ACTION MEMORANDUM

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

September 2020

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EXECUTIVE SUMMARY

The Action Memorandum serves as the primary decision document to substantiate the need for, and to select, the Non-Time-Critical Removal Action, per 40 Code of Federal Regulations Section 300.415(b)(4), at the Closed Loop Refining & Recovery, Inc. (Closed Loop) facility (referred to herein as the "subject property" or the "Closed Loop facility") in Columbus, Ohio.

Closed Loop accepted electronic 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) and other electronic waste (collectively referred to as "CRT-related materials"). Located at the subject property are containerized CRT-related materials (including crushed 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. 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.

This document summarizes the need for the Non-Time-Critical Removal Action as presented in the *Closure Plan* — *Closed Loop Refining & Recovery, 1655 and 1675 Watkins Road, Columbus, Ohio 43207*, dated August 2020 (referred to herein as the *Closure Plan*), which has been approved by the Ohio Environmental Protection Agency and selects the removal action based on the Engineering Evaluation/Cost Analysis (EE/CA), which is included as an attachment to the *Closure Plan.* This document also serves as the information repository for addressing significant comments received based on the public notice. This document will be part of the administrative record for the facility.

Through a comparative analysis of the alternatives discussed in the EE/CA, the approved removal action for the Closed Loop facility includes removal of CRT-related materials and decontamination of the warehouse. This approved removal action (Alternative 3 described in the EE/CA) 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. The approved removal action reduces the toxicity, mobility, and volume of lead containing materials. The estimated cost of this approved removal action is \$16,674,396. This approved removal action 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.

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1.0 PURPOSE

The purpose of this document is to summarize the need for the Non-Time-Critical Removal Action (NTCRA), per 40 Code of Federal Regulations (CFR) Section 300.415(b)(4), as presented in the Closure Plan — Closed Loop Refining & Recovery, 1655 and 1675 Watkins Road, Columbus, Ohio 43207, dated August 2020 (referred to herein as the Closure Plan) and to finalize the selection of removal action based on the Engineering Evaluation/Cost Analysis (EE/CA), as approved by Ohio Environmental Protection Agency (Ohio EPA). The Action Memorandum (AM) tracks the outline in the Superfund Removal Guidance for Preparing Action Memoranda (U.S. Environmental Protection Agency [U.S. EPA] 2009) (hereinafter referred to as the AM Guidance). Ohio EPA's approval of the Closure Plan is included in Attachment A. The AM also serves as the information repository for addressing significant comments received during the public comment period. Responses to significant comments are included in Attachment B. The AM incorporates by reference, as Attachment C, the Report on Removal Preliminary Assessment, Closed Loop Refining & Recovery, 1655 and 1675 Watkins Road, Columbus, Ohio 43207 (EnSafe 2020) (hereinafter referred to as the Preliminary Assessment). The AM also incorporates the Closure Plan (including the EE/CA) by reference as Attachment D. Much of the information requested by the AM Guidance, such as some of the details of the site and the basis for removal action, are already included in the *Preliminary Assessment* and/or *Closure Plan* and are referenced in this AM to the extent practical, rather than repeating the information in the AM. The AM will be part of the administrative record for the facility.

Garrison Southfield Park LLC (Garrison Southfield), as the property owner, directed EnSafe, as its on-scene coordinator, to prepare this AM to comprehensively demonstrate consideration of the factors supporting the determination that a removal action is warranted and the selection of the removal action. Nothing set forth in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, or its implementing regulations, however, requires that this AM be prepared. As the *AM Guidance* provides, "[f]or the purposes of this guidance potentially responsible party (PRP) voluntary response actions are not considered removals requiring an AM (or equivalent) unless the response leads to action requiring Superfund activity under CERCLA Section 104(a) or an action whereby a PRP performs work under an Agency enforcement instrument." This removal action is a voluntary response action that meets neither exception. The *AM Guidance* was also intended solely for the guidance of government personnel, does not impose legally binding requirements, and expressly provides that it "may not apply to a particular situation based on the circumstances."

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2.0 SITE CONDITIONS AND BACKGROUND

The subject property is currently owned by Garrison Southfield. Closed Loop Refining & Recovery, Inc. (referred to herein as the "subject property" or the "Closed Loop facility") leased the subject property and accepted cathode ray tube (CRT)-related materials at the facility from 2012 through early 2016, when it ceased operations and abandoned the subject property.

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 are provided in Section 2 of the *Closure Plan*.

The outline provided in the *AM Guidance* is used as a guide for this section and references to applicable sections of the *Closure Plan* provide the required details.¹

Table 1 Action Memorandum Cross Reference				
		Action Memorandum Outline	Closure Plan Cross-Reference	
Α.	Site	e Description		
	1.	Removal site evaluation	Section 2 of Closure Plan	
	2.	Physical location	1655 and 1675 Watkins Road, Columbus, Ohio 43207; see also Section 2 of <i>Closure Plan</i> , Section 2 of the <i>Preliminary Assessment</i> , and Section 2.1 of the EE/CA	
	3.	Site characteristics	Section 2 of Closure Plan	
	4.	Release or threatened release into the environment of a hazardous substance, pollutant, or contaminant	Section 2.2 of the <i>Closure Plan</i> and Sections 1 and 2 of the <i>Preliminary Assessment</i>	
	5.	NPL status	Not an NPL site	
	6.	Maps, pictures, and other graphic representations	 Figures in <i>Closure Plan</i>: Figure 1 Site Location Map Figure 2 Site Layout Map — 1655 Watkins Road Figure 3 Site Layout Map — 1675 Watkins Road Photographs in Appendices A and B of the <i>Preliminary Assessment</i> and in the AECOM and Atwell reports in Appendix B of the <i>Closure Plan</i> 	
Β.	Oth	er Actions to Date		
	1.	Previous actions	Section 2.1, Section 2.2, and Appendix B of the Closure Plan	
	2.	Current actions	No other removal or cleanup actions are in progress onsite.	
С.	C. State and Local Authorities' Role			
	1.	State and local actions to date	Sections 2.1.1, 2.1.2, and 2.1.4 of the <i>Closure Plan</i> . Ohio EPA also has provided oversight over the preparation of the <i>Closure Plan</i> , has approved the <i>Closure Plan</i> , and has provided oversight of the removal of projection lens materials in mid-2019.	
	2.	Potential for continued state/local response	Ohio EPA will provide oversight for compliance of the <i>Closure Plan</i> . No state or local government will provide funding for the project.	

Notes:

EE/CA = Engineering Evaluation/Cost Analysis Ohio EPA = Ohio Environmental Protection Agency NPL = National Priorities List

¹ The portions of the Closure Plan, including its attachments, cited herein are incorporated by reference.

For completeness, the following site information is included here:

- Site Name: Closed Loop Refining & Recovery, Inc.
- Site Address: 1655 and 1675 Watkins Road, Columbus, Ohio 43207
- U.S. EPA RCRA Site ID: OHR000167718
- Latitude/Longitude Coordinates: 1655 Watkins Road 39°53'58.22" north/82°57'1.24" west 1675 Watkins Road — 39°54'4.70" north/82°57'0.53" west
- Contaminant Name (i.e., the name of the contaminant that has the greatest area of impact or the greatest potential for human exposure at levels above federally set limits): lead
- Evacuation Zone Radius (if applicable for an air release): not applicable
- Name of Water Body (for a release to surface water): none
- Isolation Zone (the area surrounding the incident in which persons may be exposed to dangerous and life-threatening concentrations of material): CRT-related materials and lead-containing dust are currently contained within the 1675 and 1655 Watkins Road warehouses
- Protective Action Zone (the area downwind from an incident in which persons may become incapacitated and unable to take protective action and/or incur serious or irreversible health effects, if applicable for an air release): none, since there is no evidence of these materials outside of the 1675 and 1655 Watkins Road warehouses
- The facility has not been proposed for NPL listing, has not been referred to the NPL site assessment program, does not have a hazard ranking score, and has not been the subject of a preliminary assessment for NPL listing, a Superfund site investigation, or listing site inspection.
- No agency, department, or other entity of federal, state, or local government has owned or operated the facility in part or in whole.



 No other removal actions have been conducted at the site to Garrison Southfield's knowledge, except for the removal of approximately 185,975 pounds of projection lens material in mid-2019. This removal is described in more detail on Page 7 of the EE/CA and in the AKT Peerless report of January 6, 2020 in Appendix B of the *Closure Plan*.

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3.0 THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

This information is contained in Sections 2 and 4 of the *Preliminary Assessment*.

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4.0 ENDANGERMENT DETERMINATION

This discussion is contained in Sections 2 and 4 of the *Preliminary Assessment*.

5.0 PROPOSED ACTIONS AND ESTIMATED COSTS

As requested by EPA's *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* (Aug. 1993), the Executive Summary of the EE/CA is reproduced as follows:

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 crushed 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).

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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.

Based on the information provided in the *Preliminary Assessment*, and as no other party is taking action, a NTCRA is appropriate to reduce the likelihood of human health and environmental exposure. As explained below, Garrison Southfield is selecting Alternative 3 as recommended in the draft EE/CA.

The outline provided in the *AM Guidance* is used as a guide for this section and references to applicable sections of the *Closure Plan* provide the required details.



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Table 2 Action Memorandum Cross Reference				
Action Memorandum Outline	Closure Plan Cross-Reference			
A. Proposed Actions				
1. Proposed action description	Section 6 of the EE/CA (Appendix A to <i>Closure Plan</i>) explains why the removal of CRT-related materials and warehouse decontamination is the recommended alternative (Alternative 3). Alternative 3 is described in Section 4.1.3 of the EE/CA and Sections 7, 9, 10, 11, and 12 of the <i>Closure Plan</i> . The action and cleanup levels for this alternative are provided by Sections 7.1, 7.2.1, 7.2.2, 7.2.3, 7.2.6, and 11 through 11.4 of the <i>Closure Plan</i> . No additional response action will be necessary after completion of the removal action. Post-removal site controls and institutional controls will not be necessary, because the facility will comply with applicable cleanup standards for unrestricted use.			
2. Contribution to remedial performance	 Section 6 of the EE/CA (Appendix A to the <i>Closure Plan</i>) provides the following rationale for this proposed remedy: Provides the most protection to human health and the environment Fully meets the remedial action objective, since it makes further response action unnecessary Is the most permanent solution in the long-term Reduces the toxicity, mobility, and volume of lead-containing materials since lead-containing materials since lead-containing materials, including lead-containing dust, will be physically removed from the subject property 			
3. EE/CA (for non-time critical actions only)	The EE/CA, attached as Appendix A to the <i>Closure Plan</i> , describes and discusses the evaluated alternatives in Section 4.			
4. ARARs	Attachment B of Appendix A to the <i>Closure Plan</i> . Garrison Southfield has determined that these ARARs are applicable to the removal action.			
5. Project schedule	Section 8 of the <i>Closure Plan</i> and Section 3.3 of the EE/CA (Appendix A to the <i>Closure Plan</i>) state that the proposed remedy will be implemented within 1,460 days of implementation and provide details to support this schedule. Removal activities are projected to start within 30 days after completion of this AM.			
B. Estimated Costs	\$16,674,396. Attachment C of Appendix A to the <i>Closure Plan</i> provides a cost breakdown for future costs, which includes a 20% contingency.			

Notes:

AM=Action MemorandumARAR=applicable or relevant and appropriate requirementCRT=cathode ray tubeEE/CA=Engineering Evaluation/Cost Analysis

Through a comparative analysis of the alternatives discussed in the EE/CA, the approved removal action for the Closed Loop facility includes removal of CRT-related materials followed by decontamination of the 1655 and 1675 Watkins Road warehouses. The proposed removal actions will be performed in accordance with the *Closure Plan*.

The provisions of 40 CFR Section 300.440, pertaining to U.S. EPA's approval of the facilities used for the offsite disposal of hazardous substances, do not apply to this removal action. See 40 CFR Section 300.700.

Attachment B contains the comments received during the public comment period and Garrison Southfield's response to those comments.

Garrison Southfield identified the ARARs that pertain to the removal action, and Ohio EPA timely concurred with that list prior to the public comment period. These ARARs are still considered to be practicable.

6.0 EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the proposed actions described in Section 5 are delayed or not taken, then the following exposure pathways to lead-containing dusts are anticipated:

- Personnel entering the 1675 and 1655 warehouses could be exposed to dust if they were to touch dust contaminated surfaces; further, the potential presence of airborne dusts in the warehouses are a lead inhalation hazard.
- The volume of material makes it difficult to access interior portions of the 1675 and 1655 warehouses; if a release of water were to occur inside of the warehouses, lead-containing materials could be released to the exterior of the warehouses.
- The condition of the containers makes it likely that containers could collapse in the future. The containers of this hazardous waste are constructed of cardboard and are deteriorating, becoming unstable, and in some cases collapsing and blocking aisle ways.
- 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 warehouses.
- 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.

See Section 2 of the *Preliminary Assessment* for more detail.



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7.0 OUTSTANDING POLICY ISSUES

None

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8.0 ENFORCEMENT

Refer to Sections 2.1.1, 2.1.2, and 2.1.4 of the *Closure Plan* for inspections and enforcement actions at this facility by Ohio EPA. Ohio EPA has provided oversight in the preparation of the *Closure Plan* and has approved it. Ohio EPA will monitor compliance with the *Closure Plan*.

9.0 RECOMMENDATION

Based on the information provided in the *Closure Plan* and the *Preliminary Assessment*, and as no other party is taking action, a NTCRA is appropriate to reduce the likelihood of human health and environmental exposure. As there is currently no exposure to CRT-related materials or lead-containing dust, and there was sufficient time for a 6-month planning period from the time the removal action is determined to be necessary to the time of initiation of the action, a NTCRA is appropriate to address health threats and accelerate the 1675 and 1655 warehouses through the CERCLA response process.

This decision document represents the selected removal action for 1655 and 1675 Watkins Road in Columbus, Ohio, developed in accordance with CERCLA as amended, and it is consistent with the U.S. EPA National Contingency Plan. This decision is based on the administrative record for the site.

10.0 REFERENCES

EnSafe Inc. Closure Plan — Closed Loop Refining & Recovery, 1655 and 1675 Watkins Road, Columbus, Ohio 43207 (August 2020).

Report on Removal Preliminary Assessment. Closed Loop Refining & Recovery, 1655 and 1675 Watkins Road, Columbus, Ohio 43207 (August 2020).

U.S. Environmental Protection Agency, *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* (August 1993).

Use of Non-Time Critical Removal Authority in Superfund Response Actions (February 14, 2000).

Superfund Removal Guidance for Preparing Action Memoranda, Office of Solid Waste and Emergency Response (September 2009).

Attachment A Closure Plan Approval from Ohio EPA This page intentionally left blank.



Mike DeWine, Governor Jon Husted, Lt. Governor Laurie A. Stevenson, Director

September 3, 2020

Garrison Southfield Park LLC c/o Edward "Ned" B. Baker EnSafe Inc. 5724 Summer Trees Drive Memphis, Tennessee 38134 Re: Closed Loop Refining & Recovery Technical Assistance RCRA C – Hazardous Waste Franklin County OHR000167718

Subject: Clean-up Plan for 1655 and 1675 Watkins Road

Dear Mr. Baker:

On April 17, 2020, Garrison Southfield Park LLC (Garrison) submitted to the Ohio Environmental Protection Agency (Ohio EPA) a clean-up plan for the former Closed Loop Refining & Recovery, Inc. located at 1655 and 1675 Watkins Road, Columbus, Ohio (Facility). The clean-up plan includes an Engineering Evaluation/Cost Analysis that evaluates removal action alternatives in keeping with the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675, as amended. Generally, the recommended alternative would be removal of the cathode ray tubes and other electronic wastes from the Facility, transport for off-site recycling or disposal, and decontamination of the Facility's interior. Garrison voluntarily submitted the clean-up plan which follows the administrative requirements of Ohio Administrative Code (OAC) Chapters 3745-65 and 3745-66 and the substantive requirements of OAC Chapters 3745-54 and 3745-55, as well as is consistent with 40 C.F.R. Part 300 of the U.S. Environmental Protection Agency National Contingency Plan (NCP).

Additionally, Garrison gave the public the opportunity to submit written comments regarding the clean-up plan via notification on Ohio EPA's website and publication in the Columbus Dispatch, using Ohio's hazardous waste rule requirements and NCP as guidance. On June 12, 2020, Garrison received comments from the following six entities: Complete Recycling Solutions LLC, Dynamic Lifestyle Innovations, Inc., Green Wave Computer Recycling LLC, IMS Electronics Recycling, Inc., Kuusakoski US LLC, and Rochester Computer Recycling & Recovery LLC. On July 14, 2020, Garrison submitted a response to their comments in a "Responsiveness Summary" that was provided to Ohio EPA and which Garrison agreed to make available as part of the administrative record available for public review. Garrison informed Ohio EPA that Garrison will submit a revised clean-up plan to Ohio EPA that includes revisions in response to certain concerns raised by the commenters, as indicated in the Responsiveness Summary.

Based upon review of Garrison's submittals, Ohio EPA believes that the clean-up plan for the Facility addresses the administrative requirements of OAC Chapters 3745-65 and 3745-66 and the substantive requirements of OAC Chapters 3745-54 and 3745-55 and is consistent with the NCP.

Based on discussions with Garrison, compliance with the clean-up plan is expected. Please be advised that nothing set forth herein shall release Garrison from any responsibilities regarding corrective action for all releases of hazardous waste or constituents at the facility, regardless of the time at which waste was placed in the Facility. Ohio EPA expressly reserves the right to take action pursuant to Chapter 3734 of the Ohio Revised Code and other applicable law to enforce compliance with the State of Ohio's hazardous waste laws and rules.

If you have any questions about implementing this closure plan, contact Peter Maneff at 614-728-3884.

Sincerely,

Melisa Witherspoon

Melisa Witherspoon, Chief Division of Environmental Response and Revitalization

ec: Jack Van Kley, Esq., Van Kley & Walker, LLC Karl Heisler, Esq., King & Spalding LLP Mitch Mathews, DERR, CO Melissa Storch, CDO, DERR Sarah Miles, Legal Attachment B

Resolution of Public Comments on the Closure Plan

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RESPONSIVENESS SUMMARY

Closed Loop Refining & Recovery, Inc. 1655 and 1675 Watkins Road Columbus, Ohio 43207 EPA ID No. OHR000167718

September 4, 2020

Introduction

The Ohio Environmental Protection Agency ("Ohio EPA") and Garrison Southfield Park LLC ("Garrison") announced the opening of a 30-day comment period on April 20, 2020, for the public to review and comment on an administrative record file containing a draft plan to clean up electronic wastes abandoned by Closed Loop Refinery and Recovery, Inc. ("Closed Loop"), a former Garrison tenant. The warehouses at issue are located at 1655 Watkins Road and 1675 Watkins Road in Columbus, Ohio 43207 (the "Facility"). Notice of the public comment period was provided via publication in the Columbus Dispatch as well as on Ohio EPA's website in keeping with Ohio Admin. Code § 3745-66-12(D)(4) and to "give adequate notice to a community" consistent with the "potentially applicable" notice provisions set forth in 40 C.F.R. §§ 300.700(c)(6) & 300.415(n) of the U.S. Environmental Protection Agency National Contingency Plan ("NCP"). See https://epa.ohio.gov/derr/#1540310677-april-2020. As a courtesy, Garrison also provided separate notice to the defendants in Garrison Southfield Park LLC v. Closed Loop Refining and Recovery, Inc., et al., Case No. 2:17-cv-00783 (S.D. Ohio), which is a lawsuit filed by Garrison pursuant to authorities set forth in the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") to recover costs to fund the cleanup effort. At the request of one of the defendants, Garrison subsequently extended the public comment period to allow comments until June 13, 2020. See https://epa.ohio.gov/derr/#1540310691-may-2020.

The administrative record file is designed to comply with the Ohio hazardous waste program, which implements the Resource Conservation and Recovery Act ("RCRA"), as well as to satisfy CERCLA requirements for removal actions and cost recovery. With respect to the former, the administrative record includes a closure plan prepared in consultation with the Ohio EPA pursuant to Ohio hazardous waste laws and Ohio EPA guidance. With respect to the latter, the administrative record included a draft engineering evaluation / cost analysis ("EE/CA"), which incorporates the closure plan by reference, and which was prepared in accordance with those provisions in the NCP that apply to private party response actions (*i.e.*, 40 C.F.R. § 300.700(c)(5-7)) and EPA EE/CA guidance for non-time-critical removal actions. References to the "Closure Plan" below apply to the entire plan, including the EE/CA.

There were no comments received from any members of the Columbus community, including from those organizations identified as key community stakeholders by Ohio EPA: Columbus Division of Fire, Franklin County Emergency Management and Homeland Security, Columbus Southside Area Commission, the Far South Columbus Area Commission, the Alum Crest Acres Civil Association, the Marion Franklin Civic Association, and the Innis Gardens Village Civic Association.

The only comments that were received were from six of the defendants in Garrison's CERCLA cost recovery action. None are members of the Columbus community, and none are otherwise based in the State of Ohio. All six arranged for the disposal and/or treatment of electronic wastes to the Closed Loop facility in Columbus and have, to date, refused to help fund the cleanup effort: IMS Electronics Recycling, Inc., Kuusakoski US LLC, Rochester Computer Recycling & Recovery LLC, Dynamic Lifecycle Innovations Inc.,¹ Green Wave Computer Recycling LLC, and Complete Recycling Solutions LLC (hereinafter collectively referred to as the "PRPs").

Each of their comments is set forth below verbatim in quotation marks or summarized in bold type below, followed by Garrison's response. A full copy of their comments is attached. Although the comments appear to be primarily intended to derail the efforts by Garrison and Ohio EPA to clean up the Facility, Garrison has nevertheless made a number of responsive revisions, as described further below.

I. ALLEGED "LEGAL DEFICIENCIES"

1. ALLEGED "STATE NON-COMPLIANCE"

Comment No. 1:

"The process by which Garrison has attempted to gain 'approval' of its proposed Closure Plan expressly violates State of Ohio regulations. In particular, this 'public notice' process violates ORC Sections 3745.02-06. The Ohio EPA has repeatedly stated it will not approve the Closure Plan, so there is no final action of the Director of Ohio EPA which is subject to appeal before the Environmental Appeals Review Commission. Nor has the Director of the Ohio EPA issued a Final Findings and Orders for the RCRA Closure Plan pursuant to the regulations."

Response:

The PRPs incorrectly state the law and mischaracterize Ohio EPA's position.

First, the process by which Garrison and Ohio EPA are proceeding does not "expressly violate[]" Ohio Revised Code Sections 3745.02 through 3745.06. These provisions establish the Environmental Review Appeals Commission ("ERAC"), empower the ERAC to adopt hearing procedures, and authorize "[a]ny person who was a party to a proceeding before the director of environmental protection" to appeal administrative orders issued by the Director of Ohio EPA to the ERAC. The PRPs appear to be grafting a requirement into the Ohio Revised Code requiring the Director of Ohio EPA to approve the Closure Plan now as an appealable administrative order so that they can appeal it to the ERAC. There is, however, no such requirement. The Ohio Administrative Code includes two separate provisions that require the Director of Ohio EPA to

¹ This company refers to itself in the comments as "Dynamic Lifestyle Innovations Inc.," but its actual name is Dynamic Lifecycle Innovations Inc.

approve closure plans, neither of which applies here. The first provision is in the Chapter 3745-55 general facility standards (the state analog of 40 C.F.R. Part 264), which apply only to permitted treatment, storage and disposal facilities ("TSDFs"). The second is in the Chapter 3745-66 interim facility standards (the state analog of 40 C.F.R. Part 265), which apply only to facilities that qualify for interim status pending final administrative action on TSDF permits. The Facility is neither a permitted TSDF nor an interim status facility. Notably, Ohio EPA's Closure Plan Review Guidance distinguishes the processes for closure plans submitted as part of the TSDF permitting process from closure plans submitted as part of enforcement actions for "[n]ewly discovered units." Ohio EPA, "Closure Plan Review Guidance for RCRA Facilities" (July 2017), pp. 0-2, 1-1 to 1-3. While Ohio EPA may draw upon certain procedures in Ohio Admin. Code §§ 3745-66 "to provide a procedural framework for acting on closure plans" in such enforcement actions, the agency has no legal obligation to do so. *Id.* at 1-2.

The guidance also makes clear that Ohio EPA "retains discretion to use approaches on a case-bycase basis that differ from this guidance where appropriate." *Id.* at 0-2. In this case, the Closure Plan was submitted pursuant to neither the permitting process, nor an enforcement action, but was instead submitted voluntarily by Garrison. The process by which Garrison and Ohio EPA are proceeding takes into consideration the fact that Garrison has agreed to take the lead in a removal action to address "[n]ewly discovered units" that were abandoned by a third-party operator – a consideration that squarely falls within Ohio EPA's enforcement discretion. As discussed further below, the PRPs are correct only insofar as Ohio EPA has indicated that the Director of Ohio EPA will not be approving the Closure Plan as part of an enforcement action or final agency action at this time; instead, a designated representative of the Ohio EPA has issued an interim approval, pending formal approval in the future by the Director of Ohio EPA as final agency action, at his or her discretion and at a timeframe of his or her choosing. ² As a general matter, nothing in the Ohio Revised Code empowers out-of-state PRPs to curtail Ohio EPA's enforcement discretion or to force Ohio EPA to pursue enforcement now simply so they can appeal the Closure Plan for the express purpose of derailing the cleanup.

Second, it is not clear why the PRPs are representing that "Ohio EPA has repeatedly stated it will not approve the Closure Plan." Ohio EPA has, in fact, approved the Closure Plan, which followed Ohio EPA's review of a draft of this Responsiveness Summary. As a general matter, as defendants well know, Garrison has been coordinating closely with Ohio EPA, and the Closure Plan itself is a product of this collaboration. It is currently posted to Ohio EPA's website, and Ohio EPA directed that comments be submitted to Ohio EPA, thus why defendants provided its comments to them. As noted above, although the Director of Ohio EPA will not be approving the Closure Plan as part of an enforcement action at this time, Ohio EPA has approved it, with the expectation that the matter will ultimately be resolved through final agency action, upon satisfaction of the substantive closure performance standard set forth in Ohio Admin. Code § 3745-55-11.

² See also Textileather Corp. v. Christopher Jones, Dir. of Envtl. Prot., 2006 WL 4211740 (Ohio Env. Rev. App. Com. Aug. 22, 2006) ("Despite the seemingly mandatory timeframe set out in [Ohio Admin. Code § 3745-66-12(D)(4)], it is well-accepted that '[a]n administrative agency is not a slave of its rules." (second alteration in original)).

