Each sample location should be surveyed for air quality prior to sampling. To reduce the potential for cross-contamination, place polythene sheeting under work areas while transferring materials from sampling equipment to the sample container.

Collected field samples and quality control samples will be sent to an approved laboratory for analysis in accordance with procedures identified in the *Sampling and Analysis Plan* (SAP). Sampling activities will be recorded in the logbook per SOP, *Logbooks*. Sampling and field equipment will be decontaminated per the SOP, *Sampling and Field Equipment Decontamination*. Required sample volumes and analysis, sample chain-of-custody, handling, packaging, and shipping will be in accordance with procedures identified in the SAP and per the SOP, *Packing and Shipping Non-hazardous Environmental Samples*. Copies of these SOPs are also included in Appendix A of the SAP.

# 3.1 Waste Characterization Sampling

It is currently anticipated that solid materials will consist of the following materials:

- Dust and fine grained materials stored in 55-gallon drums or Gaylord containers
- Solid wastes contaminated with lead-containing dust stored in 55-gallon drums, Gaylord containers, or roll-off boxes
- Insulation contaminated with lead containing dust stored in 55-gallon drums, Gaylord containers, or roll-off boxes

It is currently anticipated that liquid materials will consist of treated decontamination fluids that will not be disposed via an anticipated City of Columbus industrial discharge permit; these liquids may be stored in 55-gallon drums, totes, or larger portable containers.

Representative samples of these waste materials will be collected to determine the appropriate disposal methodology. The specific sampling methods selected will be dependent on the nature of the waste, its container, and its location. Only trained personnel will perform sampling. To the extent possible, disposable sampling tools will be used for sampling waste materials.

Samples of similar materials (e.g., lead-containing dust from Phase I and Phase II Removal activities) from multiple containers may be composited. The following sampling procedures will be followed:

Solid Samples: A drum thief, shovel, or scoop is used to sample containers holding material
that is solid in nature. These containers are anticipated to be filled with fine grained material.

Several areas from the container are sampled and composited to ensure a representative sample. The sample is then transferred to a laboratory-supplied sample container.

- **Bulk Solid Samples:** Bulk solids in roll-off containers are sampled at up to six locations in the waste container to ensure a representative sample. When sampling granular debris, a thief or shovel is used in order to collect a sample from as deep a cross section as possible at each location. When sampling bulk building construction and demolition debris, representative samples of debris will be collected by breaking or cutting off bulk materials representative of the waste stream; sampling will be biased towards materials that appear stained or otherwise impacted. The samples are composited together into a single laboratory-supplied sample container so that there is one sample, which represents that particular bulk solid. For non-granular materials that are too large for standard sample containers, the sample will be secured in a clean plastic Ziploc bag and sent to the laboratory. Particle size reduction of such waste samples will be performed by the laboratory prior to analysis.
- Liquid Samples from Containers with no Sampling Port: A COLIWASA or drum thief will be used to collect liquid samples from containers with no sampling port. The COLIWASA or drum thief is slowly lowered to the bottom of the container. Close the COLIWASA with the inner rod or create a vacuum with the sampler's gloved thumb on the end of the thief and slowly remove the sampling device from the container. Release the full contents from the device into the laboratory-supplied sample container(s). Repeat the procedure until a sufficient sample volume is obtained.
- Liquid Samples from Containers with a Sampling Port: If the frac tank or other portable container has been fitted with a sample port, fill the laboratory-supplied sample container(s) directly by collecting the water from the sampling port. Repeat the procedure until a sufficient sample volume is obtained.

# 3.2 Closure Performance Sampling

During the Phase III Decontamination, portions of the subject property will be washed and triple rinsed. As stated in the RCRA Closure Plan, a sample of the third rinsate may be collected after completion of the third rinsate activities to evaluate decontamination effectiveness.

Only trained personnel will perform sampling. A turkey baster, scoop with squeegee, plastic dust pan with brush, or similar devices are commonly used to sample liquid on horizontal surfaces. The sample collection equipment will either be previously unused or will be decontaminated prior to use (wash/triple rinse). To the extent possible, disposable sampling tools will be used for rinsate sampling.

The following sampling procedures will be followed:

- **Liquid Samples from Horizontal Surfaces (Floors)**: The third rinsate water from the floor section will be collected using new or pre-cleaned turkey baster, scoop with squeegee, plastic dust pan with brush, or similar devices and transferred to the laboratory-supplied sample container(s).
- Liquid Samples from Vertical Surfaces (Walls): The third rinsate water from walls will be collected by placing a new or pre-cleaned plastic dust pan against the wall at the end of the rinsing operation and transferring the water to the laboratory-supplied sample container(s).