Importantly, it must be noted that the PRPs are being held liable in Garrison's CERCLA action under CERCLA authorities, not under Ohio hazardous waste law. In this regard, the PRPs' untenable position that the process by which Garrison and Ohio EPA are proceeding "expressly violates" Ohio law has no bearing on NCP compliance. The NCP does not require a private party to obtain governmental approval of an EE/CA for a voluntary response action:

Except for actions taken pursuant to CERCLA sections 104 or 106 or response actions for which reimbursement from the Fund will be sought, any action to be taken by the lead agency listed in paragraphs (c)(5) through (c)(7) may be taken by the person carrying out the response action.

40 C.F.R. § 300.700(c)(8). In promulgating 40 C.F.R. § 300.700 (which subsumed former 40 C.F.R. § 300.71(a)(2)), EPA likewise explained that government approval is not required for private response actions:

In today's proposed rule, as well as in the current NCP, EPA makes it absolutely clear that <u>no Federal approval of any kind</u> is required for a cost recovery action under CERCLA section 107. The main effect of today's proposed revisions to current NCP § 300.71(a)(2) is to specify in further detail what other persons must do in order to act consistently with the NCP.

National Oil and Hazardous Substances Pollution Contingency Plan, Proposed Rule, 53 Fed. Reg. 51394, 51462 (Dec. 21, 1988) (emphasis added).

Thus, a private party is authorized to take all actions assigned to the lead agency in 40 C.F.R. § 300.700(c)(5), (6), and (7). Per 40 C.F.R. § 300.700(c)(5)(vi), these actions include the implementation of 40 C.F.R. § 300.415 for removal actions. Consequently, and as described further below in response to other comments, Garrison is authorized to decide that removal is appropriate under 40 C.F.R. § 300.415(b)(3), to evaluate the removal alternatives by preparing an EE/CA under 40 C.F.R. § 300.415(b)(4), and to implement the recommended removal action under 40 C.F.R. § 300.415(b)(1). No government approval is required.

Comment No. 2:

"[T]he proposed Closure Plan does not comply with the Financial Assurance requirement under the relevant Ohio regulations."

Response:

The PRPs again incorrectly apply Ohio law. Ohio EPA's financial assurance requirements are set forth in Ohio Admin. Code §§ 3745-55-42 through 3745-55-48 and Ohio Admin. Code §§ 3745-66-42 through 3745-66-48, but these provisions apply only to permitted and interim status facilities. *See* Ohio EPA, "Closure Plan Review Guidance for RCRA Facilities" (July 2017), p. 3-44 ("Ohio EPA's financial assurance requirements are contained in OAC Rules 3745-55-42

through 3745-55-48 and OAC Rules 3745-66-42 through 3745-66-48 for permitted and Interim Standard facilities, respectively."). As noted above, Garrison is neither a permitted TSDF nor an interim status facility. That noted, Garrison is nevertheless providing some financial assurance in an effort to ensure that funds will be available when needed for closure of its Facility. Garrison has committed such funds via an escrow agreement entered into by the State of Ohio, Ohio EPA, Garrison, and the Ohio Attorney General in its capacity as escrow agent. The State of Ohio will release all funds deposited into the escrow account, including the financial assurance and settlements from defendants in the CERCLA action, upon a determination by Ohio EPA that the expenditures are necessary costs consistent with the Closure Plan and the NCP. The escrow agreement that will control the account expressly allows Garrison to recover its financial assurance assurance payments from existing or to-be-named defendants in Garrison's CERCLA action.

With respect to NCP consistency, the financial assurance requirements in Ohio EPA's hazardous waste rules are not Applicable or Relevant and Appropriate Requirements ("ARARs") under CERCLA. ARARs include only substantive requirements, which set levels or standards of control such as acceptable exposure levels or acceptable concentrations for specific chemicals. 53 Fed. Reg. at 51443. ARARs do not include the administrative requirements of other laws and regulations. *Id.* EPA has specifically stated that financial assurance regulations are administrative and thus are not ARARs:

Q9. Are RCRA financial responsibility requirements potential ARARs for Superfund?

A. No, because they are considered to be administrative requirements, not substantive environmental requirements. RCRA financial responsibility requirements support implementation of RCRA technical standards by ensuring that RCRA facility owners or operators have the financial resources available to address releases and comply with closure and post-closure requirements. CERCLA agreements with PRPs and, ultimately, the Fund itself, achieve essentially the same purpose.

OSWER Publication 9234.2-01/FS-A, "ARARs Q's & A's: General Policy RCRA, CWA, SDWA, Post-ROD Information, and Contingent Waivers" (July 1991), p. 4. Accordingly, the PRPs' complaint about financial assurance, even if it had been accurate, would not make Garrison's removal action inconsistent with the NCP.

2. ALLEGED "FEDERAL NON-COMPLIANCE"

a. "The proposed Closure Plan is a remedial not a removal action."

Comment No. 3:

The PRPs generally assert that Garrison should conduct the cleanup under "CERCLA's more complicated remedial action process and guidelines" instead of as a removal action. The PRPs contend that removal actions are allowed only to address "immediate risks and non-permanent solutions"; that they are "temporary solutions to emergency situations";

that they "cost less, take less time, and are geared to address an immediate release or threat of release of a hazardous substance"; that they do not encompass "a short-term cleanup arrangement intended to address an imminent release of threat of release"; and that they are designed for "a release that presents an imminent and substantial danger to public health or welfare." They argue that "[t]here are few, if any, of the factors met to characterize this remedy as a removal action under 40 C.F.R. § 300.415(b)(2)."

Response:

(1) The PRPs' characterization of the limited circumstances that qualify for CERCLA removal actions is not supported by CERCLA, the NCP, EPA guidance, or federal case law.

CERCLA does not support the assertion that removal actions are only available in such limited and extraordinary circumstances. The PRPs' arguments are inconsistent with congressional intent to bestow broad, effective authority for the governmental and private cleanup of hazardous substances. The U.S. Court of Appeals for the Sixth Circuit has advised that the term "removal action" must be "given a broad interpretation" in accordance with this congressional intent. *Kelley v. E.I. DuPont de Nemours & Co.*, 17 F.3d 836, 843 (6th Cir. 1994). This liberal reading is necessary to accomplish CERCLA's "two essential purposes," *i.e.*, "to provide … the tools immediately necessary for a swift and effective response to hazardous waste sites [and to ensure] that those responsible for disposal of chemical poisons bear the cost and responsibility for remedying the harmful conditions they created." *Id.* (quoting *Anspec Co. v. Johnson Controls, Inc.*, 922 F.2d 1240, 1247 (6th Cir. 1991)) (alteration in original).

The PRPs contend that (1) a removal action is allowed only for an imminent release; (2) that a removal action cannot provide a permanent remedy; (3) that a removal action cannot be expensive; and (4) that a cleanup effort projected to take four years must necessarily be classified as a remedial action as opposed to a removal action. CERCLA and the NCP regulations, however, clearly allow for removal actions where the threats are not "immediate" or "imminent." See 42 U.S.C. §§ 9601(23) (broadly defining "removal" as an action to address any threat of release of hazardous substances) & 9604(a)(1) (authorizing the President to pursue removal actions involving hazardous substances even though they do not "present an imminent and substantial danger"); 40 C.F.R. § 300.415(b)(1) (providing that a removal action can address any "threat to public health or welfare of the United States or the environment"); 40 C.F.R. § 300.415(b)(4) (providing for removal actions that are not time critical). Nor is the permanence of the solution determinative of whether a response action should be characterized as a "removal" or "remedial" action. EPA has not only stated in guidance that removal actions can be "permanent solutions," but the agency has expressed a preference that they be so. See OSWER 9360.0-40P, "Use of Non-Time-Critical Removal Authority in Superfund Response Actions" (Feb. 14, 2000), p. 4, n.3. There is likewise no support for the notion that a four-year cleanup effort must be a remedial action. EPA has observed that removal actions can include "longrunning responses" as opposed to short-term cleanup arrangements, id. at 3, n.2, an observation echoed by the Sixth Circuit, which stated that removal actions are not limited to "short-term actions," Village of Milford v. K-H Holding Corp., 390 F.3d 926, 934 (6th Cir. 2004). Nor are project costs determinative, as EPA has recognized that "even expensive and complex response

actions may be removal action candidates. . . . "*Id.* at 4. The PRPs' unduly restrictive view of removal actions is further at odds with EPA policies designed to expedite Superfund cleanups. In keeping with the Superfund Accelerated Cleanup Model and more recent Superfund Task Force recommendations, EPA "has urged Superfund decision makers to broadly use the CERCLA removal authority" in an effort to expedite site cleanups and to reduce the time and costs associated with the response actions. *See generally*, EPA Publication 9360.0-32, "Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA" (Aug. 1993), p. 2; OSWER 9360.0-40P, "Use of Non-Time-Critical Removal Authority in Superfund Response Actions" (Feb. 14, 2000); EPA, "Superfund Task Force Recommendations" (July 25, 2017). For all of the reasons described above and further below, CERCLA, the NCP, EPA guidance, and federal case law dispel each of the contentions raised by the PRPs.

(a) Removal actions can address threatened releases of hazardous substances, without having to wait for them to become "imminent and substantial dangers" to the public or the environment.

Congress provided removal authority to address the threatened releases of hazardous substances *before* they present imminent dangers to public health and the environment. Any assertion to the contrary is plainly inconsistent with the statute and CERCLA's remedial objectives. CERCLA Section 104(a) authorizes removal actions:

[w]henever (A) any hazardous substance is released or there is a substantial threat of such a release into the environment, or (B) there is a release or substantial threat of release into the environment of any pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare.

42 U.S.C. § 9604(a)(1) (emphasis added). Congress's distinction between a release of hazardous substances and a release of nonhazardous substances that present an "imminent and substantial danger" is both intentional and instructive. The government and private parties are authorized to proceed with a removal action whenever there is a release or substantial threat of release of any hazardous substance, regardless of whether it presents "an imminent and substantial danger." By contrast, the "imminent and substantial danger" limitation only applies whenever there is a release or substantial threat of release of a nonhazardous "pollutant or contaminant." As the U.S. Court of Appeals for the Ninth Circuit noted, "CERCLA was designed and enacted to prevent illness and death resulting from exposure to hazardous substances, not wait for its occurrence to prove a threat." *United States v. W.R. Grace & Co.*, 429 F.3d 1224, 1245 (9th Cir. 2005) (quoting an EPA action memorandum amendment).

CERCLA defines "removal" as follows:

The terms "remove" or "removal" means the cleanup or removal of released hazardous substances from the environment, such actions as may be necessary taken in the event of <u>the threat of release of hazardous</u> <u>substances into the environment</u>, such actions as may be necessary to monitor, assess, and evaluate the release or 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 release.

42 U.S.C. § 9601(23) (emphasis added). Rather than limiting removals to "imminent" releases, this definition contemplates removals to address a "threat of release" into the environment. This definition further contemplates that a removal action can include the removal and "disposal of removed material."

The NCP likewise does not limit removals to situations in which a release is "immediate" or "imminent," consistent with CERCLA's broad definition of a "removal." 40 C.F.R. § 300.415(b)(1) states that a removal action can address any "threat to public health or welfare of the United States or the environment." In fact, the NCP provides for "non-critical-time removal actions" that, as the label suggests, apply where immediate action is not necessary. These removal actions are suitable "[w]henever a planning period of at least six months exists before on-site activities must be initiated," which was the case with the Facility. 40 C.F.R. § 300.415(b)(4). This category of removal actions was developed specifically to address releases that are not imminent. Imminent releases should be handled as time-critical removals, while less immediate threats to public health, welfare, or the environmental can be addressed as non-time-critical removals.

(b) Removal actions may employ permanent solutions.

EPA guidance clearly allows for (and indeed encourages) removal actions to include permanent solutions:

Although some courts have considered the "permanence" of a response action as relevant to discerning whether the action is removal or remedial in nature, the Agency believes that consideration of permanence per se is sometimes misleading in making a determination regarding whether to employ removal or remedial authorities. As a practical matter, removal actions are often permanent solutions such as can be the case in a typical soil or drum removal.

OSWER 9360.0-40P, "Use of Non-Time-Critical Removal Authority in Superfund Response Actions" (Feb. 14, 2000), pp. 3-4, n.3. EPA guidance also states:

Non-time-critical removal actions may be interim or final actions; they may be the first and only action at a site, or one of a series of planned response actions. . . .

Because of the CERCLA preference for treatment over containment or land disposal, it is important that alternatives that employ treatment and that yield permanent solutions be fully evaluated for non-time-critical removal actions and early remedial actions... The EE/CA should help define the scope of the removal action. <u>The scope of the action could be for example, total site cleanup</u>, site stabilization, or surface cleanup of hazardous substances.... <u>When a non-time-critical removal action will be the only or last action taken to clean up a potential NPL site</u>, the EE/CA should provide adequate documentation that activities performed at the site are sufficient to meet completion requirements."

EPA Publication 9360.0-32, "Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA" (Aug. 1993), pp. 19 & 32 (emphasis added).

The courts have concurred in EPA's position that the permanence of cleanup does not define a cleanup as remediation. *New York v. Next Millenium Realty, LLC*, 732 F.3d 117, 128-29 (2d Cir. 2013); *W.R. Grace*, 429 F.3d at 1244-45, 1247. One court expressed this position in a case involving a permanent cleanup of lead dust in a warehouse:

The mere fact, however, that what would otherwise be a removal action effects a permanent remedy does not convert that action into a remedial action. The EPA has clearly contemplated that a removal action might effect a permanent remedy. *See* 40 C.F.R. § 300.65(e) ("If the lead agency determines that the removal action will not fully address the threat or potential threat posed by the release and the release may require remedial action, the lead agency shall ensure an orderly transition from removal to remedial response activities.").

BCW Assocs., Ltd. v. Occidental Chem. Corp., No. CIV.A. 86-5947, 1988 WL 102641, at *18 (E.D. Pa. Sept. 29, 1988) (finding that removing lead dust from a warehouse was removal action).

(c) Removal actions can include expensive and lengthy cleanup efforts if necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment.

Nor are the projected costs and timeline of any given action determinative of whether it should be characterized as a removal or remedial action. While the PRPs argue that Garrison's cleanup is too expensive for a removal action, EPA guidance advises that a project's cost does not determine its suitability for removal:

But even expensive and complex response actions may be removal action candidates if they are relatively time-sensitive - regardless of whether any further action might ultimately be selected for a site. Thus, for example, removal authority may be appropriate for incineration of thousands of drums that are degrading over time, especially where the Agency determines as part of an initial removal action that such disposal is warranted regardless of any further action that EPA may ultimately decide is appropriate for a site. OSWER 9360.0-40P, "Use of Non-Time-Critical Removal Authority in Superfund Response Actions" (Feb. 14, 2000), p. 4; *see also W.R. Grace*, 429 F.3d at 1226-27, 1243 (citing OSWER 9360.0-40P for the same proposition, and finding a \$54 million project to be removal); *Next Millenium*, 732 F.3d at 129-30 (citing OSWER 9360.0-40P for the same proposition). While the PRPs opine that lengthy cleanup actions likewise cannot be removal action, EPA rejects that position as well:

Time sensitivity refers to the need to take relatively prompt action. In contrast, the length of time necessary to complete an action, sometimes referred to as "duration" of the action, captures only how long the response action will take to build or implement. While some courts have looked to that factor in distinguishing between removal and remedial actions, this characteristic usually is not helpful; removal actions are most often of short duration, but they certainly can be long-running responses, too, thereby undercutting the probative value of duration, relative to the factors discussed in the text, in deciding whether an action is removal rather than remedial in nature.

OSWER 9360.0-40P, "Use of Non-Time-Critical Removal Authority in Superfund Response Actions" (Feb. 14, 2000), p. 3, n.2. The Sixth Circuit echoed this point in classifying several years of activities as removal in *Milford*, stating that removals are not limited to "short-term actions." 390 F.3d at 934; *see also Valbruna Slater Steel Corp. v. Joslyn Mfg. Co.*, 934 F.3d 553, 564–65 (7th Cir. 2019) (citing *Milford* for the proposition that the length of cleanup is not dispositive and finding that a seven year cleanup was removal, not remediation); *Next Millenium*, 732 F.3d at 129-30 (finding a 23-year-long project to be a removal action, because it was necessary to address a release); *W.R. Grace*, 429 F.3d at 1244 (cleanup not disqualified as removal even though it lasted several years). Thus, the length and expense of Garrison's cleanup are not dispositive of whether the cleanup is a removal action.

(d) The complexity, or lack of complexity, of a cleanup action is an important factor in deciding whether to conduct the cleanup as a removal action.

Project complexity is another important factor to be considered in deciding whether a cleanup should be conducted as removal or remedial action, although the PRPs did not address this factor in their comments. If not time-sensitive, remedial actions generally would be used "to address complex site problems that will likely require a costly, complicated response." OSWER 9360.0-40P, "Use of Non-Time-Critical Removal Authority in Superfund Response Actions" (Feb. 14, 2000), p. 5. Less complicated response actions are more likely to be undertaken as removal actions. As the court in *BCW* found, the simplicity of a cleanup activity was a factor in deciding that the removal of lead dust from a warehouse was removal. *BCW*, 1988 WL 102641, at *19. In that case, the court determined that wet vacuuming and encapsulation of the lead dust were removal actions. *Id.* As discussed further below, Garrison's removal action, which similarly involves lead dust removal, may be expensive, but it is not particularly complicated.

(2) A removal action is the appropriate remedy for the Facility.

As the PRPs correctly observe but incorrectly apply, 40 C.F.R. § 300.415(b) of the NCP sets forth the criteria for determining whether removal is an appropriate mechanism for addressing the release or threatened release of hazardous substances under CERCLA:

(1) At any release, regardless of whether the site is included on the National Priorities List (NPL), where the lead agency makes the determination, based on the factors in paragraph (b)(2) of this section, that there is a threat to public health or welfare of the United States or the environment, the lead agency may take any appropriate removal action to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or the threat of release.

(2) The following factors shall be considered in determining the appropriateness of a removal action pursuant to this section:

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(iii) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;

(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

(vi) Threat of fire or explosion;

(vii) The availability of other appropriate federal or state response mechanisms to respond to the release;³ and

(viii) Other situations or factors that may pose threats to public health or welfare of the United States or the environment.

After conducting a removal preliminary assessment, Garrison determined that a non-time-critical removal action is the appropriate procedure for addressing the threats of releases at the Facility. In particular, Garrison found that such a removal action is warranted under the first and third criteria of 40 C.F.R. § 300.415(b)(2):

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

³ 40 C.F.R. § 300.700(c)(5)(vi) specifies that 40 C.F.R. § 300.415(b)(2)(vii) does not apply to private removal actions.

(iii) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

The EE/CA, drawing on evidence developed in Garrison's removal preliminary assessment, explained why the foregoing criteria support a non-time-critical removal action. This evidence includes the following facts:

- Concentrations of lead in 19 dust samples ranged from 2,200 to 15,000 milligrams per kilogram, exceeding the Ohio Voluntary Action Program (VAP) generic direct-contact residential soil standard (GDCSS) of 400 milligrams per kilogram. Chromium was reported to exceed the residential GDCSS of 120 mg/kg in two samples.
- 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.
- The containers of this hazardous waste are constructed of cardboard and are deteriorating, becoming unstable, and in some cases collapsing and blocking aisle ways.
- In addition to the abundance of [cathode ray tube ("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.
- 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.
- 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 findings, Garrison determined that the removal action recommended in this EE/CA is justified by 40 C.F.R. § 300.415(b)(2).

The NCP lists a number of cleanup actions that, by regulation, are appropriate for removal, stating:

The following removal actions are, as a general rule, appropriate in the types of situations shown; however, this list is not exhaustive and is not intended to prevent the lead agency from taking any other actions deemed necessary under CERCLA, CWA section 311, or other appropriate federal or state enforcement or response authorities, and the list does not create a duty on the lead agency to take action at any particular time: . . .

(7) Removal of drums, barrels, tanks, or other bulk containers that contain or may contain hazardous substances or pollutants or contaminants—where it will reduce the likelihood of spillage; leakage; exposure to humans, animals, or food chain; or fire or explosion; [or]

(8) Containment, treatment, disposal, or incineration of hazardous materials - where needed to reduce the likelihood of human, animal, or food chain exposure. . . .

40 C.F.R. § 300.415(e). The NCP's classification of container removal, treatment, and disposal from a facility as a "removal" is consistent with CERCLA's definition of "removal," which includes "the cleanup or removal of released hazardous substances from the environment," including "the disposal of removed material." 42 U.S.C. § 9601(23). *See Kelley ex rel. State of Mich. v. E.I. duPont de Nemours & Co.*, 786 F. Supp. 1268, 1276-78 (E.D. Mich. 1992) (finding the excavation, removal, and disposal of drums and contaminated soil to be removal), *aff'd Kelley*, 17 F.3d at 843. The gaylords of electronic wastes in the Facility are bulk containers full of hazardous substances, and Garrison's removal of them will reduce the likelihood of spillage, leakage and exposure to humans.

Notably, contrary to the PRPs' assertions, EPA guidance describes non-time-critical removal actions as typically involving less "imminent" concerns" than those that are present at the Facility. According to EPA, non-time-critical removal actions typically involve a secure site, no nearby population center, storage containers in stable condition, and a dangerous concentration of chronic toxic substances. EPA/542R-92/005, "CERCLA/SUPERFUND Orientation Manual" (Oct. 1992), p. V-5. By comparison, Garrison's warehouses are secure, but there is a nearby population center, the gaylords are deteriorating and susceptible to failure, and there are dangerous concentrations of lead posing a chronic risk throughout the warehouse. Thus, the threat of release at Garrison's warehouses is more imminent than in EPA's example of a typical removal action. Although securing the site gave Garrison more time to plan for removal, the waste must be removed to eliminate the ongoing risk.

A removal action is also appropriate in light of the response action's lack of complexity. The selected response alternative generally entails packaging the wastes, trucking them to a recycling facility or permitted landfill for treatment or disposal, then vacuuming and rinsing the warehouse's interior. As opposed to a typical landfill site or a chemical storage facility, the Facility overwhelmingly contains only one waste stream and it is in solid form - CRTs. The response does not involve any cleanup or monitoring of soil, surface water, or groundwater contamination or the excavation or encapsulation of underground wastes like those that are typically evaluated in a Remedial Investigation and Feasibility Study ("RI/FS") conducted for remedial actions. In a similar situation, the court in BCW found that removal was suitable for removing lead dust from a warehouse, because "there was a threatened release of the lead dust on goods being shipped to Knoll's customers and on the shoes and clothing of workers leaving the warehouse." 1988 WL 102641, at *17. The court determined that the uncomplicated activities necessary to accomplish a complete cleanup would be taken as a removal action. Id. at *19. Similarly, Garrison does not need "to address complex site problems that will likely require a costly, complicated response" as envisioned for remedial action by EPA guidance. OSWER 9360.0-40P, "Use of Non-Time-Critical Removal Authority in Superfund Response Actions" (Feb. 14, 2000), p. 5. Indeed, had Garrison funded a costly RI/FS and performed other remediation activities, the PRPs undoubtedly would have complained about the added cost and argued that only a removal action is consistent with the NCP.

For all of the reasons discussed above, Garrison has appropriately determined that the response action should be conducted as a non-time-critical removal action to address the "threat of release of hazardous substances into the environment," consistent with the definition of removal in 42 U.S.C. § 9601(23), and the "threat to public health or welfare of the United States or the environment," consistent with the NCP at 40 C.F.R. § 300.415(b)(1). The PRPs' comments notwithstanding, the process by which Garrison is proceeding is entirely consistent with CERCLA and the NCP, as well as the last quarter century of EPA guidance and federal case law.

b. "The proposed Closure Plan does not comply with the procedural requirements for removal actions...."

Comment No. 4:

"First, the NCP requires that a determination on whether a removal action is appropriate be made by the 'lead agency.' 40 CFR 300.415(b)(3). Most aspects of the removal action process, including designation of an on-scene-coordinator ('OSC'), the site evaluation, removal preliminary assessment, and EE/CA, are similarly coordinated and led by the lead agency. *See, generally*, 40 CFR 300.415.... As described in the definition of 'lead agency,' the lead agency is a governmental body, not a private party, like Garrison.... There is no support in CERCLA, the NCP, or any guidance for expanding the regulatory definition of 'lead agency' to include a private party.... This process provides no assurance to the Commenting Parties or the public that the proposed Closure Plan has been reviewed and approved by a governmental agency with expertise in environmental cleanups."

Response:

The PRPs' comment fails to account for 40 C.F.R. Part 300, Subpart H, *Participation by Other Parties*, in its entirety. The NCP provides that, in private party response actions, the actions to be taken by the lead agency are to be taken by the private party. Garrison did not – to use the PRPs' language – "magically deem itself the 'lead agency'": the NCP did. 40 C.F.R. § 300.700(c)(8) provides that: "Except for actions taken pursuant to CERCLA sections 104 or 106 or response actions for which reimbursement from the Fund will be sought, any action to be taken by the lead agency listed in paragraphs (c)(5) through (c)(7) may be taken by the person carrying out the response action." As EPA noted in the rulemaking preamble:

In a private party response action, the private party may perform most of the functions of a lead agency, except of course, waivers of applicable laws, permit waivers, and functions related to use of the Fund (EPA has identified those sections of the NCP that are potentially relevant to private party cleanups in § 300.700(c) (5)-(7)); there is no support agency in a private party cleanup action.

National Oil and Hazardous Substances Pollution Contingency Plan, 55 Fed. Reg. 8666, 8795 (Mar. 8, 1990).

There is a long line of cases supporting this basic premise of private party response actions. *See VME Americas, Inc. v. Hein-Werner Corp.*, 946 F. Supp. 683, 690 n.5 (E.D.Wis. 1996) ("In private party response actions, no governmental action is necessary, and the actions to be taken by the 'lead agency' become those to be taken by the private party." (quoting *Channel Master Satellite, Systems, Inc. v. JFD Electronics Corp.*, 748 F. Supp. 373, 382 n.11 (E.D. N.C. 1990))). *See also Alcan–Toyo Am., Inc. v. N. Ill. Gas Co.*, 904 F. Supp. 833, 836 (N.D. Ill. 1995) (stating that actions designated to be taken by a "lead agency" are to be taken by the private party carrying out the response action, citing 40 C.F.R. § 300.700(c)(8)); *Waste Mgmt. of Alameda v. E. Bay Reg'l Park*, 135 F. Supp.2d 1071, 1101 n.29 (N.D. Cal. 2001) (noting that "[t]he NCP explains that, in private party actions, the actions to be taken by the lead agency are to be taken by the private party" (citing 40 C.F.R. § 300.700(c)(8)) and *VME Americas, Inc. v. Hein-Werner Corp.*, 946 F. Supp. at 690 n.5 (E.D.Wis. 1996))).