# 3.3 Wastewater Confirmation Sampling

The following procedure will be used to collect representative sample of treated water from drums, totes, frac tanks or other portable containers.

- Containers with no Sampling Port A COLIWASA or drum thief will be used to collect liquid samples from containers with no sampling port. The COLIWASA or drum thief is slowly lowered to the bottom of the container. Close the COLIWASA with the inner rod or create a vacuum with the sampler's gloved thumb on the end of the thief and slowly remove the sampling device from the container. Release the full contents from the device into the laboratory-supplied sample container(s). Repeat the procedure until a sufficient sample volume is obtained.
- Containers with a Sampling Port If the frac tank or other portable container has been fitted with a sample port, fill the laboratory-supplied sample container(s) directly by collecting the water from the sampling port. Repeat the procedure until a sufficient sample volume is obtained.

# 4.0 QUALITY CONTROL AND QUALITY ASSURANCE

Air monitoring equipment will be checked and calibrated as specified in the SSHP and per the manufacturer's recommendations. Photographs may be taken during field sampling activities to document the sample matrix, condition of sample, and sampling locations.

Quality control and quality assurance measures include collecting equipment blank samples at a frequency outlined in the site-specific SAP. These samples include:

Equipment Blank Samples: An equipment blank is a sample collected using analyte-free
water that has been run over/through reusable sample collection equipment after the
equipment has been decontaminated. Equipment blank samples may not be collected when
disposable sampling equipment is used.

• **Duplicate Samples:** A duplicate sample will be collected at the same time as the original sample. When a duplicate sample is collected, one-half of the sampling container yield will be used to fill sample containers, while the second half of the sampling container will be used to fill the container for the same parameter in the duplicate set.

# Standard Operating Procedure Sampling and Field Equipment Decontamination

These standards will ensure continuity within the organization.

#### **Preamble**

This standard operating procedure (SOP) is designed to provide the user with the procedures needed to decontaminate sampling and other field equipment while in the field. All equipment must be decontaminated before, during, and after sampling tasks; and between each sample location or sample depth, as required. At no time is contaminated field equipment to be shipped back to rental companies or any of the EnSafe offices.

Before using this SOP and as part of the due diligence, the user is required to check if state and federal minimum decontamination standards need to be met. If a difference exists between state and federal SOPs then those contained herein, the state and federal SOPs take precedent. If this SOP is modified per agreement between parties associated with field activities, the agreed changes will become part of the SOP and the modifications will be appended to this SOP for the record.

This SOP describes the activities and responsibilities pertaining to decontamination, however, this guidance does not remove the need for professional judgment. If possible or as soon as reasonably possible deviations from this procedure made while planning or executing this activity must be approved by the parties responsible for this task; i.e., project manager, Corporate Health and Safety Officer, and/or quality Assurance Manager.

#### 1.0 PURPOSE AND SCOPE

The main objective of the decontamination of field and sampling equipment is to ensure that all equipment that has come into contact with a sample media and/or atmospheric conditions during sample collection is free of contaminants and analytes. Site contaminants and analytes could impact study objectives through cross contamination from one sample to the next if equipment is not properly decontaminated. These procedures help ensure that equipment, before or after use, has been cleaned in such a manner that it is free of contaminants and will not impact current or future sampling or endanger individuals handling the equipment.

#### 2.0 SAFETY

The main focus of this SOP is the decontamination of equipment that has come in contact with the media or other atmospheric conditions (aerosols, engine combustion, crop dusting, etc.) creating the potential to cross contaminate samples. Examples of equipment commonly decontaminated by the field services group include:

- Water level probe and tape
- Depth sounding tape
- Groundwater down hole sampling equipment (pumps and bailers)
- Hand Augers
- Re-usable sampling equipment (shovels, trowels, bowls, spoons, spatulas)
- Water meters (YSIs, turbidity meters)

Larger equipment such as drill rigs, tractors, and excavators also will require decontamination under certain conditions; however, as operation of that type of large equipment is subcontracted, it is the responsibility of the vendors to follow decontamination procedures outlined in the statement of work (SOW) for the subcontractor operated equipment.