40 C.F.R. § 300.700(c)(5-7) includes specific and prescriptive authorities for private parties to serve as the lead agency for purposes of those provisions in the NCP that apply to private party response actions. By way of example:

- 40 C.F.R. § 300.700(c)(5)(v) authorizes the private party to undertake a removal site evaluation and to prepare a removal preliminary assessment pursuant to 40 C.F.R. § 300.410.
- 40 C.F.R. § 300.700(c)(5)(vi) authorizes the private party to determine whether a removal action is appropriate pursuant to 40 C.F.R. § 300.415.
- 40 C.F.R. § 300.700(c)(5)(vi) authorizes the private party to conduct the EE/CA pursuant to 40 C.F.R. § 300.415(b)(4)(i).

• 40 C.F.R. 300.700(c)(6) authorizes the private party to perform the community relations function pursuant to 40 C.F.R. § 300.415(n).

Each of the above provisions establish responsibilities that would otherwise run to the lead agency *were it not for* 40 C.F.R. Part 300, Subpart H. The PRPs' position also runs headstrong into EPA's clear recognition that "no Federal approval of any kind is required for a cost recovery action under CERCLA section 107." 53 Fed. Reg. at 51462. For further discussion, see the response above to Comment No. 1.

Comment No. 5:

"Second, to authorize the preparation of an EE/CA, an 'EE/CA Approval Memorandum' must be prepared and approved. *See*, OSWER Dir. 9360.0-32, August 1993; *see*, *also*, OSWER 9360.0-40P, February 2000. No EE/CA Approval Memorandum has been prepared for the Closed Loop Facilities... The Regional Administrator (or authorized designee, which may include the lead agency) must evaluate the EE/CA Approval Memorandum and provide authorization that a removal is appropriate and that an EE/CA can proceed."

Response:

The PRPs fail to cite to any provision in CERCLA or the NCP that could be construed to require an EE/CA Approval Memorandum in a private party response action, because there isn't one. The two guidance documents to which the PRPs cite for this alleged "procedural requirement" each include standard agency disclaimers indicating that they are intended solely for guidance by government personnel and that they do not include legally-binding requirements.

Neither CERCLA nor the NCP contain any requirement that private parties prepare an EE/CA Approval Memorandum or obtain an EE/CA Approval Memorandum from a government agency to "authorize" the preparation of an EE/CA. As noted above in the response to Comment No. 4, 40 C.F.R. § 300.700(c)(5)(vi) already authorizes private parties to conduct the EE/CA pursuant to 40 C.F.R. § 300.415(b)(4)(i), and 40 C.F.R. § 300.700(c)(5)(vi) already authorizes the private party to determine whether a removal action is appropriate pursuant to 40 C.F.R. § 300.415(b)(4)(i), and 40 C.F.R. § 300.700(c)(5)(vi) already authorizes the private party to determine whether a removal action is appropriate pursuant to 40 C.F.R. § 300.415. Additional authorization is not necessary. Notably, the entire NCP mentions the EE/CA Approval Memorandum only once, in a passage stating that "the information repository and the administrative record file will be established no later than when the EE/CA approval memorandum is signed." 40 C.F.R. § 300.415(n)(4)(i). As stated in 40 C.F.R. § 300.700(c)(6), however, "administrative record and information repository requirements" do not apply to private party response actions.

As a practical matter, the EE/CA Approval Memorandum is a tool for coordinating internal decision-making by a government agency that conducts or supervises a removal action. It has no relevance in a private party response action. An EE/CA Approval Memorandum would have been a pointless exercise that would have only served to increase the costs that the PRPs would have had to pay.

Comment No. 6:

"Third, the Closure Plan does not sufficiently evaluate removal alternatives.... The public and Commenting Parties are left to guess if the material will be recycled or not, if it will be treated or not, or how it will be treated or not, and we are given no indication even as to the country (let alone the specific landfill) where any CRT-related materials may be disposed.... An EE/CA is supposed to evaluate representative relevant and viable removal alternatives. Removal alternatives should be analyzed for their effectiveness, implementability, and cost. *See*, OSWER Dir. 9360.0-32, August 1993. Moreover, each alternative should be described 'with enough detail so that the entire treatment process can be understood.' *Id.* (offering as an example that details about disposal, such as location, volume of waste, and disposition of treatment residuals, should be included)."

Response:

The EE/CA analyzes three removal alternatives, consistent with the NCP, EPA's guidance on the number of alternatives expected in an EE/CA for non-time-critical removal actions, and EPA's guidance on how they should be evaluated in an EE/CA for non-time-critical removal actions. The NCP, at 40 C.F.R. § 300.415(b)(4)(i), indicates that an EE/CA is "an analysis of removal alternatives for a site," but provides no other discussion regarding what the analysis should entail. EPA's EE/CA guidance directs that only a few alternatives should be discussed: "Finally, an initial screening of alternatives generally will not be necessary; only a few viable alternatives relevant to the EE/CA objectives should be identified and analyzed." EPA Publication 9360.0-32, "Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA" (Aug. 1993), p. 20. The guidance further provides that the EE/CA "should identify and assess a limited number of alternatives appropriate for addressing the removal action objectives." Id. at 33. The first of the three alternatives addressed in the EE/CA is the baseline - a "no action" alternative against which the remaining alternatives were compared; the second involves the simple removal of the CRTs and other electronic wastes from the Facility; and the third involves removal of the CRTs and other electronic wastes as well as lead decontamination, consistent with Ohio EPA's substantive closure performance standard that applies as an ARAR. Each alternative was evaluated against the remedial action objectives and the NCP criteria of effectiveness, implementability (technical feasibility, administrative feasibility, availability of services and materials, stakeholder acceptance), and cost. Sections 4, 5, and 6 of the EE/CA explain in detail how each alternative was evaluated and how the third alternative is preferred.

The provision in the guidance to which the PRPs cite relates to consideration of alternative treatment technologies, which is a subset of the removal alternatives selection process. In this regard, the guidance provides that "[w]henever practicable, the alternatives selection process should consider the CERCLA preference for treatment over conventional containment or land disposal. . . ." EPA Publication 9360.0-32, "Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA" (Aug. 1993), p.33. The guidance also clarifies that the operative provision in CERCLA that calls for the evaluation of alternative treatment technologies (CERCLA Section 121(b)) does not actually apply to removal actions; the guidance therefore

discusses alternative treatment technologies as a "goal" for removal actions, as opposed to a "procedural requirement," as characterized by the PRPs. *Id*.⁴

Nevertheless, Garrison's EE/CA meets this "goal" of evaluating alternative treatment technologies. Section 3.2.1 of the EE/CA provides:

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.

Consistent with the EE/CA, Garrison has and will continue to evaluate the feasibility and costeffectiveness of treatment technologies (recycling) as opposed to disposal of the CRTs and other electronic waste at the Facility, based on any new information and/or new technologies or methodologies developed during the course of the removal action. Based on current information, and as noted in the EE/CA, 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, with the open question being economic viability: it will cost more to recycle each whole CRT as compared to standard market rates because of deteriorating site conditions and increased labor costs associated with compliance with the site-specific Health and Safety Plan ("HASP"). Recycling does not, however, currently appear to be an economically viable option for the vast majority of the other CRTs and electronic wastes in the Facility given current site conditions and the manner in which these materials were originally processed. For example, the 113,750,757 pounds of mixed funnel / panel glass is currently destined for disposal at a RCRA Subtitle C landfill, consistent with the cost proposal provided by NovoTec Recycling LLC

⁴ The PRPs also mischaracterize the "example" referenced in EPA's EE/CA guidance: it does not indicate that "location" of the disposal is one of the details to be included in considering the alternative treatment technology, but instead suggests that the details might include a discussion of whether the treatment "will occur on-site or off-site." EPA Publication 9360.0-32, "Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA" (Aug. 1993), p. 34. This is a key distinction when coupled with PRP concerns that the Closure Plan did not name specific downstream recyclers or landfills. See the response to Comment No. 7 for further discussion.

("NovoTec"), which is based on landfill disposal. Based on Closed Loop's records and consultation with industry experts and a lead smelter, the low lead content of this commingled stream, the presence of plastic impurities, the condition of the gaylords, and insufficient granularity render it unsuitable for processing in lead smelters. There does not appear to be any viable alternative other than disposal. See the responses below to Comment No. 10 and 11 for further discussion.

Comment No. 7:

"Third, [n]either the current draft of the EE/CA nor the Closure Plan describe the ultimate disposal or recycling location for the CRT-related materials. Under CERCLA regulations, the acceptability of any facility selected for the treatment, storage, or disposal of CERCLA material must be evaluated for 'remedial or removal actions involving the off-site transfer of any hazardous substance, pollutant, or contaminant.' 40 C.F.R. § 300.440."

Response:

The PRPs' comment again fails to account for 40 C.F.R. Part 300, Subpart H, *Participation by Other Parties*. The PRPs rely on 40 C.F.R. § 300.440 for their proposition that the EE/CA must identify the off-site disposal and treatment destinations. 40 C.F.R. § 300.440, however, is not among those NCP provisions that apply to a private party response action. *See* 40 C.F.R. § 300.700(c)(5-7). This was not an oversight. EPA has advised that this regulation, known as the "off-site rule," does not apply to private party response actions:

In one commenter's example, if a PRP has taken a voluntary response action (not under a CERCLA order and without CERCLA funds), that action is not subject to the Off-site Rule; thus, in a cost recovery action under CERCLA section 107(a)(4)(B), the PRP may demonstrate action "consistent with the NCP" without having to show compliance with the Off-site Rule requirements.

Amendment to the National Oil and Hazardous Substances Pollution Contingency Plan; Procedures for Planning and Implementing Off-Site Response Actions, 58 Fed. Reg. 49200, 49203 (Sept. 22, 1993). Accordingly, the off-site rule does not apply to Garrison's private party response action.

Comment No. 8:

"Third, [t]he combination of deficiencies outlined herein - failing to identify with any specificity disposal and/or recycling locations and techniques, building in contingencies to unilaterally change the disposal and/or recycling locations in the future, and failing to adequately evaluate removal alternatives - violate the 'extensive public consultation' requirements for a CERCLA remedy choice under the NCP. *See, e.g., Atl. Richfield Co. v. Christian*, 140 S. Ct. 1335, 1346 (2020) (citing 42 U.S.C. §§ 9613(k), 9617) ('[CERCLA] prescribes extensive public consultation while a cleanup plan is being developed.'). There is so little relevant information provided in the proposed Closure Plan that this feigned

public comment process cannot meet the rigorous requirements for community involvement prescribed in the CERCLA regulations."

Response:

The PRPs appear to have mistakenly cited to the U.S. Supreme Court's recent decision in Atl. Richfield Co. v. Christian, 140 S. Ct. 1335 (2020), for the premise that "failing to identify with any specificity disposal and/or recycling locations and techniques, building in contingencies to unilaterally change the disposal and/or recycling locations in the future, and failing to adequately evaluate removal alternatives - violate the 'extensive public consultation' requirements for a CERCLA remedy choice under the NCP." There is, of course, nothing in this decision that reaches so far as to prescribe that cleanups must identify disposal or recycling locations. Atlantic Richfield involved jurisdictional issues arising out of a Superfund site being remediated by Atlantic Richfield, with EPA serving as the lead agency. Id. at 1345. The question presented was whether nearby landowners were prohibited from pursuing their own remedial action at the site, without EPA approval, by way of a state law claim for restoration damages. Id. In introducing his opinion, Chief Justice Roberts noted that CERCLA prescribes "extensive public consultation while a cleanup plan is being developed," but his opinion includes no discussion whatsoever of specific requirements to include in community relations notifications or in cleanup plans released for public comment - nor were these issues remotely relevant to the question presented. Id. at 1346. After observing that CERCLA requires "extensive public consultation," Chief Justice Roberts simply noted that "i[t] requires an opportunity for public notice and comment on proposed cleanup plans," then proceeded with the rest of the opinion. CERCLA indeed requires extensive public consultation, thus why Garrison released a 936-page Closure Plan for public comment on Ohio EPA's website; thus why Garrison provided the PRPs with an extension of the public comment period; and thus why Garrison is herein responding to each of the comments raised by the PRPs on a point-by-point basis, despite the fact that the PRPs' comments appear to be primarily intended to derail the efforts by Garrison and Ohio EPA to clean up the Facility.

II. ALLEGED "SUBSTANTIVE DEFICIENCIES"

1. CLEANUP PROPOSAL

a. "The Plan does not include the Closed Loop Fairwood Facility."

Comment No. 9:

"Garrison and the Ohio EPA have repeatedly stated that the Watkins Road and Fairwood facilities which were both used by Closed Loop would be cleaned up as a part of a single response action. Yet, the proposed Closure Plan does not mention the Fairwood facility at all. Therefore, the proposed Closure Plan is incomplete for not including the Fairwood facility, or at least explaining how the two cleanups will be coordinated."

Response:

As a threshold matter, to clarify, while Garrison has previously noted that the Watkins Road and Fairwood Avenue properties would be treated as the same "facility" for purposes of the CERCLA action, Garrison has never stated that these properties would be cleaned up as part of "a single response action," nor is Garrison aware of any statements from Ohio EPA for the same proposition.

The PRPs provide no support for the assertion that Garrison's Closure Plan is "incomplete," or, by implication, legally insufficient, because it does not discuss the property located at 2200 Fairwood Avenue in Columbus, Ohio, which is owned by Olymbec USA LLC ("Olymbec"). The NCP does not preclude the use of separate EE/CAs for the Watkins Road and Fairwood Avenue properties, nor does Ohio hazardous waste law prohibit separate closure plans for them. In this case, separate cleanup plans make practical sense, because the plans are being implemented by different property owners, at different times, and at different physical locations. A separate closure plan for the Fairwood Avenue facility was accordingly released for public comment on May 22, 2020, with a public notice period ending June 25, 2020.

Nevertheless, there have been steps taken to coordinate the two removal actions, consistent with the fact that both closure plans were prepared in consultation with the same environmental consulting firm, were released for public comment within weeks of each other, and involve the same waste streams and the same substantive closure performance standard. For example, it is currently anticipated that the three warehouses will be closed sequentially in the following order: (1) 1655 Watkins Road; (2) 2200 Fairwood Avenue; and (3) 1675 Watkins Road. This project sequencing accounts for the fact that Garrison and Olymbec may be using one or more of the same environmental services providers.

In an effort to be responsive to the PRPs' concerns, and while it has no obligation to do so, Garrison will revise the Closure Plan to reference this sequencing and other efforts to coordinate the two removal actions.

b. "The Plan does not explain the wide variation in cleanup cost estimates."

Comment No. 10:

"The amount of material present at the Closed Loop Facilities has remained essentially unchanged since Closed Loop shut its doors in 2016. From 2015 through 2020, Garrison has obtained several cleanup cost estimates and schedules for performance, including widely diverging proposals from AECOM and from NovoTec. Yet, Garrison's proposed Closure Plan does not explain the variation in these costs or why the current proposal is more accurate, cost-effective, or appropriate than prior estimates."

Response:

The PRPs provide no support for the assertion that the Closure Plan is legally insufficient because it does not explain variations in every cleanup cost estimate received over the past five years. Garrison has received, and continues to receive, proposals from environmental services providers that vary widely in the integrity of the information upon which they are based and the contractor's qualifications and compliance history, among other factors. Many of these proposals were unsolicited and were received from providers that have never conducted a site visit or otherwise engaged in any meaningful communication with Garrison including, but not limited to, the estimates the PRPs recently received from Dlubak Glass and Heritage Environmental Services referenced in the PRP's Comment No. 18.⁵ The early estimates, in particular, were developed with limited information in contrast to the comprehensive data obtained by Atwell, LLC ("Atwell") in its field inspections and open houses in mid-2016. *See* Atwell, LLC, "Evaluation of E-Waste Inventories and Remediation/Closure Options" (May 4, 2017) (included in Appendix B to the Closure Plan).

Among the early estimates, the PRPs cite to the "widely diverging proposal[]" from AECOM Technical Services, Inc. ("AECOM"), which estimated cleanup costs at approximately \$5.4 million in November 2015, when Closed Loop was still operating. See AECOM Technical Services, Inc., "Baseline Environmental Conditions and Closure Cost Evaluation" (Dec. 1, 2015) (included in Appendix B to the Closure Plan). AECOM's estimate was based on a baseline environmental conditions and closure cost evaluation conducted several months before Closed Loop stopped accepting CRTs and other electronic waste from the PRPs. Their report references, for example, "a fork lift [that] was placing large-screen televisions in the building during the second site visit." The estimate was based on an estimated 44,560 tons of CRTs and other electronic wastes, which was informed by a closure plan prepared by Closed Loop, dated June 2015, which projected that the "maximum material inventory at the facility is approximately 45,000 tons." AECOM's projections (and Closed Loop's closure plan) were 19,000 tons less than the actual weight of CRTs and other electronic wastes that Garrison's experts project are currently in the Facility, as reported in Section 2.2.1 of the Closure Plan. AECOM's estimate also did not account for compliance with either the NCP or with the Ohio EPA substantive closure performance standard, neither of which are ever referenced in their report. Notably, by comparison, at least one other early proposal received in April 2016 came in far higher. Kuusakoski Glass Recycling LLC, which is ironically one of the PRPs that submitted the comment, submitted a proposal in April 2016 to perform the removal effort itself, quoting three options ranging from \$16,500,000 to \$20,900,000. In this regard, it is difficult to discern how the PRPs can credibly point to a \$5.4 million estimate as a meaningful basis to challenge Garrison's Closure Plan.

Atwell's "Evaluation of E-Waste Inventories and Remediation/Closure Options," dated May 4, 2017, and included as Appendix B to the Closure Plan, was the first comprehensive evaluation of environmental conditions and closure costs. It included an exhaustive analysis of

⁵ Garrison requested copies of these estimates from the PRPs, but was advised that they had not been reduced to writing as of the submission of the PRPs' comments. Garrison subsequently received a written proposal from Heritage Environmental, which is discussed in response to Comment No. 18.

contractor proposals, cost estimates, and qualifications. The PRPs do not explain why the evaluation included therein is deficient. In pertinent part, the Atwell report stated:

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. . . .

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 walkthrough, 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 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. . . .

Atwell's report capably explains why the estimates put forward by the preferred vendors were "more accurate, cost-effective, or appropriate" than other bidders, but the report, too, is dated. As noted in Section 2.1.5 of the Closure Plan, Atwell caveated its evaluation by observing that:

Costs, however, may be significantly higher and depend upon the material quantities, transportation fuel costs, and the availability of previouslyidentified 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.

Based on Atwell's initial recommendation of NovoTec, NovoTec was further vetted through a pilot project conducted in mid-2019 in consultation with Ohio EPA to identify, decontaminate, transport, process, and recycle approximately 185,975 pounds of projection lens material at the Facility. The pilot project was successfully completed and ultimately contributed to Garrison's selection of NovoTec as the preferred vendor for the overall removal action.

Moreover, contrary to the PRPs' assertions, variations from the estimates included in Atwell's report and the current 2020 estimate are indeed explained in the Closure Plan as part of NovoTec's revised proposal, which appears in Attachment C to the EE/CA. For example, as NovoTec noted:

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 inwarehouse 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.

The 2020 estimates submitted with the Closure Plan, including NovoTec's estimate, were generally based on a far more detailed scope of work, consistent with the Closure Plan, to: (i) minimize the need for further maintenance; (ii) 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; and (iii) 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."

c. "The Plan does not identify whether the CRT glass removed from the Closed Loop Facilities will be landfilled or recycled."

Comment No. 11:

"The proposed Closure Plan is incomplete and internally inconsistent regarding whether the materials at the Closed Loop Facilities will be landfilled or recycled."

<u>Response</u>:

The Closure Plan appropriately evaluates removal alternatives and alternative treatment technologies, including recycling and landfilling, as noted above in response to Comment No. 6 and as reproduced below:

Garrison has and will continue to evaluate the feasibility and costeffectiveness of treatment technologies (recycling) as opposed to disposal of the CRTs and other electronic waste at the Facility, based on any new information and/or new technologies or methodologies developed during the course of the removal action. Based on current information, and as noted in the EE/CA, 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, with the open question being economic viability: it will cost more to recycle each whole CRT because of deteriorating site conditions and increased labor costs associated with compliance with the site-specific Health and Safety Plan ("HASP"). Recycling does not, however, currently appear to be an economically viable option for the vast majority of the other CRTs and electronic wastes in the Facility given current site conditions and the manner in which these materials were originally processed. For example, the 113,750,757 lbs of mixed funnel / panel glass for disposal is currently destined for disposal at a RCRA Subtitle C landfill, consistent with the cost proposal provided by NovoTec Recycling LLC ("NovoTec"), which is based on landfill disposal. Based on Closed Loop's records and Garrison's consultation with industry experts, the low lead content of this commingled stream, the presence of plastic impurities, the condition of the gaylords, and insufficient granularity render this stream unsuitable for processing in lead smelters. There does not appear to be any viable alternative other than disposal.

Responding further, based on current information, it is anticipated that whole CRTs that have not been damaged will be recycled by either NovoTec or CompuPoint USA LLC, with the commodities extracted and sold and with the leaded funnel glass sent to either Korea Zinc in Ulsan, South Korea and Teck in Trail, British Columbia via Korean and Canadian import permits, respectively. The vast majority of CRTs and other electronic wastes to be removed from the Facility are currently expected to be transported to the Max Environmental RCRA Subtitle C landfill in Yukon, Pennsylvania as lead-contaminated hazardous waste (D008) for treatment and disposal. The Max Environmental facility is EPA identification number ("ID") No. PAD004835146 and Pennsylvania Department of Environmental Protection ID No. 301071.

In an effort to be responsive to the PRPs' concerns, and while it has no obligation to do so, Garrison will revise the Closure Plan to more clearly indicate the anticipated dispositions referenced above, recognizing that further evaluation of material conditions, availability of downstream recycling/landfill outlets, and other variables may warrant alternative approaches.

d. "The Plan does not identify the CRT glass disposal and/or recycling locations."

Comment No. 12:

"While the proposed Closure Plan incorporates an unspecified lowest price option for disposal and/or recycling, it provides no detail about Garrison's chosen location(s) for these activities. For instance, the proposed Closure Plan does not indicate the specific landfill

that will be used to treat and dispose of the crushed mixed glass at the Closed Loop Facilities. . . ."

"Also, the proposed Closure Plan does not indicate the facility where the CRT glass from the whole CRT units and the unprocessed CRT units will be sent for recycling.

Response:

See the responses above to Comments No. 7 and 11.

e. "The Plan does not properly analyze transportation options."

Comment No. 13:

"Without knowing the ultimate location(s) for disposal and/or recycling, it is also impossible to properly evaluate transportation options. For instance, a significant portion of the costs are associated with the transport of the CRT glass via truck for recycling and/or disposal. Yet, use of the existing rail spur already located at the Garrison warehouse to transport the crushed mixed CRT glass and/or the unprocessed CRT was not analyzed to determine whether a lower cost option for cleanup is available and whether costs were properly considered in the proposed Closure Plan."

<u>Response</u>:

The PRPs provide no support for the assertion that the Closure Plan is legally insufficient to the extent it does not analyze transportation options.

Responding further, transportation of CRTs and electronic wastes removed from the Facility via rail was thoroughly evaluated and rejected for the following reasons:

- 1. Representatives from Norfolk Southern advised that the line is not operational and that repairs and upgrades would require a full engineering study, a new switch, a bidding process, and an estimated 9-month turnaround.
- 2. Special rail cars equipped with roofs would be required given that they would be transporting hazardous materials.
- 3. A containment structure, loading ramps, access road, and fencing would need to be constructed.
- 4. The CRTs and electronic wastes must be kept under negative pressure during transfers from the Facility and into the railcars.
- 5. The Facility does not have sufficient bay door access to the rail line.
- 6. Stormwater and engineering controls would be required.

Since rail transportation is not a viable option, the CRTs and other electronic wastes will be transported via roadway.

In an effort to be responsive to the PRPs' concerns, and while it has no obligation to do so, Garrison will revise the Closure Plan to include the above rationale for not transporting the CRTs and electronic wastes via rail.

f. "The Plan does not identify the treatment process(es) that will be used."

Comment No. 14:

"The proposed Closure Plan includes no discussion of what "treatment" processes may be used or whether the same treatment processes may be used at each yet-to-be-determined disposal or recycling location. For instance, the proposed Closure Plan indicates that "treatment" of the crushed mixed CRT glass is necessary to make it appropriate for landfilling as non-hazardous waste. But it does not indicate the type of treatment that will be performed. Without this information, a determination on whether the type of treatment provided in the proposed Closure Plan is appropriate and meets the requirements of the NCP cannot be made."

Response:

See the response above to Comment No. 7.

Responding further, the Closure Plan appropriately evaluates removal alternatives and alternative treatment technologies, including recycling and landfilling, as noted above in response to Comments No. 6 and 11. As also noted above, it is currently anticipated that whole CRTs that are not damaged will be recycled by NovoTec or CompuPoint USA LLC in accordance with the RCRA CRT conditional exclusion and industry best practice. It is also currently anticipated that the crushed mixed CRT glass (mixed funnel / panel glass) will be transported, without pretreatment, to Max Environmental's RCRA Subtitle C landfill in Yukon, Pennsylvania for treatment and disposal. Max Environmental's website includes an explanation of its "Solid Waste Stabilization and Solidification" process, which includes a "specialty Containment and Processing (CAP) building . . . to chemically treat contaminated waste dusts and liquids, crush and resize slag and refractory brick, and store bulk wastes and products."

In an effort to be responsive to the PRPs' concerns, and while it has no obligation to do so, Garrison will revise the Closure Plan to include reference to the anticipated pretreatment and encapsulation of the mixed funnel / panel glass by Max Environmental.

g. "The Plan anticipates no agency approval prior to implementation."

Comment No. 15:

The PRPs generally repeat a series of accusations against Garrison that overstate their position, asserting that the 936-page Closure Plan uses "the vaguest possible terms"; that it "does little more than to say 'trust us"; and that the PRPs are being sued for no reason. The PRPs then cite to the following language set forth in Section 12 of the Closure Plan for the proposition that the plan's alleged deficiencies "are exacerbated by the fact that anything and everything about the proposed Closure Plan is subject to change without any governmental approval":

In the event that the above standard proves to be impractical, Garrison 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.

<u>Response</u>:

See the above response to Comment No. 1.

Responding further, the referenced portion of Section 12 of the Closure Plan relates to the decontamination of the warehouse interior – not to the activities associated with the removal and recycling/disposal of CRT and electronic wastes. This paragraph is included to address the potential that the level of effort required to achieve the "clean debris surface" decontamination standard, as is presented in the Closure Plan, may be determined to be impractical or cost-prohibitive. If that proves to be the case, then this statement allows for alternate remedial methods to be considered for decontamination of the building. Any alternate decontamination standard will require consultation with the certifying Ohio registered professional engineer and Ohio EPA to confirm that the alternate approach meets the closure performance standard presented in Section 7.1 of the Closure Plan. 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 substantive closure performance standard set forth in Ohio Admin. Code § 3745-55-11.