Because the nature of decontaminating small equipment requires only a limited area the activity can be conducted within the exclusion zone of the activity. If, however, the activity is confined to a small area where there is the possibility of a health and safety hazard and/or the potential to re-contaminate a piece of field equipment (exhaust from running motors as an example), then a secondary exclusion zone can be setup to conduct decontamination. Best profession judgment must be used when setting up decontamination stations. **DO NOT SETUP A DECONTAMINATION STATION DOWNWIND OF HEAVY EQUIPMENT IF AT ALL POSSIBLE.** If the exclusion zone needs to be moved this should be noted in the project's field log book.

The Sampling and Analysis Plan (SAP) for the activity will dictate the proper personal protective equipment (PPE) that should be worn when decontaminating field and sampling equipment. If a SAP has not been written for the project the minimum PPE is the following:

- Clean, i.e., new, Level D PPE (safety glasses, disposable gloves, safety boots, and hard hats) will be worn during all decontamination operations. PPE such as splash shields or goggles can be made available upon request. If field personnel deem the level of PPE needs to be up graded to Level C, they can don outer garments designed to protect against atmospheric contaminants, liquid splashes, or other direct contact of decontamination fluids. If air contaminants have been identified that exceed project action levels and/or other suspected contaminants field personnel must contact the project manager and EnSafe Health and Safety Officer before proceeding putting on air purifying respirator. If those individuals cannot be located then one of the following individuals needs to be notified:
  - Branch manager,
  - Associate principal, or
  - Principal
- No eating, smoking, drinking, chewing, or any hand to mouth contact shall be permitted during cleaning operations.
- Before a sampling task, unless noted otherwise, do not assume sampling equipment have been properly decontaminated. Take the time and use caution to inspect sampling equipment before use. Wear disposable gloves when inspecting equipment. If a piece of equipment is found to be contaminated inform the rental company and send the equipment back (if time permits). If time does not permit decontaminate the equipment and let the rental company and EnSafe's Field Supply Manager (Les Arnold) know the condition it was received.

All field personnel have <u>STOP WORK AUTHORITY</u> if the activity becomes unsafe to continue.
 Work will not resume until all health and safety issues have been resolved.

#### 3.0 TERMS AND DEFINITIONS

None

# 4.0 TRAINING AND QUALIFICATIONS (ROLES AND RESPONSIBILITIES)

# 4.1 Project Manager

The Project Manager or project designee will be administratively responsible for ensuring decontamination is carried out per this SOP. It is the project manager's responsibility to certify that the Site Specific Work Plan with this SOP has been read by all field personnel conducting the field activities, and that they understand all procedures contained therein. The project manager or designee will conduct periodic audits over the course of the project to make sure the Work Plan and these procedures are being followed.

# 4.2 Field Manager

The Field Manager is responsible for ensuring that all field personnel follow these procedures and that the decontamination procedures are completed according to this SOP. As time permits, the Field Manager should conduct periodic inspections of the field decontamination techniques by field personnel.

Before sampling begins and after field tasks are complete the Field Manager will inspect field equipment to make sure equipment has been properly decontaminated.

The Field Manager will report any deviations from this SOP to the Project Manager and keep a record in the project's log book.

# 4.3 Program Quality Manager

The program Quality Manager is responsible for ensuring overall compliance with this procedure.

# 4.4 EnSafe Field Personnel

All field personnel must read and be familiar with this SOP which is contained within the Work Plan. They are responsible for ensuring that field and sampling equipment are decontaminated properly and according to these procedures. If, based on their best professional judgment, procedures in this SOP need to be modified in the field, the field manager will be notified of any deviations and the changes will be recorded in the field logbook. If the field manager cannot be contacted, then the project manager should be notified.

#### 5.0 EQUIPMENT AND SUPPLIES

**Recommendations** for the types of decontaminating cleaning supplies are discussed in this section.

Soap shall be a standard brand of phosphate-free laboratory detergent such as Liquinox. Use
of another detergent must be justified and documented in the field logbooks, and/or
investigative reports. Soap may be stored in its original container or in a high density

polyethylene (HDPE) or polypropylene container. The soap should be poured directly from this container during use.