2. CLEANUP COSTS

Comment No. 16:

Garrison's proposed Closure Plan is similarly deficient in its evaluation of proposed costs. Several environmental contractors and consultants, including AECOM and Novotec, have generated multiple cleanup cost estimates for the Closed Loop Facilities ranging from \$5 million to \$17 million with time frames for completion ranging from 9 months to 4 years. The proposed Closure Plan makes no attempt to reconcile this wide range in price and schedule. In fact, given that the State of Ohio is not commenting on or approving the Closure Plan, there is no schedule or price that can be relied on, nor is there financial assurance that the work, once started, will be completed. The wide discrepancies in cost estimates could be due to several factors. The Commenting Parties cannot conduct a meaningful analysis of whether the costs are necessary costs of response without the type of information discussed herein, which is absent from the proposed Closure Plan.

Response:

See the above response to Comment No. 10.

Responding further, to clarify, the anticipated closure schedule allows for up four years to complete closure, with interim time frames for select milestones as set forth in Section 8.0 of the Closure Plan. The Closure Plan does not contemplate four years of field activities.

a. "A TCLP analysis of the crushed mixed CRT glass was not conducted to determine whether it must be treated as hazardous."

Comment No. 17:

"The draft closure plan assumes that all the crushed mixed CRT glass is hazardous due to the concentration of lead, and therefore, it must be treated before it can be disposed of in a landfill. However, the determination of whether any waste, including the crushed mixed glass, is hazardous due to the concentration of lead is based on Toxicity Characteristic Leaching Procedure ("TCLP") results, and no TCLP testing was conducted of the crushed mixed CRT glass. TCLP was only conducted on the dust sampled from the warehouse, and the concentration of lead in the dust may be much higher than in the crushed mixed glass. The potential cost associated with treating the crushed mixed glass as hazardous, which requires treatment prior to disposal, is approximately \$13 million of the \$16.67 million estimated in the proposed Closure Plan to fully remediate the Closed Loop Facilities. If TCLP results indicate that the crushed mixed glass is not hazardous, the potential savings could be millions of dollars in disposal/treatment costs, plus significant savings in transportation costs due to the ability to dispose of the crushed mixed CRT glass at a nearby non-hazardous waste landfill."

Response:

The mixed funnel / panel glass in the Facility is expected to exceed the characteristically hazardous concentration for lead, based on the sampling and analysis conducted to date, literature review, and EPA rulemakings. AECOM's 2015 sampling and analysis concluded that the dust accumulating on the CRTs and other electronic wastes at the Facility far exceeds the characteristically hazardous concentration of 5.0 milligrams/liter ("mg/L") for lead based on the Toxicity Characteristic Leaching Procedure ("TCLP"). See Section 2.1.3 of the Closure Plan for further discussion. Sampling and analysis conducted by Max Environmental in 2018 similarly concluded that five composite samples of mixed funnel / panel glass from 2200 Fairwood Avenue far exceeded 5 mg/L via TCLP, *i.e.*, in direct response to the PRPs' comment, a TCLP analysis of the crushed mixed CRT glass <u>was</u> conducted to determine whether it must be treated as hazardous. Published literature research studies also indicate that lead leached from CRT

materials exceeds the TCLP regulatory limit of 5.0 mg/L. Stephen E. Musson, et al., "Characterization of Lead Leachability from Cathode Ray Tubes Using the Toxicity Characteristic Leaching Procedure," *Environ. Sci. Technol.* 2000, 34, 4376-4381 (Sept. 7, 2000). EPA has likewise observed that "according to recent studies performed at the University of Florida, most color CRTs leach lead in the TCLP test at concentrations above the TC regulatory level of 5 milligrams per liter." *Hazardous Waste Management System: Modification of the Hazardous Waste Program; Cathode Ray Tubes; Final Rule*, 71 Fed. Reg. 42928, 42930 (July 28, 2006). In this regard, the fundamental basis for the RCRA CRT conditional exclusion is a finding that the leaded funnel glass in CRTs is characteristically hazardous for lead.

To date, Garrison has not identified any panel glass that was segregated from funnel glass in the Facility. If, however, significant quantities of segregated glass are encountered during the removal action, then the Closure Plan allows for additional sampling (as specified in Section 2.1 of the Sampling Analysis Plan, included as Appendix E of the Closure Plan). If this glass is determined to be non-hazardous notwithstanding any hazardous leaded dust that may have accumulated on it, then the Closure Plan allows for it to be managed as such.

b. "The Plan projected costs do not identify who is handling the material, how it is being handled or where the material is being handled."

Comment No. 18:

"Without limitation or specifically endorsing the particular cleanup options listed below, certain Commenting Parties have approached two known independent potential CRT processing and disposal facilities for comparison to Garrison's Closure Plan cost estimate."

"Dluback, a glass recycler/processor located in Upper Sandusky, Ohio, provided an estimate of \$0.10/pound, for a total of approximately \$12,800,000, for Dluback to remove and recycle all of the CRT material remaining at the warehouses, including the whole unit CRTs and the crushed mixed CRT glass. Dluback represents itself to be the largest recycler of CRTs in the United States, and crushed mixed CRT glass is recycled by Dluback for use by the steel industry. Garrison's Closure Plan estimated costs from Novotec to remove this same CRT material, and to recycle the whole CRTs and dispose of the crushed mixed glass at a landfill, is \$0.109/pound for a total cost of \$14,006,743."

"Heritage Environmental Services operates a RCRA Subtitle-C landfill in Indiana, which is approximately 200 miles from the former Closed Loop warehouses in Columbus, Ohio. Heritage provided an initial estimate of the cost for it to transport, treat and dispose of the crushed mixed CRT glass from Closed Loop which estimate was several million dollars less than that proposed by Garrison in its Closure Plan."

Response:

See the above response to Comment No. 11.

Responding further, and as noted above, Dlubak Glass has never visited the Facility to observe site conditions and the "proposal" they provided for the multi-million-dollar removal action appears to have been provided only on a phone call to the PRPs. Without additional information, Dlubak Glass appears to have simply taken NovoTec's average cost per pound and undercut it by \$0.009. The price point is an important consideration, but certainly not the only consideration. In this regard, as explained in Atwell's 2017 report, one of the key criteria for contractor selection involves the evaluation of regulatory compliance history. According to EPA's Enforcement and Compliance History Online ("ECHO") database, the Dlubak Glass facility in Yuma, Arizona is currently listed as a "significant noncomplier" with RCRA, with 12 quarters of "significant violation." EPA ECHO, *Detailed Facility Report, Dlubak Glass Company, 19472 S AVENUE 1 E, YUMA, AZ 85365*, at https://echo.epa.gov/detailed-facility-report?fid=110039261303. Dlubak Glass was also previously subject to enforcement by the Arizona Department of Environmental Quality ("ADEQ") for processing and storing CRT glass outdoors at this facility. See https://azdeq.gov/dlubak-glass-co-hazardous-waste-site. The conditions at Dlubak Glass were widely reported, including by the New York Times:

In Yuma, Ariz., for example, Dlubak Glass, one of the country's largest recyclers of glass from televisions and monitors, found itself overwhelmed.

When state regulators visited the site in 2009, they found a mountain of the lead-rich glass, several stories tall. Dust from the shimmering mound of recycled glass had contaminated the surrounding soil, including a nearby orchard, with lead at 75 times the federal limit, according to state documents.

Ian Urbina, *Unwanted Electronic Gear Rising in Toxic Piles*, N.Y. TIMES (Mar. 18, 2013). It may well be that EPA's ECHO report is not current, or that Dlubak Glass has duly paid its penalty to ADEQ and is otherwise currently in compliance with federal, state, and local law. Stating the obvious, however, the fact that Dlubak Glass appears to have engaged in business practices similar to Closed Loop merits serious concern in the context of contractor selection for the Watkins Road removal action.

Heritage Environmental has also never visited the Facility to observe site conditions, and they have, to date, never communicated with Garrison or Garrison's representatives. Garrison did, however, receive a proposal from them, which was directed to counsel for Rochester Computer Recycling and Recovery LLC and forwarded to Ohio EPA along with the PRPs' comments to <u>Olymbec's</u> closure plan. It is not clear what information Heritage Environmental was provided to inform its proposal. There are at least two potentially significant concerns. First, the transportation estimate "is for live loading of the remediation waste by others," *i.e.*, it does not include any in-warehouse activities. There would be substantial additional labor costs associated with forklift transfers, staging, gaylord repackaging, HASP compliance, decontamination to prevent lead dust releases during loading, loading, manifesting, and associated recordkeeping. Second, the proposal states in bold print: "[t]ypically, this type of waste must be crushed to 2" minus prior to loading to meet treatment parameters." The mixed funnel / panel glass at the Facility, however, does not meet this criteria and includes glass larger than 2". There would be

substantial additional costs associated with any type of size reduction. By comparison, Max Environmental does not impose size restrictions. Thus, absent additional information or clarification, Heritage Environmental's estimate does not readily appear to be "several million dollars less than that proposed by Garrison in its Closure Plan."⁶

c. "There is no assurance the Closure Plan work will actually be completed."

Comment No. 19:

"While Garrison's existing Settlement Agreements discuss an escrow in an unspecified amount, there is no process in the Closure Plan for accessing that escrow, nor any assurance that it is of a sufficient amount to satisfy closure obligations. Even if the Closure Plan work is completed, Garrison provides no assurance that cleanup of the materials from Closed Loop will not need to be repeated at multiple sites, incurring these costs all over again."

Response:

The PRPs provide no support for the assertion that the Closure Plan is legally insufficient to the extent it does not somehow guarantee that the work "will actually be completed," nor is it clear what such a blanket assurance would look like. As noted in the response to Comment No. 2, there are no financial assurance requirements in Ohio EPA's hazardous waste rules that run to Garrison. The PRPs also provide no support for the assertion that the Closure Plan is legally insufficient because it does not include a process for accessing the funds in the escrow to be maintained by the State of Ohio.

Nevertheless, in good faith and cooperation with Ohio EPA and the PRPs, Garrison will voluntarily be providing some financial assurance via the escrow in an effort to ensure that funds will be available when needed for closure of its Facility. In this regard, Garrison agrees with the PRPs insofar as their respective shares of the cleanup costs would also be helpful to satisfy the Facility's closure obligations. To the extent the PRPs are concerned with future liability associated with downstream sites receiving Facility wastes, Garrison is willing to jointly pursue a judicial bar order with any settling PRPs that would provide them with sweeping protections from claims arising from the Facility, in keeping with the orders that the S.D. of Ohio has previously issued to settling PRPs:

Except for the exceptions stated in the Settlement Agreement, all claims asserted, to be asserted, or which could be asserted against Defendant by persons who are defendants or third-party defendants in this case (whether by cross-claim or otherwise) or by any other person or entity (except the U.S. Environmental Protection Agency ("U.S. EPA"), the United States acting on U.S. EPA's behalf, the Ohio Environmental Protection Agency

⁶ Further, the Heritage Environmental RCRA Subtitle C landfill in Roachdale, Indiana is over 20 miles further than the Max Environmental RCRA Subtitle C landfill in Yukon, Pennsylvania, which would lead to higher transportation costs given the volume of materials at issue.

("Ohio EPA"), and the State of Ohio acting on Ohio EPA's behalf) in connection with the presence, generation, transportation, storage, treatment, disposal, abandonment, release, threatened release, removal, remediation, monitoring, or engineering control of electronic waste at, to or migrating from Garrison's properties located at 1655 and 1675 Watkins Road in Columbus, Ohio and Olymbec's property located at 2200 Fairwood Avenue in Columbus, Ohio under Sections 107 or 113 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. § 9607 and § 9613, and/or any other federal, state or local statute, regulation, rule, ordinance, law, contract, common law, or any other legal theory are hereby discharged, barred, permanently enjoined, dismissed with prejudice, satisfied, and are otherwise unenforceable in this case or in any other proceeding.

Conclusion

Garrison trusts that Ohio EPA, the PRPs, and the public will find these responses to comments to be informative, and the revisions to the Closure Plan responsive to the concerns raised. Garrison provided the PRPs with separate notice and the opportunity to comment on the Closure Plan as a courtesy and in keeping with its commitment to the Columbus community to engage all interested stakeholders. Garrison has provided this response to the PRPs' comments in a meaningful and comprehensive manner. Garrison shares the PRPs' "desire for the Closed Loop Facilities to be cleaned up in a transparent, cost-effective, and final manner," but respectfully disagrees with their arguments that the Closure Plan fails to comply with CERCLA and the NCP, for all of the reasons noted above.

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Attachment C

Report on Removal Preliminary Assessment

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REPORT ON REMOVAL PRELIMINARY ASSESSMENT

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 *Report on Removal Preliminary Assessment* addresses removal preliminary assessment activities previously performed at the Closed Loop Refining & Recovery (Closed Loop) facility (subject property) in Columbus, Ohio, as shown in Figure 1. The subject property includes the 1675 Watkins Road warehouse (1675 warehouse) and the south portion of the 1655 Watkins Road warehouse (1655 warehouse; Figures 2 and 3). This report has been prepared pursuant to applicable rules in Title 40 of the Code of Federal Regulations, Section 300.410.

This report is a summary of two previously prepared removal preliminary assessments:

- AECOM Technical Services, Inc. *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).

1.1 2015 AECOM Technical Services, Inc. Assessment

During late 2015, AECOM Technical Services, Inc. (AECOM) prepared a report entitled *Baseline Environmental Conditions and Closure Cost Evaluation*. The purpose of this evaluation was to assess potential hazardous materials contained in the 1675 and 1655 warehouses. AECOM's report noted that Closed Loop operated in 290,000 square feet of the 1675 warehouse and 145,000 square feet of the 1655 warehouse. The AECOM report is included in Appendix A.

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



A summary of the analytical results for the 1655 warehouse indicated:

- 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 warehouse indicated:

- 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).

1.2 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 1675 and 1655 warehouses are approximately 90% full of cathode ray tube (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 warehouses, 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 noted 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 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 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.
 - 1675 Watkins Road Warehouse:

0	Whole CRT tubes	2,163,603 pounds
0	Complete CRT units (shrink wrapped)	1,115,288 pounds
0	Complete CRT units (in Gaylord containers)	354,591 pounds
0	Projection lamps	0 pounds
0	CRT crushed glass	113,750,757 pounds
0	Scrap plastic	15,120 pounds
0	Scrap metal with glass	324,648 pounds
0	CRT panel glass with metal bands	175,273 pounds

Estimated total weight (1675 warehouse) 117,899,280 pounds

This analysis was summarized as follows:

0	Non-processed CRTs	
0	CRT crushed glass	113,750,757 pounds
0	Recyclable plastic, glass, and steel	515,041 pounds

1655 Watkins Road Warehouse

0	Whole CRT tubes	6,576,765 pounds
0	Complete CRT units (shrink wrapped)	
0	Complete CRT units (in Gaylord containers)	
0	Projection lamps	185,087 pounds
0	CRT crushed glass	0 pounds
0	Scrap plastic	19,440 pounds
0	Scrap metal with glass	1,944 pounds
0	CRT panel glass with metal bands	14,406 pounds

Estimated total weight (1655 warehouse) 10,288,093 pounds



This analysis was summarized as follows:

0	Non-processed	CRTs	10,252,303	pounds

- CRT crushed glass0 pounds
 Recyclable plastic, glass, and steel35,790 pounds
- Atwell estimated that the 1675 and 1655 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 1675 and 1655 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."

2.0 EVALUATION OF MAGNITUDE OF THREAT

As noted by Atwell, the Closed Loop portion of the 1675 and 1655 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. CRT-related materials are stored throughout the warehouses 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.

As noted by AECOM, 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 lead-containing 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 1675 and 1655 warehouses could be exposed to dust if they were to touch dust contaminated surfaces; further, the potential presence of airborne dusts in the warehouses are a lead inhalation hazard.
- The volume of material makes it difficult to access interior portions of the 1675 and 1655 warehouses; if a release of water were to occur inside of the warehouses, lead-containing materials could be released to the exterior of the warehouses.
- 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 warehouses.

Potential Receptors

Work within the 1675 and 1655 warehouses 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 exterior of the warehouses, there are additional hazards for exposure of site visitors, workers, and ecological receptors to stormwater and sediment that could become contaminated with lead.

Potential Threat to Surface Water

According to Mr. Mike Koenig, formerly of Atwell, there are no surface water bodies on the 1675 and 1655 Watkins Road property. He concluded that stormwater west of the 1675 and 1655 warehouses would enter one of three stormwater catch basins west of the access road and parking areas that are west of the 1655 warehouse, and flow north to a ditch that is west of the access road and parking areas that are west of the 1675 warehouse. Mr. Koenig stated that the ditch flowed into an underground conveyance but did not know where it ultimately discharged to. Mr. Koenig stated that he has not observed any hazardous substances being released from the building.

It should be noted that during September 2013, the Ohio Environmental Protection Agency performed a complaint investigation of the Closed Loop operation at 1675 Watkins Road and 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 Ohio Environmental Protection Agency's June 10, 2014 *Director's Final Findings & Orders* and *Expedited Settlement Agreement,* related to the September 2013 complaint investigation, indicated that the observed materials that had been stored outside had been moved inside the building and did not require further evaluation.

Based on the absence of surface water bodies on the 1675 and 1655 Watkins Road property, the absence of observed hazardous materials on the property, and Closed Loop's resolution of observed exterior storage activities in 2013, there does not currently appear to be a substantial threat to the public health or welfare of the United States related to stormwater or sediment at the subject property.

3.0 PUBLIC HEALTH ASSESSMENT

As the CRT-related materials and lead-containing dust are currently contained within the 1675 and 1655 warehouses, and as neither AECOM nor Atwell identified evidence of these materials outside of the 1675 and 1655 warehouses, there is no need for the Agency for Toxic Substances and Disease Registry, or other agencies, to perform a public health assessment.
ENSAFE

Report on Removal Preliminary Assessment Closed Loop Refining & Recovery Columbus, Ohio Revision 0.0 April 2020

4.0 EVALUATION OF FACTORS FOR REMOVAL NECESSITY

Although the CRT-related materials and associated lead-containing dust are currently contained within the 1675 and 1655 warehouses, their presence poses a potential threat of release outside of these warehouses in keeping with the pertinent exposure pathways noted above. According to Mr. Koenig, the stored materials pose a threat to emergency responders in the event of a fire because there is limited aisle space and the boxes containing CRTs are deteriorating and collapsing, which also threatens the integrity of several bay doors. Mr. Koenig further noted that the stored materials limit access to building mechanicals, which in the event of an emergency, could increase emergency response times. In the event of a fire, Mr. Koenig stated that water used to suppress the fire would escape the 1675 and 1655 warehouses and pose a potential exposure threat to first responders and others near the subject property.

Based on this, removal of the CRT-related materials and decontamination of dust on building surfaces will provide the most protection to human health and the environment. This action will be a permanent solution by reducing the toxicity, mobility, and volume of CRT-related material and lead dust.

ENSAFE

5.0 CONCLUSION

Based on the above information, and as no other party is taking action, a non-time critical removal action to be performed by Garrison Southfield is appropriate to reduce the likelihood of human health and environmental exposure. As there is currently no exposure to CRT-related materials or lead-containing dust, and there is sufficient time for a 6-month planning period from the time the removal action is determined to be necessary to the time of initiation of the action, a non-time critical removal action is appropriate to address health threats and accelerate the 1675 and 1655 warehouses through the Comprehensive Environmental Response, Compensation, and Liability Act response process.

FIGURES



(15) 1 2 5 6 \bigcirc 8 9 10 (11) (12) (13) (14) (16) 3 4 Ø-B C **NEIGHBORING** D-TENANT E-E7 G-CONVEYOR PROCESSING AREA FIGURE 2 SITE LAYOUT MAP 1655 WATKINS ROAD COLUMBUS, OHIO **LEGEND** REQUESTED BY: NB NAD 1983 STATE PLANE CLOSED LOOP LEASE SPACE OHIO SOUTH FEET DRAWN BY: KMB CRT - RELATED MATERIALS IN BOXES 50 100 Λ DATE: 2/19/2019 Creative thinking. Custom solutions LOADING DOCK DOORS SCALE IN FEET PROJECT: 0888823935 800.588.7962 www.ensafe.com

DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215



DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215

Appendix A

2015 AECOM Baseline Environmental Conditions and Closure Cost Evaluation

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

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- Appendix B Certificates of Instrument Calibration
- Appendix C Laboratory Report and Data Review
- Appendix D Closure Cost Support Information

AECOM Technical Services, Inc. (AECOM) was retained by Garrison Southfield Park, LLC. (GSP) to complete a Baseline Environmental Conditions and Closure Cost Evaluation to assess baseline environmental conditions of the Closed Loop facilities (the Property) located at 1675 and 1655 Watkins Road, Columbus, Franklin County, Ohio. The location of the Property is shown on **Figure 1**.

1.1 OBJECTIVES

The objective of this Report is to provide GSP a baseline of environmental conditions at the Property and estimates for the potential clean-up of hazardous materials in the buildings and removal of the existing inventory of electronic devices. The scope of work for this report was authorized by GSP, in accordance with the AECOM proposal and work order dated October 19, 2015.

1.2 PROPERTY BACKGROUND

The Property consists of two commercial buildings constructed in 1974 which are currently leased by Closed Loop Refining and Recovery, Inc. (Closed Loop) since 2012. The 1655 Watkins Road building (Building 1655) consists of manufacturing space totaling approximately 145,000 square feet and is exclusively used for inventory storage and some dismantling activities. The main manufacturing space is located at 1675 Watkins Road (Building 1675) and consists of approximately 290,000 square feet of manufacturing and office space.

Closed Loop accepts electronic wastes including cathode ray tubes (CRTs), flat-screen displays, projection televisions, and other electronic waste for disassembly and recycling. The primary operations at the Property include mechanical dismantling of mainly CRTs at the Property. The dismantling is conducted at first by manual means to separate plastic and precious metals. The second phase of the work is the mechanical crushing of the glass components in a designated area of Building 1675. The interior of both buildings were observed to have a heavy dust residue from the activities conducted by Closed Loop. Photographs of the Property are provided in **Appendix A**.

1.3 COMPLIANCE AND REGULATIONS

The Property operates under Ohio Environmental Protection Agency (EPA) identification number OHR000167718 as a small quantity generator (SQG) of D008 (lead) hazardous waste (Dimeo, 2015). Waste consisting of CRTs may fall under exclusion to the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.4(a)(22) (also known as the "CRT rule") whereby used CRTs and CRT glass being recycled that meet the requirements of the exclusion are conditionally excluded from the hazardous waste regulations. This exclusion applies to broken and intact CRTs as well as crushed glass originating from CRTs (USEPA, 2015). To be granted this exclusion, the waste, if not exported, must meet the following criteria:

• Not disposed or speculatively accumulated,



- Destined for recycling,
- Stored and processed in a building with a roof, floor and walls or placed in an container that meets the regulatory requirements, not exposed to temperatures high enough to volatize lead from CRTs,
- Labeled according to the regulatory requirements,
- Transported in a container that meets the regulatory requirements, and
- Processed only in a building with roof, floor, and walls.

A potential significant issue relative to the waste at the Property is the requirement that the waste not be speculatively accumulated. Although this is not thought to be the case, the test for speculative accumulation by the USEPA is the facility operator accumulating the CRTs and CRT glass must show that the material is potentially recyclable and has a feasible means of recycling the material. During the calendar year, the amount of material that is recycled or transferred to a different site for recycling must equal at least 75 percent of that material accumulated at the beginning of the period. According to a correspondence provided to AECOM by the Garrison Investment Group, the Ohio EPA evaluated and determined that the Property was not speculatively accumulating CRT or CRT glass during the 2013 or 2014 calendar years. AECOM does not have sufficient data to determine if Closed Loop is meeting this requirement for the 2015 calendar year. The Property is located at 1675 and 1655 Watkins Road, Columbus, Franklin County, Ohio in an industrial area southeast of Columbus (**Figure 1**).

2.1 BUILDING 1655

Closed Loop occupies the southern portion of Building 1655 and is approximately 145,000 square feet (SF). It is a single story, steel-sided structure on a concrete slab. Thirteen overhead doors and the main entrance are located along the buildings west side. During the November 2015 site visits, the building contained waste electronics and consumer items stacked in one cubic yard, corrugated fiberboard (Gaylord-type) containers on wood pallets. The containers were stacked one to four containers high and occupied approximately 81% of the floor area (**Figure 2**).

A significant amount of Gaylord containers appeared to contain unprocessed CRTs. Approximately a third of the building was inaccessible due to the close proximity of adjacent containers and material dispersed on the floor. The material volume stored in Building 1655 was estimated at 15,200 cubic yards. This estimation includes an assumption that the inaccessible areas were also stacked with Gaylord containers to the same height of what was observable. There was no activity within Building 1655 during the initial site visit; however, a fork lift was placing large-screen televisions in the building during the second site visit.

2.2 BUILDING 1675

Close Loop's main operations are located at 1675 Watkins Road (Building 1675). Building 1675 is entirely occupied by Closed Loop and includes offices, material storage, and glass crushing operations. The building contains approximately 290,000 SF of warehouse space and 9,590 SF of office space on two levels. A total of 37 overhead doors are located along the buildings west side.

An area of approximately 19,350 SF was enclosed in the central portion of the building for glass crushing operations. This glass crushing area had two entrance points for product movement with strip door curtains to minimize the migration of dust generated by glass crushing operations.

The Gaylord containers were stacked one to four high throughout the warehouse and occupied approximately 80% of the floor area (**Figure 3**). Approximately a third of the building was inaccessible due to the close proximity of adjacent containers. The volume of material stored in Building 1675 was estimated at 96,200 cubic yards. This estimation includes an assumption that the inaccessible areas were also stacked with Gaylord containers to the same height of what was observable.

During the initial site visit, significant activity was observed in the glass crushing area and along an aisle way leading to an overhead door at the buildings northwest corner. A manual waste separation line was also observed at the north end of the warehouse where workers dismantled picture tubes with a hammer and hand sorted components into Gaylord containers.



3.1 ANALYTICAL PLAN

Data was collected in accordance with the Sampling and Analysis Plan (SAP) (AECOM, 2015). The SAP established the sample locations, Quality Assurance/Quality Control (QA/QC) parameters, the selection of potential chemicals of concern (COCs), and sample collection procedures.

3.1.1 Field Quality Control

Sampling efforts included QC parameters by collecting field duplicates. One field duplicate was collected per 20 environmental samples as recommended in the SAP.

3.1.2 Potential Chemicals of Concern

Based upon the operations regarding hazardous substance use and management, the potential chemicals of concern at the Property included the following eight metals: lead, cadmium, mercury, arsenic, chromium, barium, selenium, and silver.

3.2 SAMPLE COLLECTION PROCEDURES

On November 9 and 12, 2015, AECOM collected dust surface samples throughout the Property buildings. Building 1655 was divided into 12 approximately 12,080 square foot sampling grids identified as locations 1 thorough 12 as shown in **Figure 4**. Building 1675 was divided to produce 14 sample grid locations of approximately 20,000 square feet each and identified as locations 1 through 14 (**Figure 5**).

3.2.1 Dust Sampling – Total Metals Analysis

Samples were collected in a non-abrasive manner by utilizing a 2-inch wide paint bush and a plastic scraping tool to collect a layer of accumulated dust from the floor and horizontal surfaces. A new paint brush and plastic scraper were used for each sample to limit the potential of cross contamination. The material was placed into a 4- or 8-ounce jars, depending on the analytical suite, sealed with a TeflonTM lined lid, and labeled. A total of 21 samples (including two duplicates) were collected from the floors of Building 1655 and Building 1675 as shown on the sample location maps (**Figures 4 and 5**). Nine samples (including one duplicate) were analyzed from Building 1655 and 12 samples (including one duplicate) were analyzed from Building 1675. Each sample was placed in a glass jar immediately after collection and placed in a cooler with ice for transportation to TestAmerica Laboratories in North Canton, Ohio (TestAmerica). The samples were analyzed for total metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by EPA Method 6010/7471B.



3.2.2 Dust Sampling – Toxicity Characteristic Leaching Procedure (TCLP)

Samples were collected utilizing the same sampling procedures as for total metals analysis. Nine samples (four from Building 1655 and five from Building 1675) were collected and analyzed for toxicity characteristic leaching procedure (TCLP) for lead, cadmium, mercury, arsenic, chromium, barium, selenium, and silver by EPA Method 6010/7470A.

3.2.3 Airborne Mercury Sampling

The process being conducted by Closed Loop may also have generated elemental mercury that could become airborne inside the building. Therefore, the interior air space was sampled with a Jerome Model X431 for airborne mercury. The Jerome meter is a direct read instrument that provides real time airborne mercury concentrations. The Jerome Meter was carried by the field technician within the building to collect readings throughout the building.

The Certificate of Instrument Calibration is provided in **Appendix B**. The meter was regenerated prior to its operation in accordance with manufacturer's instructions.

3.3 **DEVIATIONS**

Due to the high concentration of air-borne dust in Building 1675, modified Level C respiratory protection consisting of a full-face air purifying respirators (APR) with P100 particulate filters and hooded TyvexTM coveralls were used during sampling in that building on November 9, 2015. The respiratory protection was upgraded by substituting a combined mercury vapor and P100 particulate cartridges on November 12, 2015 as explained in the Air Monitoring section. Sampling activities were completed on November 12, 2015.

Due to the presence of stacked containers and materials, several sampling grid locations were inaccessible. This resulted in a reduction of the total number of samples from 30 to 21.

Two soil samples were scheduled to be collected from gravel pits along the central east side of Building 1655; however, due to poor access to the area, these sampling locations could not be safely accessed and the samples were not collected.

4.1 LABORATORY CERTIFICATION DOCUMENTATION AND DATA REVIEW

Chemical data was generated by TestAmerica in North Canton, Ohio. The laboratory is certified in accordance with OAC 3745-300-04 for the analytical data presented in this Report. **Appendix C** contains copies of the laboratory certificates and the laboratory analytical reports. Analytical parameters are shown in **Table 1**.

The analytical data were reviewed by an AECOM chemist for usability in making determinations required by these sampling activities. The data review assessed sample handling and holding times; supporting QC parameters, including blank results, laboratory control sample recoveries, MS/MSD accuracy and precision, and field duplicate precision; sample dilutions; and any nonconformances reported by the laboratory.

A number of sample results were qualified as estimated due to QC nonconformances. The samples affected and reasons for qualification are specified in the data review report, included in **Appendix C**. All data were considered useable for decision making purposes.

Several of the samples were analyzed at a dilution for at least one parameter, because of an analyte concentration above the calibration range or to minimize matrix interference. The reporting limits for these samples were adjusted accordingly. The reporting limits achieved by the laboratory were sufficiently sensitive to meet the applicable standards with the exception of nine samples for arsenic. All other results for arsenic were reported as nondetect at a reporting limit below the applicable standards. Based on the nature of the samples and lack of detections in the remaining samples, it is unlikely arsenic is a chemical of concern for the Property.

4.2 ANALYTICAL RESULTS

Table 1 summarizes the analytical results for chemicals detected at least once in the samples collected from the Property. The analytical results were compared to the Ohio Voluntary Action Program (VAP) single chemical generic direct-contact soil standards (GDCSS) for commercial/industrial land use and the Toxicity Characteristic Leaching Procedure (TCLP) Regulatory Levels.

4.2.1 Total Metals Results

A total of 21 dust surface samples, including two field duplicate samples, were analyzed for RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). Nine samples (including one duplicate) were analyzed from Building 1655 and 12 samples (including one duplicate) were analyzed from Building 1675.

All metals analyzed except arsenic were detected in Property dust samples. Barium, cadmium, lead, mercury, and silver were detected in every sample. Chromium was detected in all samples except one. Selenium was only detected in one sample. Lead exceeded the VAP GDCSS for



commercial/industrial land use (800 mg/kg) in all samples with concentrations ranging from 2,200 mg/kg to 15,000 mg/kg. All other metals results were below the VAP GDCSS.

4.2.2 TCLP Results

A total of nine dust surface samples were analyzed for RCRA metals using TCLP. Four samples were analyzed from Building 1655 and five samples were analyzed from Building 1675. Barium, cadmium, chromium, and lead were detected in every sample. Mercury was detected in three samples and silver was detected in two samples. Arsenic and selenium were not detected in any samples. Lead concentrations ranged from 4.7 to 220 mg/L which exceeded the TCLP regulatory limit (5 mg/L) in all samples except DS-08-1655. All other TCLP results were below the TCLP regulatory limits.

4.3 AIRBORNE MERCURY RESULTS

Seventeen airborne mercury readings were collected using the Jerome Model X431 meter. Mercury concentrations ranged from nondetect to 0.044 mg/m^3 (Building 1675) which was slightly below the action level of 0.05 mg/m^3 as presented in the AECOM Health and Safety Plan (HASP). The mercury action level was conservatively established as half of the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) (NIOSH, 2015). Airborne mercury results are shown in **Table 2**.

This Report was conducted for the Closed Loop facilities (the Property) located at 1675 and 1655 Watkins Road, Columbus, Franklin County, Ohio.

5.1 SUMMARY

The Report concluded the Property buildings have been impacted by current operations. A total of 21 dust surface samples were analyzed for RCRA metals and nine dust surface samples were analyzed for RCRA metals by TCLP. Total lead exceeded the VAP GDCSS for commercial/industrial land use (800 mg/kg) in all samples with concentrations ranging from 2,200 mg/kg to 15,000 mg/kg. All other metals results were below the VAP GDCSS. TCLP lead concentrations ranged from 4.7 to 220 mg/L which exceeded the TCLP regulatory limit (5 mg/L) in all samples except DS-08-1655. Based on the TCLP exceedances, it is assumed this material will likely be classified as a hazardous material. All other TCLP results were below the TCLP regulatory limits.

5.2 CLOSURE PROCEDURES AND COSTS EVALUATION

AECOM contacted several contractors to obtain costs for Property material removal, disposal, and cleanup. AECOM has compiled the following preliminary estimates. In order to obtain an accurate cost, it would be necessary to conduct a formal bidding process.

The closure and cleanup activities involve three components, (1) the removal of stored material, (2) the disposal of stored material, and (3) the decontamination of the warehouse space. A summary of the closure and cleanup costs are described in **Table 4**.

Garrison Investment Group provided AECOM with a Site Closure Plan for the 1675 Watkins Road facility which was prepared by Closed Loop Refining and Recovery, Inc. in Phoenix, Arizona dated June 30, 2015. Information presented in this report was used for comparison purposes when developing the closure and cleanup costs. According to the Closure Plan (Closed Loop, 2015), the maximum material inventory at the facility is approximately 45,000 tons.

5.2.1 Removal and Disposal of Stored Material

The removal of the stored material would likely involve removing accumulated lead dust and loading the Gaylord boxes into trucks for transport to a processing facility or to an appropriate treatment, storage or disposal facility. Due to the volume of material being shipped, the processor may not be able to accommodate this material over a short period and may be necessary to transport the material to a temporary storage facility.

Preliminary estimates of material removal indicated a cost of \$642,600. This cost includes the loading and shipping of material to a Columbus, Ohio, recycler approximately 8 miles from the Property. Due to the limited rate at which this facility can accept material, a temporary storage facility may be used to store the material at a rate of \$0.35 per sf.



SECTIONFIVE

Material disposal costs were found to vary significantly between contractors. The most competitive rates were from a local recycler with quoted costs of \$0.14 to \$0.19 per pound for CRTs, leaded glass, and projection TVs. Based on site observations on November 9 and 12, 2015, the cost of material removal and offsite management would cost approximately \$4.49 million. A summary of estimates received from the contractors is shown in **Appendix D**.

5.2.2 Building Decontamination

The presence of debris and dust within the two buildings may be remediated by either vacuuming with a high efficiency particulate air (HEPA) filter vacuum and/or a high pressure spray wash. It is assumed all loose contents (inventory, equipment, etc.) would be removed prior to building decontamination and the cleanup would only include the interior surfaces. Following cleanup, confirmation samples would be collected using either wipe tests or X-ray refraction (XRF) methods. All materials collected from the remediation would be tested and disposed of in accordance with Ohio EPA and USEPA regulatory requirements. Decontamination of the building may take approximately 2 weeks to complete.

Building decontamination costs were estimated at \$85,000 if the rinse water was determined to be non-hazardous or up to \$463,000 if the rinse water was determined to be hazardous. Based on the TCLP results for lead, it is assumed the rinse water would be classified as hazardous waste.

5.3 COST LIMITATIONS

Approximately a third of the building was inaccessible due to the close proximity of adjacent containers and materials on the floor. Gaylord containers were stacked one to four high throughout the warehouse and occupied approximately 80% of the floor area. Therefore, cost calculations include an assumption that the inaccessible areas were also stacked with Gaylord containers to the same height of what was observable.

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TABLES

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.

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.

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.



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.

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.

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.

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

Building	Sample Grid	Date	Time	Mercury Concentration (mg/m ³)
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



1

Table 4 Waste Inventory Management Assumptions and Calculations Closed Loop Facility Columbus, Ohio

	AECOM Estimate ⁽¹⁾	Maximum Inventory ⁽²⁾	Units	Assumptions
	ventory Management			
1. Waste Inventory				
a) Recyclable material onsite	Unknown	150	tons	Waste consisting of non-ferrous metals, baled steel, card board and wooden pallets
b) Solid waste onsite	31,786	32,100	tons	Waste consisting of non-leaded glass and fines
c) Maximum hazardous waste onsite	12,625	12,750	tons	Unprocessed CRTs, leaded glass and other solid waste (e.g., PPE, filters, plastic, non-CRT electronic components)
d) Estimated total waste onsite	44,560	45,000	tons	Based on square footage calculations (Appendix D)
2. Offsite Management of Inventory				
a) Cost per truck load to haul material offsite	\$300	\$300	\$/load	Price per truck load (EMS cost estimate) to transport to facility 8 miles away
b) Number of loads	2,142	2,142	loads	Based on square footage calculations (Appendix D) from Novotec
c) Offsite management unit cost for solid waste	\$2	\$2	\$/ton	Price per ton for non-leaded glass (Novotec cost estimate)
d) Offsite management unit cost for hazardous	\$300	\$300	\$/ton	Price per ton for TVs and CRTs (Novotec cost estimate)
e) Cost per ton to transport and treat recyclable material	\$0	\$0	\$/ton	Cost offset by inherent value of material
3. Waste Management Calculations				
a) Cost to haul material offsite	\$642,600	\$642,600	\$	
b) Offsite management solid waste unit cost	\$63,572	\$64,200	\$	
c) Offsite management hazardous waste unit cost	\$3,787,500	\$3,825,000	\$	
Waste Inventory Management Total:	\$4,493,672	\$4,531,800		
			Dec	contamination
1. Concrete Floor Pad & Walls Decontamination				
a) Method of decontamination	NA	NA	NA	HEPA vacuum and high pressure spray wash (one time only). Building interior only.
b) Floor and wall area to be decontaminated (square feet)	540,000	540,000	SF	All loose contents (inventory, equipment, etc.) to be removed prior to cleanup
c) Floor and wall area decontamination cost	\$463,000	\$463,000	Lump	Based on decontamination costs assuming hazardous waste and empty building (Precision cost estimate)
d) Verification sample costs	\$2,556	\$2,556	Lump	Includes costs for verification samples
Decontamination Total:	\$465,556	\$465,556		
Management, Coordination, and Oversight Activities ⁽³⁾ :	\$347,146	\$349,815		
Closure Estimate:	\$5,306,374	\$5,347,171		

1) AECOMs estimate based on visual square footage as shown on Figures 2 and 3 and calculations shown in Appendix D. Solid and hazardous waste estimates based on a percentage of the maximum inventory.

2) Maximum inventory onsite (Items 1.a through 1.d) based on Closed Loop's 2015 Closure Plan estimates.

3) Activities based on 7% of the total estimated costs.



FIGURES



K:\Projects\G\Garrison Southfield Park LLC\60447615_SiteSampl\DWGs\Figures\Fig_1_GLM.dwg User: james_tilocco Nov 03, 2015 - 2:32pm



APPROX. SCALE: 1"= 60'

902'-0" 1 2 3 4 5 6 \bigcirc 8 9 10 \bigcirc 12 14 13 15 ∇ + AGLASS B CRUSHING ROOM X C 322'-0" \mathbb{O}_{\setminus} SORTING CONVEYOR Đ + Ð + G N C2 20 21 22 23 24L 25 26 27 28L 29L 30 31L 32L 33L 34L 35L 36 37 2 3 4L 5 6 7L 8 9L 10 11L 12L 13 14 15 16L 17 18 19 - LEGEND -- CLOSED LOOP LEASE AREA MATERIAL STACKED 1 HIGH OR SCATTERED + MATERIAL STACKED 2 HIGH MATERIAL STACKED 3-4 HIGH 37.5 ₹Z APPROX. SCALE: 1"= 75'




APPROX. SCALE: 1"=60'





JT

МW

60447615

APPENDIX A

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AECOM				PHOTOGRAP	PHIC LOG		
Client Name: Garrison Sout	thfield Park, I	LLC	Site Location: Columbus, Ohio)	Project No. 60447615		
Photo No. 5	Date: 11/11/15				E.		
Description: Building 1675 Entrance to C office	losed Loop						
Photo No. 6	Date: 11/11/15		_		and the second		
Description: Building 1675 northeast	facing						
					· Art		





PHOTOGRAPHIC LOG

Client Name: Garrison Southfield Park, LLC			Site Location: Columbus, Ohio	Project No. 60447615
Photo No. 9	Date: 11/11/15			
Description:		a server of sources and the server a	Contraction of the second seco	H t l l l e
Building 1675				
Photo No. 10	Date: 11/11/15			
Description:		and the second sec		
Building 1675				



AEC	OM [°]			PHOTOGRAPHIC LOG			
Client Name: Garrison Sout	thfield Park,	LLC	Site Location: Columbus, Ohi	0	Project No. 60447615		
Photo No. 13	Date: 11/11/15						
Description: Building 1675							

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APPENDIX B

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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

RMA# 2266937

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

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		Calibratio	n Gas	Allowable Range		
Incoming:	Level 1 RSD %	0.064 11. 7 9	mg/m3 Hg	0.101	mg/m3 Hg	0.096 - 0.106 <5%	mg/m3 Hg	
Outgoing:	Level 1 RSD % Level 2	0.101 0.80	mg/m3 Hg mg/m3 Hg	0.100 0.025 mg/i	mg/m3 Hg m3 Hg	0.095 - 0.105 <3% 0.020 - 0.030 m	mg/m3 Hg ng/m3 Hg	
	SD Level 3 SD	M 2 mg/m3 Hg 0.010 mg/m3 Hg		m3 Hg	<0.005 mg/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

Temperature °F: 74.40

% Relative Humidity: 34.10

Recalibration Date: 21-Sep-2016

yl thadek

Date Approved: 25-Sep-2015

Title: Cheryl Hradek - Quality Control

Equipment Used:

Approved By:

 Permeation Tube:
 <u>498-45577</u>
 NIST#:
 <u>ISO12712</u>; 072958-697-060314

 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: <u>89990030</u> NIST#: <u>7000660</u> Calibration Date: <u>14-Apr-2015</u> Calibration Date Due: <u>14-Apr-2016</u>

Flowmeter: <u>154482</u> NIST#: <u>150422154482_000</u> Calibration Date: <u>22-Apr-2015</u> Calibration Date Due: <u>22-Apr-2016</u>

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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APPENDIX C

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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.

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

Table 1Sample and Analysis Summary

(1) Method References: Metals TCLP = 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 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.

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 methodrequired 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

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							
Parameter	Units	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	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											
		DS-01-1675	DUP B	DS-02-1675	DS-03-1675	DS-04-1675	DS-08-1675	DS-09-1675	DS-10-1675	DS-11-1675	DS-12-1675	DS-13-1675	DS-14-1675
		11/12/2015	11/12/2015	11/12/2015	11/9/2015	11/9/2015	11/9/2015	11/9/2015	11/12/2015	11/9/2015	11/9/2015	11/9/2015	11/9/2015
Parameter	Units												
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

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.

LINKS **Review your project** results through Total Access Have a Question? Ask-The Expert Visit us at:

Visit us at: www.testamericainc.com

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3

Qualifiers

.

Metals		
Qualifier	Qualifier Description	
U	Indicates the analyte was analyzed for but not detected.	E
В	Compound was found in the blank and sample.	2
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	
General Che	mietry	

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.	2
¤	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	
ND	Not detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	
QC	Quality Control	
RER	Relative error ratio	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	
TEQ	Toxicity Equivalent Quotient (Dioxin)	

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.

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 11/17/2015 and analyzed on 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.

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	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

Sample Summary

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	
240-57899-1	DS-01-1675	Solid	11/12/15 00:00	11/13/15 14:34	
240-57899-2	DS-01-1655	Solid	11/12/15 00:00	11/13/15 14:34	
240-57899-3	DS-02-1655	Solid	11/12/15 00:00	11/13/15 14:34	5
240-57899-4	DS-10-1675	Solid	11/12/15 00:00	11/13/15 14:34	J
240-57899-5	DS-02-1675	Solid	11/12/15 00:00	11/13/15 14:34	6
240-57899-6	DUP B	Solid	11/12/15 00:00	11/13/15 14:34	0
					8
					9

TestAmerica Canton

Lab Sample ID: 240-57899-1

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

Lab Sample ID: 240-57899-3

Lab Sample ID: 240-57899-4

Lab Sample ID: 240-57899-5

Lab Sample ID: 240-57899-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	150	J	400	8.2	mg/Kg	20	₩ \[\] \] \[\]	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	¢	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

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

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	₩.	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	¢	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
Hg	0.18		0.11	0.016	mg/Kg	1	¢	7471B	Total/NA

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

Lab Sample ID: 240-57899-1 Matrix: Solid

Method: 6010C - Metals (ICI	P) - TCLP								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0047	JB	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 (C	VAA) - TCLP								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020	0.000090	mg/L		11/17/15 14:00	11/18/15 08:41	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	0.89		0.10	0.10	%			11/13/15 16:36	1

Client Sample Results

Client: URS Corporation Project/Site: Closed Loop

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

Percent Solids: 99.1

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Method: 6010C - Metals (ICP)	Posult	Qualifier	Ы	МП	Unit	п	Proparad	Analyzod	Dil Eac
	Result	Quaimer	KL		Unit		Fiepaieu	Analyzeu	DIFAC
Arsenic	230	U	230	64	mg/Kg	Þ	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>Å</u>	11/17/15 15:55	11/18/15 11:50	1

TestAmerica Canton

Client Sample Results

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

Client Sample ID: DS-01-1655 Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-2 Matrix: Solid

Method: 6010C - Metals (ICF	P) - TCLP								
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
Method: 7470A - Mercury (C	VAA) - TCLP								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020	0.000090	mg/L		11/17/15 14:00	11/18/15 08:43	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	0.79		0.10	0.10	%			11/13/15 16:36	1

TestAmerica Canton
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

5

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	<u> </u>	11/17/15 15:55	11/18/15 11:52	1

Client: URS Corporation Project/Site: Closed Loop

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

Client Sample ID: DS-02-1655 Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-3 Matrix: Solid

Percent Solids: 98.8

5

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	30	U	30	8.2	mg/Kg	₩	11/17/15 11:10	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	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Нд	0.084	J	0.10	0.014	mg/Kg	<u></u>	11/17/15 15:55	11/18/15 11:54	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	1.2		0.10	0.10	%			11/13/15 16:36	1

Client: URS Corporation Project/Site: Closed Loop

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

Client Sample ID: DS-10-1675 Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-4 Matrix: Solid

Percent Solids: 99.3

5

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	66	U	66	18	mg/Kg		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
Нд	0.10		0.096	0.013	mg/Kg	<u>Å</u>	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	1
Percent Moisture	0.66		0.10	0.10	%			11/13/15 16:36	1

Client: URS Corporation Project/Site: Closed Loop

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

Client Sample ID: DS-02-1675 Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-5 Matrix: Solid

Percent Solids: 99.3

5

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	270	U	270	75	mg/Kg	₩	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
Percent Moisture	0.71		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

Client Sample ID: DUP B Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-6 Matrix: Solid

Percent Solids: 99.0

5

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	260	U	260	72	mg/Kg	₩	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>Å</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

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-207131/2-A Matrix: Solid Analysis Batch: 207392

		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

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

Analysis Batch: 207392

Prep Batch: 207131 LCS LCS Spike %Rec. Added Limits Analyte **Result Qualifier** Unit D %Rec 2.00 Arsenic 2.09 mg/L 105 50 - 150 Barium 2.00 1.93 J 50 - 150 mg/L 96 Cadmium 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 **Matrix: Solid** Analysis Batch: 207392

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.5	U	1.5	0.41	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Barium	20	U	20	0.41	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Cadmium	0.50	U	0.50	0.021	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Chromium	0.0812	J	1.0	0.075	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Lead	1.0	U	1.0	0.022	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Selenium	2.0	U	2.0	0.34	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Silver	1.0	U	1.0	0.063	ma/Ka		11/17/15 11:10	11/18/15 09:28	1

Lab Sample ID: LCS 240-207146/2-A **Matrix: Solid** Analysis Batch: 207392

Client Sample ID: Method Blank Prep Type: Total/NA Prep Batch: 207146

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Prep Type: Total/NA Prep Batch: 207146

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

11/18/2015

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

Prep Type: Total/NA

Prep Batch: 207131

Prep Type: Total/NA

Client Sample ID: Method Blank

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

Lab Sample ID: LB 240-207 Matrix: Solid Analysis Batch: 207392	033/1-B LB	LB					Client Sample ID: Method Blank Prep Type: TCLP Prep Batch: 207131				
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 - Mercur	ry (CVAA)										
Lab Sample ID: MB 240-207 Matrix: Solid Analysis Batch: 207339	'134/2-А МВ	МВ					Client Samp	le ID: Method Prep Type: To Prep Batch: 3	l Blank otal/NA 207134		

Analyte	Result	Qualifier		RL		NDL	Unit		D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0	0020	0.000	090	mg/L		_	11/17/15 14:00	11/18/15 08:24	1
- Lab Sample ID: LCS 240-207134/3-,	Α							Clie	ent	Sample ID:	Lab Control	Sample
Matrix: Solid											Prep Type: To	otal/NA
Analysis Batch: 207339											Prep Batch:	207134
			Spike		LCS	LCS	;				%Rec.	
Analyte			Added		Result	Qua	lifier	Unit		D %Rec	Limits	
Mercury			0.00500	0	0.00568			mg/L		114	80 - 120	
_ Lab Sample ID: LB 240-207033/1-C										Client Sam	ple ID: Method	Blank
Matrix: Solid											Prep Type	: TCLP
Analysis Batch: 207339											Prep Batch:	207134
-	LB	LB										
Analyte	Result	Qualifier		RL	r	NDL	Unit		D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0	020	0.000	090	mg/L		_	11/17/15 14:00	0 11/18/15 07:39	1

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 240-207 Matrix: Solid Analysis Batch: 207407	′ 152/1-А мв	мв					Client Sam	ole ID: Method Prep Type: To Prep Batch: 3	l Blank otal/NA 207152
Analyte	Result	Qualifier	F	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.10	U	0.	10 C	.014 mg/k	íg –	11/17/15 15:55	11/18/15 11:17	1
Lab Sample ID: LCS 240-20 Matrix: Solid Analysis Batch: 207407	7152/2-A					Clien	t Sample ID:	Lab Control S Prep Type: To Prep Batch: 3	Sample otal/NA 207152
-			Spike	LCS	LCS			%Rec.	
Analyte Hg			Added	Result 0.815	Qualifier	Unit mg/Kg	_ <mark>D %Rec</mark>	Limits 80 - 120	

Method: Moisture - Percent Moisture

Lab Sample ID: 240-57899- Matrix: Solid Analysis Batch: 206747	1 DU					Cli	ent Sample ID: DS-01 Prep Type: To	I-1675 tal/NA
-	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Solids	99		 99		%		0.3	20
Percent Moisture	0.89		0.61	F3	%		38	20

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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						
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
240-57899-1	DS-01-1675	TCLP	Solid	3010A	207033	
240-57899-2	DS-01-1655	TCLP	Solid	3010A	207033	
LB 240-207033/1-B	Method Blank	TCLP	Solid	3010A	207033	
LCS 240-207131/3-A	Lab Control Sample	Total/NA	Solid	3010A		
MB 240-207131/2-A	Method Blank	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	Ргер Туре	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: 207	339					
- Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	

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

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	Ргер Туре	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	

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

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Batch

Number

Prepared

or Analyzed

207033 11/16/15 17:10 SMH

207131 11/17/15 10:30 DEE

207392 11/18/15 10:24 KLC

207033 11/16/15 17:10 SMH

207131 11/17/15 10:30 DEE

207392 11/18/15 10:58 KLC

207033 11/16/15 17:10 SMH

207134 11/17/15 14:00 DEE

207339 11/18/15 08:41 WAL

206747 11/13/15 16:36 BLW

Analyst

Lab

TAL CAN

Dilution

Factor

1

5

1

1

Run

Prep Type

TCLP

TCLP

TCLP

TCLP

TCLP

TCLP

TCLP

TCLP

TCLP

Total/NA

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

Batch

Туре

Leach

Prep

Leach

Prep

Leach

Prep

Analysis

Analysis

Analysis

Analysis

Batch

1311

3010A

6010C

1311

3010A

6010C

1311

7470A

7470A

Moisture

Method

Lab Sample ID: 240-57899-1 Matrix: Solid

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: Solic

Percent Solids: 99.1

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 11:14	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