- isopropanol will be used. Use of a solvent other than pesticide-grade isopropanol (i.e., acetone, methanol, etc.) must be specified in the site-specific SAP, and must be approved by the Project Manager before use. Solvent shall be stored in its original container until used in the field. Solvents may be dispensed from glass, Teflon or stainless-steel containers. If a stainless-steel device is used, any gaskets that may contact the solvents must be constructed of inert material designed to be used with that solvent. Pesticide-grade isopropanol must be obtained from a laboratory supply vendor. Rubbing alcohol or other commonly available sources of isopropanol are not acceptable.
- Tap water may be used from any municipal water treatment system. Use of an
  untreated potable water supply is not an acceptable substitute for tap water; however,
  bottled water (i.e., drinking water, distilled water, etc.) is an acceptable substitute. Tap water
  may be kept in clean tanks, hand pressure sprayers, squeeze bottles, or applied directly from
  a hose.
- Analyte-Free Water at a minimum should contain no detectable heavy metals, other inorganic compounds, or organic compounds (i.e., at or above analytical detection limits). Unless specified otherwise in a SAP steam-distilled water and/or deionized water can be used. Storage of the analyte-free water must be stored in its original container or transferred to clean glass or Teflon containers that can be securely closed before and after use. The use of containers made of materials other than glass or Teflon must be specified in the approved site-specific SAP.
- **Decontamination area** is an area designated and constructed for decontaminating field and equipment that is known or believed to be free of surface atmospheric contamination. It should be located upwind of site activities. Typically, the decontamination area has a containment structure or pad capable of holding waste decontamination fluids and solids; however, the decontamination area may be as simple as sheet plastic beneath 5-gallon buckets that hold the wash and rinse solutions. When a pad is required, the pad should be constructed on a level, paved surface and should be designed to facilitate the removal of wastewater. Types of structures designed to hold equipment in or over the pad may include wooden tables supported by sawhorses, metal racks, and tail gates. The surface of the pad on which it is constructed should be steady and strong enough to hold the weight of the field equipment and liquids. If possible, the pad walls should be high enough above ground to prevent equipment from being splashed by other activities that may be ongoing during decontamination. All support surfaces should be lined with a water impermeable material (without seams) such as disposable plastic Visqueen. The impermeable material must be replaced between sampling events.

- Cleaning Utensils may include scrub pads, brushes, and buckets and these may or may not be dedicated to a specific project. Projects requiring frequent sampling may dedicate cleaning utensils to the project to avoid any possibility of cross-contamination from another site. Color coding dedicated equipment and cleaning utensils will aid in site/project-specific identification.
- Decontaminated Equipment Storage and Materials: Decontaminated equipment is wrapped to prevent recontamination prior to use. Covering for decontaminated equipment may include aluminum foil, untreated butcher paper, clean (untreated) disposable plastic bags, or other untreated plastic wrap. Plastic bags shall not directly contact equipment to be used when volatile and extractable organics are potential contaminants of concern. Plastic bags may be used on equipment that has been wrapped with foil or butcher paper. If the decontaminated equipment is to be stored for any period of time, the wrapping should include the date on which it was decontaminated.

#### 6.0 PROCEDURE

The following procedures will be used for the decontamination of all sampling equipment. Any deviation from these procedures must be outlined in the site-specific SAP, and should be documented. Field personnel shall review the field decontamination requirements in the SAP prior to commencing field work activities.

All sampling equipment must be decontaminated between sample locations and between sample intervals, as required. At no time shall sampling equipment that has been in contact with contaminated or potentially contaminated media be used for sample collection without being properly decontaminated. The steps for decontamination are as follows:

- 1. Clean with tap water and soap using a brush to remove all debris and surface films. Equipment may be steam cleaned (soap and high-pressure hot water) as an alternative to brushing. Sampling equipment that is steam cleaned should be placed on racks or saw horses at least 2 feet above the ground of the decontamination pad. Teflon, Polyvinyl Chloride (PVC), Acrylonitrile butadiene styrene (ABS), or other plastic items should not be steam cleaned.
- 2. Rinse thoroughly with tap water.
- 3. Rinse thoroughly with deionized water.
- 4. If required by the SAP rinse thoroughly with solvent. Do not solvent rinse PVC or plastic items.
- 5. Rinse thoroughly with deionized water. If sufficient volumes of deionized water are not available, equipment should be allowed to completely air dry.
- 6. Remove the equipment from the decontamination area and wrap with aluminum foil, untreated butcher paper, or other acceptable material

# **Decontaminating Specific Field Equipment**

# Sample Tubing

The following procedure should be implemented if sample tubing must be re-used between monitoring wells:

# **Exterior**

- 1. Decontaminate the exterior of the tubing by soaking in soapy water mixture. Use a brush to remove particulates if needed.
- Rinse the exterior of the tubing with tap water.