Client Sample ID: DS-01-1655 Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-2

Lab Sample ID: 240-57899-2

Matrix: Solid

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Γ	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			207146	11/17/15 11:10	DEE	TAL CAN

TestAmerica Canton

Percent Solids: 99.2

Matrix: Solid

Client Sam	ple ID: DS	-01-1655					Lab	Sample I): 240-57899-2
Date Collecte	d: 11/12/15	00:00							Matrix: Solid
Date Receive	d: 11/13/15 ′	14:34						Per	cent Solids: 99.2
	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	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 Sam	ple ID: DS	-02-1655					Lab	Sample I): 240-57899-3
Date Collecte	d: 11/12/15 (00:00							Matrix: Solid
Date Receive	d: 11/13/15	14:34							
_	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	Moisture		1	206747	11/13/15 16:36	BLW	TAL CAN	
Client Sam	ple ID: DS	-02-1655					Lab	Sample I): 240-57899-3
Date Collecte	ed: 11/12/15	00:00							Matrix: Solid
Date Receive	d: 11/13/15 ′	14:34						Per	cent Solids: 98.8
_	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	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		20	207392	11/18/15 10:41	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 11:54	WAL	TAL CAN	
Client Sam	ple ID: DS	-10-1675					Lab	Sample II): 240-57899-4
Date Collecte Date Receive	ed: 11/12/15 ed: 11/13/15	00:00 14:34							Matrix: Solid
	Batch	Batch		Dilution	Batch	Prenared			

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	206747	11/13/15 16:36	BLW	TAL CAN

Client Sample ID: DS-10-1675 Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

-	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 Sample ID: 240-57899-4

Matrix: Solid

Percent Solids: 99.3

Batch

Number

Batch

Number

Prepared

or Analyzed

Prepared

or Analyzed

207146 11/17/15 11:10 DEE

207392 11/18/15 11:18 KLC

207152 11/17/15 15:55 DEE

207407 11/18/15 11:59 WAL

206747 11/13/15 16:36 BLW

Analyst

Analyst

Lab

Lab

TAL CAN

TAL CAN

TAL CAN

TAL CAN

TAL CAN

Dilution

Factor

Dilution

Factor

200

1

1

Run

Run

Prep Type

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Client Sample ID: DS-02-1675 Date Collected: 11/12/15 00:00

Batch

Type

Batch

Type

Prep

Prep

Analysis

Analysis

Client Sample ID: DS-02-1675

Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Analysis

Batch

Method

Moisture

Batch

Method

3050B

6010C

7471B

7471B

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-5 Matrix: Solid

Lab Sample ID: 240-57899-5 Matrix: Solid Percent Solids: 99.3

5
8
9
11

Client Sample ID: DUP B Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-6 Matrix: Solid

	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	Moisture		1	206747	11/13/15 16:36	BLW	TAL CAN	

Client Sample ID: DUP B Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-6 Matrix: Solid Percent Solids: 99.0

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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

9

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EPA Region

Certification ID

01144CA

PH-0590

200004

E-10336

98016

L2315

OH001

10975

CL0024

68-00340

460175

999518190

C971

210

4062

039-999-348

OH-000482008A

T104704517-15-5

P330-13-00319

58

2927

Client: URS Corporation Project/Site: Closed Loop

Authority

California

California

Illinois

Kansas

L-A-B

Minnesota

New Jersey

New York

Ohio VAP

Pennsylvania

Oregon

Texas

USDA

Virginia

Washington

Wisconsin

West Virginia DEP

Nevada

Connecticut

Kentucky (UST)

Kentucky (WW)

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

State Program

DoD ELAP

NELAP

NELAP

NELAP

NELAP

NELAP

NELAP

Federal

NELAP

Program

NELAP

NELAP

NELAP

Expiration Date

06-30-14 *

04-30-17

12-31-15

07-31-16

01-31-16 *

02-26-16

12-31-15

07-18-16

12-31-15

07-31-16

11-30-15 *

03-31-16

09-14-17

02-23-16

08-31-16

08-31-16

11-26-16

09-14-16

01-12-16

12-31-15

08-31-16

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12
13

* Certification renewal pending - certification considered valid.



TestAmerica Laboratories, Inc.

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CHAIN OF CUSTODY AND RECEIVING DOCUMENTS

Chain of Custody Record

0.3/co.4 TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

	TAL-4142 (0408)																											
	Client AECOM			Projec	t Mani N	ager 1	w	e l	f										Date	11/	13			Ch	ain of t	Custody	Number	
	Address 1375 EUCLID AVE		Suite 60	0 Teleph 2-0	none N 16	lumbe 62	er (Area - L	· Coo	1e)/Fa - 4 C	1x Nu 9 O	mber								Lab I	<i>Vumbe</i>	<i>"</i> 4	0		Pá	age _		_ of	
	City Cleveland OH		Code 4415	Site C	ontact cff	Be	r k		Lab W	1 <i>Con</i>	r <i>ik</i>	Ĺ	. .	j.	104		י צו –	Ana. more	lysis (spac	Attac e is n	h list beede	if ed)		-		.		
	Project Name and Location (State)			Carrie		-B	imber	0	d	RI	バ	M	C		0.0										ļ	Snacial	Instruction	6/
	Contract/Purchase Order/Quote No.					M	atrix			1	Cont Pres	aine erva	ers &	;	8 4	8									C	Conditio	ns of Rece	ipt
	Sample I.D. No. and Description (Containers for each sample may be combined on one	e line)	Date	Time	Air	Aqueous	Sed. Soil	50 kc	Unpres.	H2SO4	HNO3	HCI	NaOH	NaOH	WV:		2											
	DS-01-1675 N		11/12					V	1						V	- 1	1				-							—
	DS-01-1635 1655	-						-	1						v	1 2	1											
	DS-02-1655							1	r						i	~									-			
Pag	1) 5 -10 -1675							2	1						v	/												
je 2	DS-02-1675								1						٤	1				-								
8 of	DUP B							~	1						6													
29																												
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	Possible Hazard Identification					ample	Dispos	al.	<u> </u>			1			I,													
	Non-Hazard Flammable Skin Irrita	nt	🗌 Poison B 🧎	- Unknow	$n \mid \Box$	Rei	um To	Clien	nt 🗙		Zispos	sal B	ly Lat	> [Arc	chive	For_		_ <i>Moi</i>	nths	(A fea longe	e may er than	be as 1 mo	sesse nth)	d if sai	nples are	retained	
	Ium Around Time Hequired	14 0	ave 🗌 21 Day		thar					^{QC}	Requ	lirem	nents	(Spec	cify)													
	1. Relinquished BV	14 Da		Date	<i></i>		Timo			1 5	Pocoli	OTT		~		7												
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	2. Relindfished By Re (ab -5	ļ	~~~	Date	13-,	バ	Time 14	4	4	2. F.	Receiu		Sy 1	~		ν	1								Date	3/15		<u>-</u> リ
11/18	3. Relinquished By			Date			Time			3. F.	Recein	red p	by -	•	/	/			;						Date		Time	+-
3/20	Comments						L			I																	L	
1 5	DISTRIBUTION: WHITE - Returned to Client with Re	port:	CANARY - Stave	vith the Sor	nnle	PINIE	- Field	Con	~																			. <u> </u>
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Test America Canton Sample Receipt Form/Narrative	$\frac{1}{1}$
Canton Facility	Login # :1 0-124
Client AECOM, Site Name i	Cooler unpacked by:
Cooler Received on $11/13/15$ Opened on $11/13/1$	5 (hur) 3
FedEx: 1 st Grd Exp UPS FAS Stetson Client Drop Off PestAmeric	ca Courser Other
TestAmerica Cooler #Foam Box (Client Cooler) Box	Other 4
Packing material used: Bubble Wrap Foam Plastic Bag None	Other 5
1. Cooler temperature upon receipt	
IR GUN# 53 (CF +0.1 °C) Observed Cooler Temp. $G. \geq$ °C Corrected	ed Cooler Temp. 🖸 , G
IR GUN# 48 (CF -0.3 °C) Observed Cooler Temp. °C Correcte	ed Cooler TempbC See Multiple7
IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C Correcte	ed Cooler Form
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity	Yes (No) 8
-Were custody seals on the outside of the cooler(s) signed & dated?	Yes No NA 9
3. Shippers' packing slip attached to the cooler(s)?	Yes (NO)
4. Did custody papers accompany the sample(s)?	Ver No
 6. Was/were the person(s) who collected the samples clearly identified on the Clearly i	OC? Yes No
7. Did all bottles arrive in good condition (Unbroken)?	Ver No
8. Could all bottle labels be reconciled with the COC?	Cler No
10. Sufficient quantity received to perform indicated analyses?	Yes No 13
11. Were sample(s) at the correct pH upon receipt?	Yes No NA H Strip Lot# <u>HC554612</u>
12. Were VOAs on the COC? 13. Were air hubbles > 6 mm in any VOA vials?	Yes No'
14. Was a trip blank present in the cooler(s)? Trip Blank Lot #	Yes No
Contacted PM Date by vi	a Verbal Voice Mail Other
14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	Samples processed by:
Samples It& have I'D's which	start with SN nother
than "DS", which is how they	are listed on the
15. SAMPLE CONDITION	
Sample(s) were received after the recomme	ended holding time had expired.
Sample(s) were received with bubb	le >6 mm in diameter. (Notify PM)
16. SAMPLE PRESERVATION	
Sample(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\WI-NC-099V-102115 Cooler Receipt Form.doc djl



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

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.

LINKS **Review your project** results through Total Access Have a Question? Ask-The Expert Visit us at: www.testamericainc.com

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3

Metals

Metals		
Qualifier	Qualifier Description	
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	5
U	Indicates the analyte was analyzed for but not detected.	J
В	Compound was found in the blank and sample.	
Glossar		

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	4
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
NC	Not Calculated	
ND	Not detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	
QC	Quality Control	
RER	Relative error ratio	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	

TEQ Toxicity Equivalent Quotient (Dioxin)

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

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.

Method Summary

Client: URS Corporation Project/Site: Closed Loop

Method 6010C

7470A

7471B

Moisture

TAL CAN

EPA

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	9

TestAmerica Canton

Method Description	Protocol	Laboratory
Metals (ICP)	SW846	TAL CAN
Mercury (CVAA)	SW846	TAL CAN
Mercury (CVAA)	SW846	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

Percent Moisture

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

11/17/2015

Sample Summary

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Lab Sample ID	Client Sample ID	Matrix	Collected Received	1
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 5
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 8
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 9
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 1 ()
240-57769-15	DS-11-1655	Solid	11/09/15 00:00 11/11/15 10	:00

Client Sample ID: DS-11-1675

Lab Sample ID: 240-57769-1

Lab Sample ID: 240-57769-2

Lab Sample ID: 240-57769-3

Lab Sample ID: 240-57769-4

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

Analyte **Result Qualifier** RL MDL Unit Dil Fac D Method Prep Type Barium 230 J 1400 28 mg/Kg 100 🔅 6010C Total/NA 100 🌣 Cadmium 16 J 34 1.4 mg/Kg 6010C Total/NA Chromium 28 J 68 5.1 mg/Kg 100 🌣 6010C Total/NA Lead 2900 B 68 100 🌣 Total/NA 1.5 mg/Kg 6010C Silver 8.7 J 68 4.3 mg/Kg 100 🌣 6010C Total/NA Arsenic 0.0046 JB 0.50 0.0029 mg/L 6010C TCLP 1 Barium 7.5 JB 10 0.0010 mg/L 1 6010C TCLP 0.012 J 0.00014 mg/L Cadmium 0.10 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 0.000090 mg/L 7470A TCLP 0.00017 J 0.0020 1 0.093 J 0.096 0.013 mg/Kg 1 🌣 7471B Total/NA Hg

Client Sample ID: DS-13-1675

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

Analyte	Result Qualifier	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.

TestAmerica Canton

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Client Sample ID: DS-09-1675 (Continued)

Lab Sample ID: 240-57769-4

Lab Sample ID: 240-57769-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	23	J	42	1.7	mg/Kg	100	<u>₩</u>	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

Client Sample ID: DS-10-1655

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

Client Sample ID: DS-12-1655

Lab Sample ID: 240-57769-6

Lab Sample ID: 240-57769-7

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	Å.	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

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.

Client Sample ID: DS-08-1655 (Continued)

Lab Sample ID: 240-57769-7

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

Lab Sample ID: 240-57769-12

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

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This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Lab Sample ID: 240-57769-9

Lab Sample ID: 240-57769-10

Client Sample ID: DS-09-1655 (Continued)

Lab Sample ID: 240-57769-12

Lab Sample ID: 240-57769-13

Lab Sample ID: 240-57769-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	18		15	1.1	mg/Kg	20	Ţ	6010C	Total/NA
Lead	2500	В	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

Client Sample ID: DUP A

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

Client Sample ID: DS-08-1675

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

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	Þ	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

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Client Sample ID: DS-11-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Lab Sample ID: 240-57769-1 Matrix: Solid

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	(CVAA) - 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

Lab Sample ID: 240-57769-1 Matrix: Solid Percent Solids: 97.5

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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
Нд	0.015	J	0.089	0.012	mg/Kg	<u>Å</u>	11/12/15 15:45	11/13/15 14:32	1

Result Qualifier

0.0046 JB

Client: URS Corporation Project/Site: Closed Loop

Analyte

Arsenic

Dil Fac

1

Client Sample ID: DS-03-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Lab Sample ID: 240-57769-2 Matrix: Solid

11/13/15 10:23 11/16/15 13:10

Analyzed

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
Γ									
Method: 7470A - Mercury (C	VAA) - TCLP								
Method: 7470A - Mercury (C Analyte	VAA) - TCLP Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 7470A - Mercury (C Analyte Mercury	VAA) - TCLP Result 0.00017	Qualifier J	RL 0.0020	MDL	Unit mg/L	D	Prepared 11/13/15 14:00	Analyzed 11/16/15 16:24	Dil Fac
Method: 7470A - Mercury (C Analyte Mercury General Chemistry	VAA) - TCLP Result 0.00017	Qualifier J	RL 0.0020	MDL 0.000090	Unit mg/L	<u>D</u>	Prepared 11/13/15 14:00	Analyzed 11/16/15 16:24	Dil Fac
Method: 7470A - Mercury (C Analyte Mercury General Chemistry Analyte	VAA) - TCLP Result 0.00017 Result	Qualifier J Qualifier	RL 0.0020	MDL 0.000090 MDL	Unit mg/L Unit	<u>D</u> 	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:24 Analyzed	Dil Fac
Method: 7470A - Mercury (C Analyte Mercury General Chemistry Analyte Percent Solids	VAA) - TCLP Result 0.00017 	Qualifier J Qualifier	RL 0.0020 RL 0.10	MDL 0.000090 MDL 0.10	Unit mg/L Unit %	D	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:24 Analyzed 11/12/15 15:23	Dil Fac 1 Dil Fac 1

RL

0.50

MDL Unit

0.0029 mg/L

D

Prepared

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

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TestAmerica Job ID: 240-57769-1

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	100	U	100	28	mg/Kg	₽	11/12/15 10:45	11/13/15 15:38	100
Barium	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
Lead	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
Method: 7471B - Mercury (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Нд	0.093	J	0.096	0.013	mg/Kg	<u>Å</u>	11/12/15 15:45	11/13/15 14:33	1

Result Qualifier

Client: URS Corporation Project/Site: Closed Loop

Analyte

Dil Fac

Client Sample ID: DS-13-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Lab Sample ID: 240-57769-3 Matrix: Solid

Analyzed

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 Analyte	(CVAA) - TCLP Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 7470A - Mercury Analyte Mercury	(CVAA) - TCLP Result 0.00011	Qualifier J	RL 0.0020	MDL 0.000090	Unit mg/L	D	Prepared 11/13/15 14:00	Analyzed 11/16/15 16:27	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry	(CVAA) - TCLP Result 0.00011	Qualifier J	RL 0.0020	MDL 0.000090	Unit mg/L	<u>D</u>	Prepared 11/13/15 14:00	Analyzed 11/16/15 16:27	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte	(CVAA) - TCLP Result 0.00011 Result	Qualifier J Qualifier	RL 0.0020	MDL 0.000090 MDL	Unit mg/L Unit	D	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:27 Analyzed	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Percent Solids	(CVAA) - TCLP Result 0.00011 Result 98	Qualifier J Qualifier	RL 0.0020 - RL 0.10 -	MDL 0.000090 MDL 0.10	Unit mg/L Unit	D	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:27 Analyzed 11/12/15 15:23	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Percent Solids Percent Moisture	(CVAA) - TCLP Result 0.00011 Result 98 1.8	Qualifier J Qualifier	RL 0.0020 RL 0.10	MDL 0.000090 MDL 0.10 0.10	Unit mg/L Unit %	D	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:27 Analyzed 11/12/15 15:23 11/12/15 15:23	Dil Fac 1 Dil Fac 1 1

RL

MDL Unit

D

Prepared

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

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Client Sample ID: DS-13-1675 Date Collected: 11/09/15 00:00

Date	Received:	11/11/15	10:00

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		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 (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.46		0.12	0.017	mg/Kg	¢	11/12/15 15:45	11/13/15 14:35	1

Client: URS Corporation Project/Site: Closed Loop 8

Client Sample ID: DS-09-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Lab Sample ID: 240-57769-4 Matrix: Solid

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 - Mercurv (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 15:49	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

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

Method: 6010C - Metals (ICP)		o				_			
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	120	U	120	34	mg/Kg	₩ Ţ	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	J	83	6.2	mg/Kg	¢	11/12/15 10:45	11/13/15 15:51	100
Lead	11000	В	83	1.8	mg/Kg	¢	11/12/15 10:45	11/13/15 15:51	100
Selenium	170	U	170	28	mg/Kg	¢	11/12/15 10:45	11/13/15 15:51	100
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
Hg	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

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Lab Sample ID: 240-57769-5

Matrix: Solid

Client Sample ID: DS-10-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - T	CLP								
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 (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 15:51	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

11/17/2015

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

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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
Percent Solids: 99.0

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	22	U	22	6.1	mg/Kg	— 	11/12/15 10:45	11/13/15 14:41	20
Barium	180	J	300	6.1	mg/Kg	₽	11/12/15 10:45	11/13/15 14:41	20
Cadmium	4.2	J	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	В	15	0.33	mg/Kg	¢	11/12/15 10:45	11/13/15 14:41	20
Selenium	30	U	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 (CVAA Analyte) Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.098		0.090	0.013	mg/Kg	<u>\$</u>	11/12/15 15:45	11/13/15 14:38	1

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-12-1655 Date Collected: 11/09/15 00:00

Method: 6010C - Metals (ICP) - TCLP

Date	Received:	11/11/15 10:0	0

Lab	Sample	ID:	240-577	69-6
			Matrix:	Solid

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

Client: URS Corporation Project/Site: Closed Loop

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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
Percent Solids: 99.3

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	26	U	26	7.0	mg/Kg		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
Selenium	34	U	34	5.8	mg/Kg	¢	11/12/15 10:45	11/13/15 14:45	20
Silver	5.8	J	17	1.1	mg/Kg	¢	11/12/15 10:45	11/13/15 14:45	20
Method: 7471B - Mercury (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.092	J	0.10	0.014	mg/Kg	<u></u>	11/12/15 15:45	11/13/15 14:40	1

RL

0.50

0.10

0.50

0.50

0.25

0.50

10

MDL Unit

0.0029 mg/L

0.0010 mg/L

0.00014 mg/L

0.00055 mg/L

0.0019 mg/L

0.0040 mg/L

0.00092 mg/L

D

Prepared

Result Qualifier

1.8 J B

0.0091 JB

0.038 J

4.7

0.012 JB

0.25 U

0.50 U

Client: URS Corporation Project/Site: Closed Loop

Analyte

Arsenic

Barium

Lead

Silver

Selenium

Cadmium

Chromium

8

Dil Fac

1

1

1

1

1

1

1

1

1

1

Dil Fac

Dil Fac

Client Sample ID: DS-08-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Method: 7470A - Mercury (CVAA) - TCLP

Lab Sample ID: 240-57769-7 Matrix: Solid

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

Analyzed

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed
Mercury	0.0020	U	0.0020	0.000090	mg/L		11/13/15 14:00	11/16/15 15:47
General Chemistry								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed
Percent Solids	98		0.10	0.10	%			11/12/15 15:23
Percent Moisture	1.6		0.10	0.10	%			11/12/15 15:23
-								

Client: URS Corporation Project/Site: Closed Loop

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

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Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	71	<u> </u>	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 (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.19		0.11	0.015	mg/Kg	<u>Å</u>	11/12/15 15:45	11/13/15 14:44	1

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Client	Sample	ID:	DS-1	4-1	675

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample	ID:	240-577	'69-8
		Matrix:	Solid

Percent Solids: 98.0

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	150	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	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 (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.25		0.11	0.015	mg/Kg	<u>Å</u>	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

Client: URS Corporation Project/Site: Closed Loop

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

Method: 6010C - Metals (ICP)									
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
Нд	0.30		0.090	0.013	mg/Kg	- \	11/12/15 15:45	11/13/15 14:47	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

Client: URS Corporation Project/Site: Closed Loop

Lab Sample ID: 240-57769-10 Matrix: Solid

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Client Sample ID: DS-07-1655

Percent	Solids:	99.6

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Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	26	U	26	7.2	mg/Kg	¢	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	<u> </u>	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

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 Percent Solids: 99.6

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Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	260	U	260	71	mg/Kg	\ ₽	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	J	170	11	mg/Kg	¢	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	<u> </u>	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

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 Percent Solids: 99.0

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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
Нд	0.052	J	0.10	0.014	mg/Kg	- \\\\	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
Percent Moisture	0.96		0.10	0.10	%			11/12/15 15:23	1

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DUP A Date Collected: 11/09/15 00:00

Date R 44/44/45

Lab Sample ID: 240-57769-13 Matrix: Solid t Solide

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Date Received: 11/11/15 10:00	Received: 11/11/15 10:00								ls: 99.0
Method: 6010C - Metals (ICP)	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	140		140	38	ma/Ka	— -	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	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	J	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
Нд	0.17		0.096	0.013	mg/Kg	<u>Å</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

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-08-1675 Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-14 Matrix: Solid Percent Solids: 99.2

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	64	U	64	18	mg/Kg	- X	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
Нд	0.10	J	0.11	0.015	mg/Kg	<u> </u>	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

Client: URS Corporation Project/Site: Closed Loop

Lab Sample ID: 240-57769-15 Matrix: Solid

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Client Sample ID: DS-11-1655

Percent	Solids	: 99.1

5

8 9

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	28	U	28	7.7	mg/Kg	₩ \[\]	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	<mark>9</mark> 8		19	1.4	mg/Kg	¢	11/12/15 10:45	11/13/15 15:34	20
Lead	2300	В	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 (CV	(AA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.14		0.096	0.013	mg/Kg	<u>Å</u>	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

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-206494/1-A

Matrix: Solid Analysis Batch: 206868

	MB	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 Matrix: Solid

Analysis Batch: 206868

Prep Batch: 206494 LCS LCS Spike %Rec. Added Limits Analyte **Result Qualifier** Unit D %Rec 200 Arsenic 186 mg/Kg 93 80 - 120 Barium 200 185 93 80 - 120 mg/Kg Cadmium 5.00 4.67 mg/Kg 93 80 - 120 Chromium 20.0 18.8 mg/Kg 94 80 - 120 Lead 50.0 45.6 mg/Kg 91 80 - 120 Selenium 200 185 mg/Kg 92 80 - 120 Silver 5.00 4.83 97 80 - 120 mg/Kg

Lab Sample ID: MB 240-206678/2-A Matrix: Solid

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

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

Client Sample ID: Method Blank

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 Job ID: 240-57769-1

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 206494

Prep Type: Total/NA

9

RL

0.50

0.10

0.50

0.50

0.25

0.50

10

MDL Unit

0.0029 mg/L

0.0010 mg/L

0.00014 mg/L

0.00055 mg/L

0.0019 mg/L

0.0040 mg/L

0.00092 mg/L

D

Prepared

Analysis Batch: 206959

Matrix: Solid

Analyte

Arsenic

Barium

Lead

Silver

Cadmium

Chromium

Selenium

Client Sample ID: Method Blank

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

Analyzed

Prep Type: TCLP

Prep Batch: 206678

9

			1 1	
			1 1	
			1 1	

Dil Fac

1

Method: 7470A - Mercury (CVAA)

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

LB LB

0.00462 J

0.00325 J

0.00157 J

0.10 U

0.50 U

0.25 U

0.50 U

Result Qualifier

Lab Sample ID: LB 240-206575/1-B

Lab Sample ID: MB 240-206680/2-A Matrix: Solid Analysis Batch: 207017	МВ	МВ							Clie	ent Samp	ble ID: Method Prep Type: To Prep Batch:	l Blank otal/NA 206680
Analyte	Result	Qualifier		RL	N	IDL	Unit) P	repared	Analyzed	Dil Fac
Mercury	0.0020	U	0	.0020	0.000	090	mg/L		11/1	3/15 14:00	11/16/15 15:26	1
Lab Sample ID: LCS 240-206680/3-/ Matrix: Solid Analysis Batch: 207017	4		Spike Added		LCS Result	LCS Qual	ifier	Clier	nt Sai	mple ID:	Lab Control S Prep Type: To Prep Batch: %Rec. Limits	Sample otal/NA 206680
Mercury			0.00500	(0.00507			mg/L		101	80 - 120	
Lab Sample ID: LB 240-206575/1-C Matrix: Solid Analysis Batch: 207017	LB	LB							Clie	ent Samp	ole ID: Method Prep Type Prep Batch:	l Blank : TCLP 206680
Analyte	Result	Qualifier		RL	N	IDL	Unit		о р	repared	Analyzed	Dil Fac
Mercury	0.0020	U	0	.0020	0.000	090	mg/L		11/1	3/15 14:00	11/16/15 15:24	1

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 240-20651 Matrix: Solid Analysis Batch: 206814	1/1-A	MR							Clie	ent Samı	ole ID: Method Prep Type: To Prep Batch: 3	l Blank otal/NA 206511
Analyte	Result	Qualifier		RL	I	MDL	Unit	D	P	repared	Analyzed	Dil Fac
Hg	0.10	U		0.10	0	.014	mg/Kg		11/1	2/15 15:45	11/13/15 11:23	1
Lab Sample ID: LCS 240-2065 Matrix: Solid Analysis Batch: 206814	11/2-A							Client	Sar	nple ID:	Lab Control S Prep Type: To Prep Batch: 3	Sample otal/NA 206511
			Spike		LCS	LCS					%Rec.	
Analyte Hg			Added 0.833		Result 0.850	Qual	lifier	Unit mg/Kg		%Rec	Limits 80 - 120	