#### **Interior**

- 1. Mix a solution of tap water and soap.
- 2. Connect one end of the tubing to the influent end of the pump.
- 3. Place other end of the tubing into the soapy water mixture and allow the pump to draw the water through the tubing. The soapy water mixture should pass through the entire length of the tubing prior to entering the pump. Recycle the effluent from the pump by connecting a length of tubing at the pump effluent to the soapy solution.
- 4. Place the other end of the tubing into tap water and allow the pump to draw the tap water through the tubing. The tap water volume should be twice the volume of the soapy water mixture.
- 5. Follow the same procedure described above to pump deionized water through the Teflon tubing except do not recycle the deionized water. The volume of deionized water should be equal to that of the tap water.

When possible, tubing should be dedicated to each groundwater monitoring well to eliminate the need for decontamination and possible cross-contamination. If dedicated sample tubing is stored for long periods of time, the tubing should be decontaminated before use.

#### Sampling Pumps

Sampling pumps pose unique problems. Pumps may require disassembly to gain access to all parts that come in contact with contaminated or potentially contaminated media.

# **Pump Exterior**

- 1. Scrub with soapy water mixture using a brush to remove all debris and surface films
- 2. Rinse thoroughly with tap water
- 3. Rinse thoroughly with deionized water
- 4. Air dry

# **Pump Interior**

If pump is used for purging and sampling, disassemble pump to gain access to all internal and external parts that may contact the sample media, if possible. If the pump cannot be disassembled then the following procedures apply.

- 1. Pump several(≥2 gallons) of soapy water
- 2. Pump several gallons of tap water
- Pump several gallons of deionized water
- 4. Remove the equipment from the decontamination area and wrap with aluminum foil or other acceptable material

#### Decontamination of Field Instruments

Field instruments include water level indicators, interface probes, etc. Follow manufacturer's recommendations for cleaning instruments. The following procedures should be performed at a minimum:

- 1. Wash equipment body, probes, and cables with soapy water mixture
- 2. Rinse thoroughly with tap water
- 3. Store equipment in accordance with manufacturer's specifications or wrap with aluminum foil

# Field Analytical Instruments

Field analytical instruments include pH meters, DO meters, conductivity meters, etc. Follow manufacturer's recommendations for cleaning instruments. The following procedures should be performed at a minimum:

- 1. Wipe the exterior of the instrument with a clean, damp cloth
- 2. Rinse the probe with analyte free water
- Air dry

Each time the instrument is cleaned, check for and replace any desiccant.

# Decontamination of Ice Chests and Reusable Shipping Containers

- 1. Wash the interior and exterior of ice chests and reusable shipping containers with soapy water mixture
- 2. Rinse thoroughly with tap water
- 3. Air Dry

If the container becomes severely contaminated with wastes, clean as thoroughly as possible, render unusable and properly dispose.

# 7.0 DISPOSAL OF DECONTAMINATION FLUIDS

The site SAP should specify how spent decontamination fluids will be handled and disposed of. Spent decontamination fluids may need to be treated as investigation-derived waste (IDW), and handled accordingly. If solvents are used in the decontamination process, the solvents shall be collected, labeled and stored separately for proper disposal. Personnel shall review the field decontamination and IDW handling requirements in the SAP before commencing field work activities.

# 8.0 DATA/RECORDS MANAGEMENT

Record decontamination procedures in the project field logbook. Maintain a record of the lot number with the inclusive dates of use for all acids, solvents, and other cleaning supplies

# 9.0 QUALITY CONTROL AND QUALITY ASSURANCE

Quality control and quality assurance (QA/QC) measures include collecting rinsate blanks at a frequency outlined in the site-specific SAP. A rinsate blank is a sample collected using organic-free water that has been run over/through sample collection equipment after the equipment has been decontaminated.

# 10.0 NONCONFORMANCE AND CORRECTIVE ACTION

Failure to use proper decontamination procedures can lead to cross-contamination of samples. Improperly decontaminated equipment can also lead to the spread of contamination to designated clean areas and lead to possible exposures of personnel to hazardous substances. If cross contamination is suspected or confirmed (i.e., QA/QC sample results, data validation, etc.), all site field equipment shall be decontaminated and additional QA/QC samples should be collected to document that proper decontamination procedures have been followed.