Method: Moisture - Percent Moisture

Lab Sample ID: 240-57769- Matrix: Solid Analysis Batch: 206558	5 DU					Client S	ample ID: DS-10 Prep Type: Tot	-1655 al/NA
	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 Matrix: Solid					Client Sample ID: DS-08 Prep Type: Tot			
	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

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	
0.40 57700 0					

240-37709-3	D3-13-1075	TOLAI/INA	Solia	/4/ ID	
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	Ргер Туре	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	

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	Ргер Туре	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	Ргер Туре	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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Prep Type

Total/NA

Matrix

Solid

Metals (Continued)

Lab Sample ID

240-57769-6

240-57769-7

240-57769-8

240-57769-9

240-57769-10

240-57769-11

240-57769-12

240-57769-13

240-57769-14

240-57769-15

Analysis Batch: 206868 (Continued)

Client Sample ID

DS-12-1655

DS-08-1655

DS-14-1675

DS-12-1675

DS-07-1655

DS-04-1675

DS-09-1655

DS-08-1675

DS-11-1655

Method Blank

Lab Control Sample

DUP A

Method

6010C

Prep Batch

206494

206494

206494

206494

206494

206494

206494

206494

206494

206494

206494

206494

9 10

Analysis Batch: 206959

LCS 240-206494/2-A

MB 240-206494/1-A

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	

TestAmerica Job ID: 240-57769-1

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	

Lab Sample ID: 240-57769-1 Matrix: Solid

Client Sample ID: DS-11-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 13:06	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 14:17	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 16:22	WAL	TAL CAN
Total/NA	Analysis	Moisture		1	206558	11/12/15 15:23	GNR	TAL CAN

Client Sample ID: DS-11-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample	ID: 240-57769-1
	March O all's

Matrix: Solid Percent Solids: 97.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared 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
Total/NA	Analysis	7471B		1	206814	11/13/15 14:32	DSH	TAL CAN

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

Lab Sample ID: 240-57769-2

	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	Туре	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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			206494	11/12/15 10:45	DEE	TAL CAN

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Percent Solids: 99.7

5 6

Matrix: Solid

Date Receive	ate Received: 11/11/15 10:00								lids: 99.7
	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Γ	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	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		50	206868	11/13/15 14:33	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 14:35	DSH	TAL CAN

Client Sample ID: DS-09-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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

TestAmerica Canton

TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-2

Lab Sample ID: 240-57769-3

Lab Sample ID: 240-57769-3

Lab Sample ID: 240-57769-4

Matrix: Solid

Matrix: Solid

Matrix: Solid

Matrix: Solid

Percent Solids: 98.2

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 Percent Solids: 98.4 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 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 206814 11/13/15 14:36 DSH TAL CAN 1

Client Sample ID: DS-10-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab S	Sample	ID: 240-57769	-5
		Matrix: Sol	id

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-5 Matrix: Solid Percent Solids: 99.0

Lab Sample ID: 240-57769-6

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	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 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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	Туре	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

TestAmerica Canton

Matrix: Solid

Matrix: Solid

Matrix: Solid

Percent Solids: 99.3

Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
TCLP	Analysis	7470A		1	207017	11/16/15 15:53	WAL	TAL CAN
Total/NA	Analysis	Moisture		1	206558	11/12/15 15:23	GNR	TAL CAN

Client Sample ID: DS-12-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	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 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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 13:32	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	Analysis	7470A		1	207017	11/16/15 15:47	WAL	TAL CAN
Total/NA	Analysis	Moisture		1	206558	11/12/15 15:23	GNR	TAL CAN

Client Sample ID: DS-08-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	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		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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	206558	11/12/15 15:23	GNR	TAL CAN

Matrix: Solid

Lab Sample ID: 240-57769-6

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Lab Sample ID: 240-57769-7 Matrix: Solid

Lab Sample ID: 240-57769-7 Matrix: Solid Percent Solids: 98.4

Lab Sample ID: 240-57769-8

				Lab Chr	onicle				
Client: URS C	orporation						Tes	tAmerica Jol	o ID: 240-57769-1
liont Sam		-14-1675					Lah	Samplo IF	. 240-57769-8
Date Collecte	d. 11/00/15	-14-1075					Lab		Matrix: Solid
Date Receive	d: 11/11/15 1	10:00						Per	cent Solids: 98.0
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Bron Type	Batch	Batch	Pup	Dilution	Batch	Prepared	Analyst	Lab	
Total/NA	Prep	3050B	Kuii		206494	11/12/15 10:45	DEF		
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 Sam	nle ID [.] DS	-12-1675					l ah	Sample IF) 240-57769-9
Date Collecte	d: 11/09/15	00:00					Lab		Matrix: Solid
Date Receive	d: 11/11/15 1	10:00							
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	Batch	Batch	Dum	Dilution	Batch	Prepared	Analyst	Lah	
	Analysis	Moisture	Kuli		206558	11/12/15 15:23			
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Client Som		10 1675					Lab	Somalo IF	240 57760 0
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19to Pocolivo	d. 11/11/15 /	10.00						Dor	cont Solide: 08 /
Jate Receive	d: 11/11/15 1	10:00						Per	cent Solids: 98.4
Jate Receive	d: 11/11/15 1 Batch	Batch		Dilution	Batch	Prepared		Per	cent Solids: 98.4
Prep Type	d: 11/11/15 1 Batch Type	I0:00 Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab	cent Solids: 98.4
Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep	Batch Method 3050B	Run	Dilution Factor	Batch Number 206494	Prepared or Analyzed 11/12/15 10:45	Analyst DEE	Lab TAL CAN	cent Solids: 98.4
Date Receiver Prep Type Total/NA Total/NA	d: 11/11/15 1 Batch Type Prep Analysis	Batch Method 3050B 6010C	Run	Dilution Factor 250	Batch Number 206494 206868	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03	Analyst DEE KLC	Lab TAL CAN TAL CAN	cent Solids: 98.4
Prep Type Total/NA Total/NA Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep	Batch Method 3050B 6010C 7471B	Run	Dilution Factor 250	Batch Number 206494 206868 206511	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45	Analyst DEE KLC DEE	Lab TAL CAN TAL CAN TAL CAN	cent Solids: 98.4
Prep Type Total/NA Total/NA Total/NA Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis	Batch Method 3050B 6010C 7471B 7471B	Run	Dilution Factor 250	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN	cent Solids: 98.4
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis	Batch Method 3050B 6010C 7471B 7471B	Run	Dilution Factor 250	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN	240.57769-10
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis	Batch Method 3050B 6010C 7471B 7471B 74700	Run	Dilution Factor 250	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN	240-57769-10
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis DIE ID: DS d: 11/09/15 0 d: 11/11/15 1	Batch Method 3050B 6010C 7471B 7471B -07-1655 00:00 10:00	Run	Dilution Factor 250	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Sample ID:	cent Solids: 98.4 240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receiver	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1	I0:00 Batch Method 3050B 6010C 7471B 7471B 7471B -07-1655 00:00 10:00	Run	Dilution Factor 250 1	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Per Tal Can Tal Can Tal Can Tal Can Tal Can Sample ID:	cent Solids: 98.4 240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Turno	Batch Method 3050B 6010C 7471B 7471B 7471B 07-1655 00:00 10:00 Batch Mathod	Run	Dilution Factor 250 1 Dilution	Batch Number 206494 206868 206511 206814 Batch	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed	Analyst DEE KLC DEE DSH Lab S	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Sample ID:	cent Solids: 98.4 240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receiver Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1	Batch Method 3050B 6010C 7471B 7471B 7471B 07-1655 00:00 Batch Method Moisture	Run	Dilution Factor 250 1 Dilution Factor	Batch Number 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Lab TAL CAN	cent Solids: 98.4 240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Received Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 Batch Method Moisture	Run	Dilution Factor 250 1 Dilution Factor 1	Batch Number 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Lab TAL CAN	240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 Batch Method Moisture	Run	Dilution Factor 250 1 Dilution Factor 1	Batch 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Cample ID:	240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA Client Sam Date Collecte	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 Batch Type Analysis ple ID: DS d: 11/09/15 0	Batch Method 3050B 6010C 7471B 7471B -07-1655 00:00 Batch Method -07-1655 00:00 Batch Method Moisture -07-1655	Run	Dilution Factor 250 1 Dilution Factor 1	Batch Number 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Cample ID: Cample ID:	240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Prep Type Total/NA Client Sam Date Collecte Date Collecte Date Collecte Date Collecte Date Collecte Date Collecte	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 Batch Method Moisture -07-1655 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00	Run	Dilution Factor 250 1 Dilution Factor 1	Batch Number 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Lab TAL CAN Sample ID: Per	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Prep Type Total/NA Client Sam Date Collecte Date Collecte Collecte Collecte Collecte Collecte Client Sam	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 Batch Method Moisture -07-1655 00:00 00:00 00:00 00:00 00:00 00:00 00:00	Run	Dilution Factor 250 1 Dilution Factor 1	Batch 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: CAB TAL CAN CAN CAN CAN CAN CAN CAN CAN CAN CAN	240-57769-10 Matrix: Solid Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA Client Sam Date Collecte Date Collecte Date Receive	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0 d: 11/09/15 0 d: 11/11/15 1 Batch Type Description	Batch Method 3050B 6010C 7471B 7471B -07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method Moisture -00:00 Batch	Run	Dilution Factor 250 1 Dilution Factor 1 Dilution	Batch Number 206494 206868 206511 206814 Batch Number 206558 Batch	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN Sample ID: Cample ID: Per	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Received Prep Type Total/NA Client Sam Date Collecte Date Collecte	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0 d: 11/09/15 0 d: 11/09/15 0 d: 11/11/15 1	Batch Method 3050B 6010C 7471B 7471B 7471B 07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method 2050B	Run	Dilution Factor 250 1 Dilution Factor Dilution Factor	Batch Number 206494 206868 206511 206814 Batch Number 206558 Batch Number	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23 Prepared or Analyzed	Analyst DEE KLC DEE DSH Lab S Analyst GNR Lab S	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Date: CAN Sample ID: Per Lab TAL CAN	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6
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Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receiver Prep Type Total/NA Client Sam Date Collecte Date Collecte Date Receiver Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Prep Analysis	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 Batch Method 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00	Run Run Run Run	Dilution Factor 250 1 Dilution Factor 1 Dilution Factor 20	Batch 206494 206868 206511 206814 Batch Number 206558 Batch Number 206558 Batch Number 206494 206494 206868	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23 Prepared or Analyzed 11/12/15 10:45 11/13/15 15:14	Analyst DEE KLC DEE DSH Lab S Analyst GNR Lab S Analyst DEE KLC	Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Cample ID: Cample ID: Per Lab TAL CAN TAL CAN	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0 d: 11/11/15 1 Batch Type Prep Analysis Prep	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 Batch Method Moisture -07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method 3050B 6010C 7471B	Run	Dilution Factor 250 1 Dilution Factor 1 Dilution Factor 20	Batch Number 206494 206868 206511 206814 Batch Number 206558 Batch Number 206558 Batch Number 206494 206495 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23 Prepared or Analyzed 11/12/15 15:14 11/12/15 15:14	Analyst DEE KLC DEE DSH Lab S Analyst GNR Lab S Analyst DEE KLC DEE	Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Cample ID: Cample ID: Per Lab TAL CAN TAL CAN TAL CAN	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6

Lab Sample ID: 240-57769-11

Lab Sample ID: 240-57769-11

Lab Sample ID: 240-57769-12

Lab Sample ID: 240-57769-12

Lab Sample ID: 240-57769-13

TAL CAN

TAL CAN

Matrix: Solid

Matrix: Solid

Matrix: Solid

99.0

Matrix: Solid

Matrix: Solid

Percent Solids: 99.6

Client Sample	ID: DS-04-1675
Date Collected: 1	1/09/15 00:00

Date Received: 11/11/15 10:00

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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-04-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Γ	Bat	ch Bat	tch		Dilution	Batch	Prepared		
Prep Ty	/ре Тур	e Me	thod	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	A Prej	p 305	50B			206494	11/12/15 10:45	DEE	TAL CAN
Total/NA	A Ana	ilysis 601	10C		250	206868	11/13/15 16:07	KLC	TAL CAN
Total/NA	A Prej	p 747	′1B			206511	11/12/15 15:45	DEE	TAL CAN
Total/NA	A Ana	ilysis 747	′1B		1	206814	11/13/15 14:52	DSH	TAL CAN

Client Sample ID: DS-09-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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-09-1655 Date Collected: 11/09/15 00:00 **Date Received: 1**

Prep

7471B

Analysis 7471B

1/11/15 1	0:00						Pei	cent Solids:
Batch	Batch		Dilution	Batch	Prepared			
Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Prep	3050B			206494	11/12/15 10:45	DEE	TAL CAN	
Analysis	6010C		20	206868	11/13/15 15:22	KLC	TAL CAN	

206511 11/12/15 15:45 DEE

206814 11/13/15 14:53 DSH

Client Sample ID: DUP A Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Prep Type Total/NA Total/NA Total/NA

Total/NA

_								
	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture			206558	11/12/15 15:23	GNR	TAL CAN

-									
Client Samp	DIE ID: DU	JP A					Lab S	ample ID:	240-57769-13
Date Collected	d: 11/09/15	00:00							Matrix: Solid
Date Received	d: 11/11/15	10:00						Perc	ent Solids: 99.0
Γ	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	

1

Lab Sample ID: 240-57769-14

Lab Sample ID: 240-57769-14

Client Sample ID: DUP A Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

Date Received	d: 11/11/15 ′	10:00						Percent Solids: 99.0
Ргер Туре	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		100	206868	11/13/15 16:28	KLC	TAL CAN
Total/NA Total/NA	Prep Analysis	7471B 7471B		1	206511 206814	11/12/15 15:45 11/13/15 14:56	DEE DSH	TAL CAN TAL CAN

Client Sample ID: DS-08-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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-08-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared 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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-15

Lab Sample ID: 240-57769-15

Matrix: Solid

Matrix: Solid

Percent Solids: 99.1

Matrix: Solid

Percent Solids: 99.2

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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-11-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

-	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 15:34	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 Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

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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



21/ 4101 Shuffel Street, N.W. North Canton, OH 44720 tel 330.497.9396 fax 330.497.0772 www.testamericainc.com

11/17/2015

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TestAmerica Canton 4.61(4.7 Chain of Custody Record TestAmerico 4101 Shuffel Street, N. H. Horth Canton, OH 44720 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: Soda Site Contact: Ergun Date: COC No: Tel/Fax: Company Name: AECOM Lab Contact: Mark Loeb Carrier: of 2 COCs 1375 EUCLID AVE Analysis Turnaround Time Address: Sampler: City/State/Zip: CLEVELAND OH 44115 CALENDAR DAYS WORKING DAYS For Lab Use Only: B 216-622-2400 0 hone: TAT if different from Below Walk-in Client: õ Fax: 311 Lab Sampling: 2 weeks Project Name: Closed Loop 3 1 week MSD Site: 2 days Job / SDG No.: [•] 0 # 1 day etal Sample 4 Li Type Sample Sample # of Z (C=Comp, Sample Identification Date Time G=Grab) Matrix Cont. Sample Specific Notes: DS-11-1675 Kolis 1/4 . C DS-03-1675 DS-13-1675 ~ DS -09-1675 DS-10-1655 1 DS -12 - 1655 ~ 105-08-1655 DS-14-1675 DS-12-1675 v DS-07-1655 DS-04-1675 DS - 09-1655 M. Preservation Used: 1= Ice, 2= HCI; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 11 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 Months Special Instructions/QC Requirements & Comments: glass. We expect high lead and cadmium, possibly mercury. samples contain Custody Seals Intact: Yes Custody Seal No .: Cooler Temp. (°C): Obs'd: Therm ID No .: Relinguished by Company: Date/Time: Berl Received by: Company: Date/Time: AECOM TA 11-11-15 1000 Relinguished by: Company: Date/Time: Received by: Company: Date/Time: Relinguished by: Company: Date/Time: Received in Laboratory by: Company: Date/Time:

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Horth Canton, OH 44720 Phone: 330,497,9396 Fax: 330 497 0775	1								1										THE LEADER IN ENVIRON	MENTAL TESTI
	Regul	atory Pro	gram: [DW [NPDES	5 [RCRA		Other:					1				Form	No. CA-C-WI-002, Rev. 4.2	2, dated 04/02/2
Client Contact	Project Ma	anager:	Seda	Ergun		Site	Conta	act:				Date	:	I					COC No:	
Company Name: APCOM	Tel/Fax:			0		Lab	Conta	nct: //	tark	Lo	25	Carr	ier:						of	COCs
Address: 1375 EUCLID AVE		Analysis T	urnaround	l Time														Π	Sampler:	
City/State/Zip: CLEVELAND OH 49115		DAR DAYS		RKING DAY	′S														For Lab Use Only:	
Phone: $2/6 - 622 - 2460$	TA [·]	F if different fr	om Below			Í	12												Walk-in Client:	
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reservation Used: 1= Ice, 2= HCI; 3= H2SO4; 4=HI	NO3; 5≕NaOH;	6= Other _									:			: ; ;					1	
Possible Hazard Identification:						s	ample	e Dispo	osal (/	A fee	may b	e asse	essed	if sa	mples	are	retai	ined	longer than 1 month	i)
Comments Section if the lab is to dispose of the sample	Please List any I	PA Waste	Codes for	the sam	ple in th	ie			1											
		B		014/2		-			CIT 4					i	F	- 1				
Special Instructions/OC Requirements & Comments:				0001					Llient			Disposal	by Lab) 	L		live fo)r	Months	
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see 1st page																				
Custody Seals Intact: Yes No	Custody S	eal No.:						Coc	oler Te	emp. ('	'C): O	bs'd:		C	orr'd:				Therm ID No.:	
Relinquished by:	Company:		P	Date/T	ime:	R	leceive	ed by:					Co	ompar	ıy:				Date/Time:	
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Client AFCOM	Site Name		Cooler un	packed by:]
Coolor Received on 11.11-1	Opened on	11-11-15	A		
EndEx: 1 st Grd 25 m IID	S EAS Statson Client Drop Of	ff Test America Courie	er Other	<u> </u>	-
Peacint After hours: Dron of	S FAS Stetson Chent Drop Of	Storage Locatio			1
Test America Cooler #	From Box Chant Com	ler Boy Other			-
Packing material-used:	Bubble Wrap Foam Plastic.	Bag None Other			
1. Cooler temperature upon	receipt				
IR GUN# 53 (CF +0.1 IR GUN# 48 (CF -0.3 IR GUN# 5 (CF +0.	1 °C) Observed Cooler Temp. 3 °C) Observed Cooler Temp. 4 °C) Observed Cooler Temp.	C Corrected Coole C Corrected Coole C Corrected Coole	r Temp. <u>4.7</u> °(r Temp. <u></u> °(pr Temp°	C □See Multiple € Cooler Form	
IR GUN# 8 (CF -0.5	5 °C) Observed Cooler Temp.	°C Corrected Coole	r Temp°(
2 Were custody seals on th	e-outside-of the cooler(s)?If Y	es Quantity((No		
-Were custody seals on t	he outside of the cooler(s) signed &	dated?	Yes No NA		
-Were custody seals on t	he bottle(s) or bottle kits (LLHg/Me	eHg)?	Yes 👁		
3. Shippers' packing slip att	ached to the cooler(s)?		Ves No		
4. Did custody papers accor	npany the sample(s)?		Cesy No		
5. Were the custody papers	relinquished & signed in the approp	riate place?	(es) No		
6. Was/were the person(s) v	who collected the samples clearly ide	entified on the COC?	Yes 🔊		
7. Did all bottles arrive in g	ood condition (Unbroken)?	(Yes No		
8. Could all bottle labels be	reconciled with the COC?		Fes No		
9. Were correct bottle(s) use	ed for the test(s) indicated?		Yes No		
10. Sufficient quantity recei	ived to perform indicated analyses?		Ves No		
11. Were sample(s) at the con	rrect pH upon receipt?		Yes No 🕅 🎗 pi	H Strip Lot# <u>HC554612</u>	I
12. Were VOAs on the COC	?		Yes 🔊		
13. Were air bubbles >6 mm	in any VOA vials?		Yes No NA		
14. Was a trip blank present i	in the cooler(s)? Trip Blank Lot #		Yes (N)		
			-		
Contacted PM	Date by	via Verba	l Voice Mail Oth	ler	
Concerning					
		· · · · · · · · · · · · · · · · · · ·	Comm log	muses and hu	
14. CHAIN OF CUSTODY	& SAMPLE DISCREPANCIES		Samples	processed by:	
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		-		····	
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15. SAMPLE CONDITION	1				
Sample(s)	were received	after the recommended h	olding time had ex	pired.	
Sample(s)		were recei	ived in a broken co	ontainer.	
Sample(s)	were re	ceived with bubble >6 m	um in diameter. (N	otify PM)	
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Ref: SOP NC-SC-0005, Sample Receiving X: \X-Drive Document Control\SOPs\Work Instructions\Word Version Work Instructions\WI-NC-099V-102115 Cooler Receipt Form.doc djl

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APPENDIX D

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Appendix D Calculations for Closure Costs Closed Loop Facility Columbus, Ohio

Conversions	Conversions:							
Quantity	Unit		Quantity	Unit	Notes			
1	Gaylord box	=	1	Cubic Yards (CYs)	Assumption for the average sized box.			
1	53' Truck	=	3,392	Cubic Feet (CF)	Novotec states truck is 53' long x 8' high x 8' wide			
1	53' Truck	=	126	CYs	Conversion (cubic feet to cubic yards)			
1	53' Truck	=	52	Gaylord boxes	Novotec states truck can fit 2 rows of 13 stacked 2 high			
1	53' Truck	=	21	Tons	Max weight capacity per Ohio law			

Calculations	:						
Total Truck L	oads based on Weigh	t:					
44,560	Tons of Inventory	/	21	Tons per Truck Load	=	2,122	Truck Loads
Total Truck L	oads based on 52 box	ces pe	er truck:				
111,400	CYs or Gaylord Box	/	52	Gaylords per Truck	=	2,142	Truck Loads
Gaylord Box	Weight:						
21	Tons per Truckload	/	52	Gaylords per Truck	=	0.4	Tons per Gaylord
Estimated M	ass on Inventory Onsit	te:					
0.4	Tons per Gaylord	*	111,400	Cu. Yds. of Material	=	44,560	Tons of Inventory



Appendix D Summary of Cost Estimates Closed Loop Facility Columbus, Ohio

Material	Novotec	Waste Management	Enviroserve	EMS	Dlubak Glass
Inventory:					
CRT monitors	\$0.15/lb	\$0.56/lb			\$0.25/lb
Rear projection TVs	\$0.19/lb	\$0.56/lb			\$0.25/lb
Leaded Glass	\$0.14/lb				
Non-leaded Glass	\$2/ton				
Electronics	\$0.2/ton				
LCD Monitors, stereos, DVD players, keyboards, printers		\$0.09/lb			
Laptops, PCs		\$0.07/lb			
LCD Monitors (Damaged)		\$0.47/lb			
Commodities (hard drives, power supplies, wires)		\$0.07/lb			
Trucking	\$300/ton	\$1125/load	\$450/ton	\$300/truck load	

Warehouse decontamination	Quantity	Units	Unit Costs	Total Costs	Assumptions
EMS					
Mob/Demob	1	EA	4,400	4,400	
Labor & Equipment	12	Days	5,000	60,000	12 days
Transport and disposal Frac Tank & Cleaning at end of Project	20,000 1	Gallons EA	0.75 5,000	15,000 5,000	Assuming non-haz waste 10 day rental
		Tot	al Estimated Cost:	\$84,400	
Includes clean-up of dust (assumed hazardous) from 2 warehouses. All floors and horizontal surfaces (including bar joists) shall be cleaned. Cleaning methods include high pressure steam and HEPA vacuums.		Tot	al Estimated Cost:	\$463,000	



Appendix B

2017 Atwell Evaluation of E-Waste Inventories and Remediation/Closure Options This page intentionally left blank.



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

EXHIBIT

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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

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 ewaste), 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.

Fable 1: 1655 Watkins Road - F	t. Total E-Waste	Weight Based on Wa	ste 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 ton	is)

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	128,187,373 lbs. (64,093 tons)			

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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.

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1655 and 1675 Watkim Rised, Columbus, Ohio

Contration	ladis	Estimated Eacting	Material & Iracking Unit Rates	Schedule Duration	Commans
Eovironmental Management Specialists	د	\$290,000	V/N	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. Thus 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 measures or protocols have not yet been fully determined. The additional cost associated with the dust control measures and protocols is 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/lb	3-6 Months	This contractor is not recommended since their proposal is not considered competitive.
Electronic Recyclers International	R	\$51,274,949	\$0.40/lb	7-8 Months	This contractor is not recommended since their proposal is not considered competitive.
Kuusakoski	L, T, R	\$22,554,108	Device 50, 14 CRT Tube 50 125 Glass 50, 08 5700/10ad non-haz \$1,125/10ad haz Labor/Handling 50, 014	9 Months	This contractor is not recommended since their proposal is not constidered 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 Lonp. Much of the e-waste that Kuusakoski shipped still remains in the buildings. 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 \$34,054,000.
Hazardous Waste Experts	L, T, R	\$17,955.396	Device 50.24 to 50.28/1b Glas \$ 049/1b Trans = Rail and Truck At \$0.27/1b	8.5 months	This contractor plans to recycle all CRT monitors, tubes, and intact device at a R2 certified recycling facility in Mcxico. This contractor would be slupping CRT devices, tubes, and intact 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 transported no moder to materials would travel to by Technology Displays. Processed for export and off-loaded into trucks and prepared for transported to Videocon in India to be re-infinduced in by Technology Displays. Processed leaded glass from his Mcxico trecycler would then transported to Videocon in India to be re-infinduced in the CRT manufacturing process. Residual wastes generated by Technology Displays would be disposed of nu unidentified Mexican landfills All cutslied glass at the Site would be transported and landfiled at a Subitific I Anstronation such and the transported to local necyclers.
URT Solutions	T, R	\$15,034,087	Device 50, 14/lb Device 5710/laad Glass 50.11/lb Glass Inteking included in price/lb	6-9 Months	URT is an E-Stewards certified recycler. All CRT monitors, tubes, 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 Carnactio 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 Subtifie 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.
Navatec	L, T, R	\$12,476,611	Device \$0.16 to \$0.18/1b Glass \$0.09/1b Estimates 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, inbes, and infact devices will be recycled by Novotec at their local recycling facility. The confractor's proposal includes transporting all crushed glass to three separate landfills for disposal. (1) US Ecology in Defroit, Mf (hazardous transport, pretreatment) and off-site transporting all crushed in a US Ecology affiliated non-hazardous Subtitle D landfill), (2) Evortisastic Landfill in Oregon, OH (hazardous transport, pretreatment) (i.e., cruspatibility and 05) Max Environmental morth arcs of the contractor within an onsite Envirosafe hazardous Subtitle C landfill, (2) Environmental non-hazardous transport, pretreatment (i.e., cruspatibility in the second disposal within an onsite Environsafe hazardous Subtitle C landfill, and (3) Max Environmental Landfill in Yukon, PA (hazardous transport, pretreatment) (i.e., cruspations transport, pretreatment and disposal within an onsite Environmental non-hazardous Subtitle D landfill). Additionally, this contractors tasso evaluating a fourth option for cushed glass consisting of a CRT smelling facility in Canada. The contractor will be utilizing his local start' for manutent the data wastened and mature on the data wastened and starting active and an one chazardous transport.

1 Maintana fiest are based in weights of maintait weit weights for diagonal feed due of buil variance transportations feed. Harmand feed due 3% magned were in maintait volume exhautava. Atwell, LAC

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.

1635 and 1675 Watkins Road, Columbus, Ohio

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.

Table 4: Summary of Contractor Cost Estimates: Site Remediation (Lead Contaminated Dust)

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.

² The Environmental Management Specialists proposal in Appendix F reflects a bid for \$97,820. This bid was adjusted upwards for purposes of this cost summary to account for hazardous waste disposal costs, as other bids accounted for these costs. Atwell, LLC

1655 and 1675 Watkins Road, Columbus, Ohio

Novotec Recycling	E-waste Removal, Recycling, Disposal	\$12.476,611
Precision Environmental	Site Remediation	\$413,050
Annell	E-waste Ownership Research and Reporting, Remediation Design, Contractor Procurement, Bid Processing	\$94,9223
Atwen	E-waste Removal/Remediation Oversight, Project Management, Environmental Compliance	\$1,179.700
	Estimated Project Total:	514,164,283 4

Based on these recommendations, Atwell anticipates the overall project costs to be as follows:

7.0 DISCLAIMER

At well 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. At well shall not be responsible for conditions or consequences arising from relevant information that was concealed or not fully disclosed. At well'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:

T-K

Thomas Leigh

Project Manager

Michael J. Koenig Team Leader

³ Atwell costs accred to date in the research, development of removal remodation 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 I PA's oversight over RCRA closure of the site, and other contingencies

APPENDIX A

Atwell Qualifications, Michael Koenig Curriculum Vitae, Atwell Project to Date Costs, and Atwell Scope of Work/Cost Estimate This page intentionally left blank.



STATEMENT OF QUALIFICATIONS

CONSULTING. ENGINEERING. CONSTRUCTION.

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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.

REAL ESTATE & LAND DEVELOPMENT

Residential - Commercial - Community

OIL & GAS

Exploration & Production · Pipelines & Facilities · Logistics & Storage

POWER & ENERGY

Power Generation - Power Delivery

MINING & METALS

Greenfield & Restarts · Processing Facilities · 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



866.850.4200 www.atwell-group.com

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



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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 the 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.

CAPABILITIES

- 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





PPPP

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

Asset Management

- Site & Property Management
- Utility Location & Management
- Real Estate Portfolios
- Infrastructure & Energy Systems

Project Management Services

- GIS Consulting & Support
- Presentation Materials for Agency Reviews & Permits
- GIS Data Integration
- GIS Application Development
- Data Conversion & Migration

- Site Selection
- Developable Land Analysis
- Land Use Analysis/Planning
- Custom Asset Management Systems
- Land Acquisition & Right-of-Way Process Management
- Data Management & Mapping Solution (PIVIT ^{1*})




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.

CAPABILITIES

- 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.

CAPABILITIES

- 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.

CAPABILITIES

- 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





EDUCATION Bachelor of Science Geology Kent State University 1996

WORK EXPERIENCE EDP Consultants Environmental Geologist 1997-2004

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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

Michael J. Koenig | Team Leader, Environmental Services

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.



- 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

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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 ewaste 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 close-out 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.
- <u>Task 4 -</u> <u>Environmental Consulting Services for RCRA Closure and Building Remediation:</u> 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

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Atwell will provide the environmental services described in this proposal on a Time & Material (T&M) basis. Sub-consultant charges, fees, commissions, mateials, 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.

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

ATWELL

Garrison Southfield Park, LLC | Remediation of E-Waste Accumulation-Former Closed Loop, Inc. Facility Columbus, Ohio

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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.



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APPENDIX B

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Photographs of E-Waste and Site Conditions

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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.

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APPENDIX C

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Figures

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APPENDIX D

Preferred Removal Contractor Proposals and Qualifications: HWE, Novotec, URT This page intentionally left blank.

3960 Groves Rd. Columbus, OH 43232

614-236-2222 www.novotecrecycling.

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.

3960 Groves Rd. Columbus, OH 43232

Definitions

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recycling

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.

3960 Groves Rd. Columbus: OH 43232

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.

3950 Groves Rd Columbus, OH 43232

Garrison's Obligations

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

- 1) 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.

3960 Groves Rd. Columbus OH 43232



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.

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

Regards. CE recycling

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recycling

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.

MEMBER

Signature	Title:

_____ Oate:___

Print Name:_____
Attachment A

(\$12,476,611)		8	(\$0.097) erage Cost per	128,187,373 Ave		Totals
(\$12,476,611)	(\$10,833,188)	(\$1,643,423)		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	ŞO	\$0	\$0.00	324,648	1,944	Steel with glass
(\$10,237,568)	(\$10,237,568)	\$0	(\$0.0\$)	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	eights and Pricing 1655	w regarding We Price / #	See Notes Belor 1675	1655	Material

1 All weights are estimates and are not intended to be used as definative or actual weights Notes:

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:

1) 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 esteward 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

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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

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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 all 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 overthe-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 Protocot (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:

- 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"
- 3. Television up to 14"
- 4. Television over 14" but up to 21"
- 5. 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 Balcan 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 stretchwrapped 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.

	Rumber of Containers/Linits	Total Wit of Each Dung (Hus)		Tradition of the state
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	7,728 28,233 6,790 193 192		8,740,368 113,750,757 4,960,330 185,087 34,560	4,370 56,875 2,480 93 17
	1572. 79		326,592 189,679	163
CASUG 1953	43,637		128,187,373	64,094
1	Complete Units In Gaylonis on I	Pallets		
2.1	Complet eUnits Plastic Wrapper Pallets and Suger Sacks	d on Pallets		
	Grand Total	Muraber of Containers/Units 7,728 28,233 6,790 193 192 572 Grand Total 43,887 Complete Units In Gaylords on N Complete Units Plastic Wrapper Pallets and Sucer Sacks	Mumber of Containers/Units Total Wt of Each Type (ibs) 7,728 28,233 28,233 6,750 193 193 197 572 672 79 Grand Total 43,887 Complete Units in Gaylorits on Pallets Complete Units In Seylorits on Pallets Pallets and Super Sacks	Number of Containers/Units Total Wt of Each Type (ibs) 7,728 8,740,368 28,223 113,750,757 6,790 4,960,330 193 185,087 192 34,560 6772 326,592 79 189,679 Grand Total 43,497 Complete Units in Gayloris on Pallets 20,128,187,373 Complete Units In Gayloris on Pallets 20,128,187,12



Description	Rate	U	nit	Total
CRT Monitors and Tube TVs		L		Line and the second sec
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	Load	\$1,123,950.00
			Sub Total	\$5,645,180.34
Leaded Glass				
Disposal: Encapsulation & Landfill	\$110.00	56,875	Топ	\$6,256,250.00
Transportation: Oregon, OH	\$55.00	56,875	Ton	\$3,128,125.00
0		- States	Sub Total	\$9,384,375.00
Scrap Metal			Alton -	
Recycle: Scrap Metal	\$0.00	258	Ton	TBI
Transportation: Local Dealers	\$0.00	258	Ton	TBI
Diantina			Sub Total	TBI
Plastics				
Recycle: Plastic	\$0.00	17	Ton	TBI
Transportation: wheeling, IL	\$1,850.00	1	Load	\$1,850.00
Iamne			Sub Total	\$1,850.00
Recycling Lamos w/Matal Housings	CO. CO.	105 0071		
Transportation: East Windsor, CT	\$3.00	185,087	LD	\$666,313.20
Hanaponation Last Windson, C1	\$2,550.00	- 8	Load	\$20,400.00
Labor and Materials			Sub Iotal	\$686,713.20
Supervisor	\$120.00	1 440	Hour	6472 000 00
Project Manager	\$120.00	1,440	Hour	\$172,800.00
Operator - Forklift	\$120.00	1,440	Hour	\$172,800.00
Operator - Forklift	\$85.00	1,440	Hour	\$122,400.00
Operator - Loader	\$85.00	1,440	Hour	\$122,400.00
Laborer	\$75.00	1,440	Hour	\$122,400.00
Laborer	\$75.00	1,440	Hour	\$108,000.00
Level C PPE (6 Persons)	\$540.00	180	Day	\$97,200,00
Reclaimed Gaylord Boxes	\$25.00	5 000	Boy	\$125,000,00
Recycled Wooden Pallets	\$15.00	200	Pallet	\$125,000.00
HEPA Vacuum (2 Units per Day)	\$25.00	180	Day	\$4,500.00
Stretch Wrap	\$20.00	1 700	Boll	\$34,000.00
Utility Vehicle	\$225.00	180	Dav	\$40,500.00
Forklifts and Fuel (2 Units)	\$2,850,00	36	Week	\$102 600.00
Loader and Fuel	\$5 335 00	36	Week	\$192,000.00
Meal Per Diem (6 Persons x 3 Meals)	\$450.00	180	Dav	\$81 000 00
Lodging	\$4,250.00	9	Month	\$38,250.00
			Sub Total	\$1,646,910.00
Facility Remediation				
Supervisor and (3) Technicians	\$57,360.00	1	Lump Sum	\$57,360.00
Equipment	\$30,360.00	1	Lump Sum	\$30,360.00
Consumables	\$5,160.00	1	Lump Sum	\$5,160.00
Transportation and Disposal of Lead Debris	\$445.00	30	55-gal Drum	\$13,350.00
			Sub Total	\$106,230.00
Surcharges	A ATTAC AND A A A A A A A A A A A A A A A A A A			
Environmental Insurance, Taxes, FSC	3% of	Total Invoice		\$524,137.76
Estimated Total		1		\$17,995,396,30



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- 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

- <u>Convenience</u>. 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.
- <u>Sustainability</u>. 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.
- <u>Peace of Mind</u>. 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
 - 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
 - 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
 - o Nike
 - o Goodwill
 - Wilbur-Ellis
 - Department of Defense
 - o 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)



Wisconsin . Oregon Texas . New Hampshire

Atwell Group Quote

Customer	Atwell Group
Contact Name	Michael Koenig
Phone	(440) 394-0409
Email	mkoenig@atwell-group.com

Created Date Expiration Date

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August 25, 2016 30 Days

Item Category	Material Specifications	U/M	Pricing
	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
	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. **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 Tal: (877) 278-0799







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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



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



circuit board containing items are recovered.



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

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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

While 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.



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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 Codmium)
 - · Mercury Oxide
 - Silver Oxide
 - Alkaline
 - Lithium Metal & Hydride
- Nickel Metal Hydride
 - · Lead Acid

OUR PROCESSES

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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

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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

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.

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PROCESS REQUIREMENTS

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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:

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- · 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^e 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^o 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
 - seeking confirmation of its conformance by parties having an interest in the organization, such as customers (not allowed under e-Stewards[®] requirements), or
 - 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 This page intentionally left blank.

Cincinnati/Dayton • Cleveland/Akron/Canton • Columbus Indianapolis . Toledo/Detroit . Wheeling/Pittsburgh . Zanesville

Customer: A	twell LL	C	Contact:	Mike Koening	
Address: 7	7100 E Pleasant Valley Rd. Suite 220		Phone:	440.349.2000	
Ir	ndepend	lence Ohio 44131	Email:	mkoening@atwell-group.com	
Project Nam	e:	Lead Abatement	Bid Date:	6.22.16	
Project Addr	ess:	1655-1675 Watkins Rd Columbus, Ohio	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	4	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	\$	900.00
3.0	Labor and Equipment	22	Days	\$	3,920.00	s	86,240.00
4.0	Non Haz C&D waste Disposal (5 ton Min)	5	Ton	Ś	40.00	S	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	\$	780.00
7.0	Vac Box Rental (2)	40	Davs	\$	55.00	Ś	2,200.00
8.0	Roll off box rental (1)	20	Davs	Ś	17.00	Ś	340.00
9.0	Haz Waste Transportation	TBD	Load	Ś	920.00		
10.0	Non Haz Waste Transportation	TBD	Load	\$	450.00		
		Estir	nated Total	Ś			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, specifications and conditions are satisfactory and hereby accepted and EMS is authorized to proceed.

Buy	/er	1

Signature:

Buyer Signoture

Print Name

Date of Acceptance:

Cleveland, Ohio 44130 Estimator: Josh Baker Phone: (440) 816-1107 Email: ibaker@emsonsite.com

Environmental Management Specialists

RETURN ACCEPTANCE TO:

6909 Engle Road, C-31

STATEMENT OF QUALIFICATIONS

EMS

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Elesonsite

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, Winois, southern Wisconsin, southern Michigan, and beyond.



10 KEY DIFFERENTIATORS:

- SAFETY is at our core. Our comprehensive salely program is deeply-ingrained in the EMS culture and our core values
- Ņa never had a lost time accident in the entire RESPONSIBLE. Our EMR is 0.50 and we've
- history of the company. CAPABLE. Our employees are extensively-trained and certilied (i.e. HAZWOPER, CSE.
- QUALIFIED. EMS is pre-qualified by several SaleLand, APL e-RAILSAFE, RWI...].
- shop for a wide variety of environmental EXTENSIVE EXPERIENCE. EMS is your one-stop contractor screening consortiums, including ISNetworld, PEC Premier and Avetta.
- 9111. We oller 24/7 accessibility through our "One Call" dispatch program. RESPONSIVE. Call us anytime at: (877) 816-Services
- contact for repeat customers through our DEDICATED. We provide a single point-of-
- PROMISES KEPT. The EMS "Value Guarantee" gives our customers the ability to short pay "Operations Conclerge" program

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- to the Division VP, COO, or CEO If we did not any T&M Invaice or contest any change order
- .0 WASTE EXPERTS. EMS is permitted to transport deliver on the expected value.
- We properly containerize, document, and both non-hazardous and hazardous waste.
- dispose of waste the right way, every time. 10. OSRO CERTIFIED. EMS is a United States Coast Guard-certified Oil Spill Removal Organization OSRO #473).



OUR CORE SERVICES:

- REMEDIATION
- Hog-and-haul site remediation Fueling station cleanup and UST removal Gas and vapor barrier installation
- Mult-faceted brownfield remediation
- Sheet Piling Wetland, stream and channel restoration
- Landill remediation
- Hazardous soil and groundwater treatment
- Impoundment pond and lagoon remediation

EMERGENCY RESPONSE

- Railway, pipeline, roadway, and waterway spill response
- OSRO for Facility Response Plans (FRPs)
- 24/7/365 dispatch for emergency service needs HAZWOPER Training

TANK & UTILITY SERVICES

- OWS, vessels... Tank cleaning (API tanks, trac tanks, pits, sumps,
- Product transfer and temporary storage Tank decommissioning and demosition Confined Space Entry (CSE) rescue teams
- Line jetting
- Air knifing and hydro-excavation
- CSE training (mobile training vessel)

WASTE SERVICES

- Integrated waste management services Waste transport and disposal

- Waste characterization and containerization
- Drum waste "milk runs"
- Vacuum truck/tanker services
- Roll-off truck services
- RCRA and DOI training Vacuum and roll-oil box rental



Environmental Management Specialists, Inc.

Environmental Management Specialists, Inc.

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THE HISTORY OF EMS

EWS started in Ohio in November 2000 as a singleemployee waste braker adding environmental consulting firms and confractors with management of hazardous waste. EwS founder Jon Ransom begar his careet in the environmental industry as a safes representative with Ashkand Chemical in 1991. Subsequent positions with environmental service and experience. Family lies brought him back to Ohio in 2000. Startling out at Jan's basement, EMS overcame many early challenges typical of startups as the company developed an extensive network of intraportation and disposat on extensive network of intraportation and disposat self-performing remediation projestianak and bagan self-performing remediation projects from start in fathh. Through 2009, EMS experienced staady growth expanding to 12 employees and one small warehouse. Throughbull this time itame. EMS developed a solid company culture, a strong balance street, and a quality reputation in the industry, thereby establishing the toundation for future growth. EMS hill its stride in the second halt of 2009 and quickly accelerated both lits pace of improvement and growth. All the center of this growth niticalive were several best of the Best (808) professionate who jahred EMS and formed the nuckeus of the EMS teadership Team. From here, the teadership team launched an inferse drive lo grow EMS through coolinuous improvement and the development of people and processes. From 2009 to 2011, EMS became the # 1 anned the best remediation contractor in Ohio, and rated grown of hile same distine in the edition. At the same distinct of our All the same time. EMS began an inflative to divership its capabilities to hectude emergency response. fand works services, and waste services. In kale 2011, remediation funding in Ohio came to an abrupt intal lang with the mojority of the remediation work across the state. With close to 80 percent of its business field to remediation. EMS significantly increased the fempo of its push into services work. EMS doe exponded fits remediation reach into reighboring states and added strategic remediation regionoring states and added strategic remediation repoblilies. Including gas and vapor bariter instatation and wetfand and stream restoration services. This diversification risitistive led directly to the recruitment and development of BOB professionals of all levek of the company.

Environmental Management Specialists, Inc. 3

In 2013, EMS committed to developing a comprehensive Strategic Plan. This plan, which is ment updated annually, serves as a guiding document to maintain a sustainable comprehive accorange, by as a investing in training, equipment, and faccilities. EMS 1991. In soliding, equipment, and faccilities. EMS 1991. Investing in training, equipment, and faccilities. EMS 1991. Investing in training, equipment, and an energy services wedge across an expanding operating area. Transformative a Ohio events included: designation at an Oli Spill Removal Organization (OSRO! by the U.S. Coast Guard: approvable contractor screen consolitioms; and execution of master service agreements with yony numerous Forline 500 comparties in the oil and gas.

Today, EMS has grown to mare than 150 employees, with operallan conless in Cleveland, Chicago, Cincinnati, Cakumbus, Indianapofis, Steubenville, Tolado, and Zomesville. Far beyond its early days as a waste broker, EMS now provides fullservice emergency spill response, olifield services, ternediallon, and tank management services.

utility, transportation, and manulacturing industries.



MISSION STATEMENT

EMS is a quality-cliven, value-added ervironmental contractor with a deep commitment to providing what our customer need, when they need it, with a guarantee of safety, prepreduess, and communication at the canter of every retallonship. We have an intense drive to succeed, with each incremental improvement bringing us closer to our potential. We compare ourselves not to any competitor but rather to the progress of our stepby-step pursuit of excellence. Our reputation as the best-or-the-best is our most valued asset, and we are determined to maintain and build on that we are determined to maintain and build on that we are determined to maintain and build on that We maintain a consistent focus on sustainable, protitable growth, with the understanding that building a great company is achieved by tectwiting and relaming great people who thrive a recruiting and relaming great people who thrive a learnwork. We have a fundamental belief in doing light by our employees, as well as our customers, and we take great care to cutivate a meaningful and enjoyable workplace for the environmental industry's best of the best where they are challenged, apprecided, supported and emplowered to maximize the value defivered to any customers.

CORE VALUES

At EMS, our core values are more than words – more than what we wish athers would think of us. Our core values are what we repact from ourselves and hence what others should expect and demand of us. They shope every strategic decision we make as a company, and they are a guide to daily decisions made by each and every person at EMS.

Solution-oriented Anticipate ctent needs Follow-through Enthustastic dedication Trust through integrity and compassion Yas - "Can do!"



WHO IS EMS?

Awards | Recognition

Inc. Magazine's annual exclusive itsi of America's tasiest-grawing private companies — the Inc. 500 [500

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EMS is proud to announce our inclusion on the 2016 Inc. 5000 Ust of America's Fastest-Growing

#332(

Amelica's faults: Growt Companies. Even more impressive. Init is our dit oppearance on the Inc. 800 Bis lince 2009. This year, we rank of #3320 overal and #24 among of

environmental services companies on the fst. We'te grateful to our 150 dedicated employees.

our many valued clearls who frust us with their environmental projects every dary: and for the vision of EMS's leadership, who confinue to guide our itemendous growth and the confinuous improvement that drives fi



RECOGNITION EMS founder and President Jon Ransom received The Ems 2 Young Entropreneur OI The Years 2011 Northeast Ohlo Award in the Specialty Products and Services category.

About Ernst & Young Entrepreneur

Of The Year® Errol & Young Eriepreneur Of the Year® is the world's most prestigious business award for entrepreneurs. The unique award recognizes the contribution of people who inspire others with their vision, leadership and activement and celebrates those who are building and leading successful, growing and dynamic businesses, recognizing them through regional, national and glabal awards programs in more than 140 cities in more than 50 counties. Environmental Management Specialists, Inc.

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 Maditcation 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.

- Our EAR to 20 and we've never had a lost-lime
- accident in the entire history of the company Top quartite Total Recordable Incident Rate (TRIR) performance for NAICS Code 562910 Comprehensive, independently-reviewed corporate
- health and safely plan

haz-mal response.

Several EMS personnel are certilited by the Emergency Response Training Center (ERTC) In

Pueblo, Calorado as Advanced Rail Car Specialist

(ARCS), ARCS training is a comprehensive four-day

haz-mal emergency training course covering all facets of

KEY SAFETY PRACTICES:

- Daily Job Salety Analysis on all projects
- Quarterly altemployee safety meetings
- Weekly safely performance reporting to corporate
- leadership learn
- Short-Service Employee Program Regular, documented jobsite and tacility safety audits
- Enhanced incident reporting protocol, including nearmiss reporting
- and near-misses, including documentation of corrective Full rool-cause investigation of altreported incidents
- Safety performance included in all employee measures performance evaluations

HAZWOPER TRAINING:

training Includes both classrom and hands-an 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

> ANK CAR SPECIALIST (TCS) TRAINING: 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 necessary for effectively managing a haz-mal/

FRA ROADWAY WORKER TRAINING (RWT):

qualification requirements, and with the FRAs On-Irack Salety Program. Protection, 49 Code of Regulations (CFR), Part 214, including, without Imitations, the training and Raitroad Administration (FRA), Roadway Warker EMS complies with all requirements of the Federal

API WORKSAFE TRAINING:

A large percentage of EMS field personnel are API WorkSate certified by the American Petroleum testitute Petroleum Institute.



ADVANCED RAIL CAR SPECIALIST TRAINING:

TRAINING: Severol EMS personnel are Trank Entry Supervisors (TES) cerlined. The API-TES certification

API TANK ENTRY SUPERVISOR (TES)

dulies required by lank entry supervisors program qualifies participants as having the minimum knowledge, expetience. and skills needed to safely perform

SAFELAND TRAINING:

organization. SafeLandUSA is an organization of independent all and Industry purpose of developing slandardized gas operaling companies with the receive SaleLand training and requirements for the U.S. onshore E&P safely orientalian with minimum Colorent No. A large percentage of EMS field personnel

CONFINED SPACE ENTRY (CSE)

of entering and working in confined DANGER compliance with OSHA requirements confined space entry Iraining in spaces, workers are required to take for continuous occupancy. To fully inherently hazardous and not meant Contract addressed RAINING general industrias, are in construction and Confined spaces, no matter how common

systems; and personal protective **CSE RESCUE TRAINING:** vertical and horizontal hauting/lowering equipment use and smilations; knots; monitoring; confined space rescue confined space hazards; almospheric workplace, including assessment of afficiently perform entry rescues in the skills needed to safely and will be proficient in the basic space rescue learn members EMS ensures that our confined

equipment

and quick service, which we get every time fram 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

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Environmental Management Specialists, Inc.

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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 quaffications with government agencies, safety consortiums and regulatory boards. As our customers continue to increase the safety and certification quaffications required of their contractor, EMS to committed to meeting and exceeding those tequirements. Along with the various safety training certifications nated on the previous page. EMS also maintains the following certifications and credentiats:

Environmental Management Specialists, Inc. 8





provide the most value for the doftar and bring all work to problem or providing routine services, we always strive to measure our success. Whether we are solving a customer understand their needs and execute the work accordingly By developing and maintaining strong personal 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 relationships with our customers, we are able to fully



available 24 hours a day, 7 days a operation with on-call EMS personnel EMS maintains a "one call" dispatch 24-HOUR DISPATCH

week, 365 days a year ONECALL

STRATEGIC PLANNING

and results in a broad commitment ta achieving our common goals. across all business groups leads to initiatives. 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 algnment

INSURANCE

EMS maintains substantial insurance coverage, including general lability Our insurance certificate can be and automobile Jability Insurance pollution liability, professional liability INIORINGIION. provided for defailed coverage

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capacity in excess of \$20 million. EMS maintains aggregate bonding NONDING

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, faced by our customers. EMS has a to a wide variety of challenges enables us to recognize and respond EXPERIENCE AND EXPERIISE

PROFESSIONALISM All EMS personnel are skilled in

customers.

appearance and attitude of our to maintain those skills. From the Apidso our professionalism is always on personnel to the quality of our receive extensive ongoing training their area of experitse and also RESPONSIVENESS documentation and record-keeping

EMS is dedicated to providing locused first and loremost on the the highest level of service and 15 needs of our customers.

organization.

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 upfront 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 locuses communication - balls 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...

manner 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 differentiates 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

Principal, Regional environmental consulling firm

consulting firm Project Manager, Regional environmental other consultants and clients." performance, and I have recommended them to cast-conscious. I am completely satisfied 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 slorage lank (USI) removals,

> other contractors." attention 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 team 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

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subject to joint federal and state regulation. large-scale remediation and redevelopment projects management. He has served in roles he hydrogeologist to senior project manager on multiple oil and gas industry services, and a

EDUCATION

of Missouri-Ralka, 1999, Chancellor's Fellow Master of Science, Geology & Geophysics, University University, 1996, Summa Cum Laude Bachelor of Science, Geology, Youngstown State

DOJ General Awareness Safety Fil-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 HA2WOPER TRAINING AND CERTIFICATIONS

Advanced First Ald/CPR (American Red Cross)



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Eclipso)

Chesapeake, Antero, Williams, Gulfport, Maralhon

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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 levi Cordle has more than 15 years of experience.

EDUCATION Associates of Business, Ohlo Univ

DOT Hazardous Malerial RCRA Hazardous Waste Management OSHA Annual 8-hour Refreshers – Supervisor **OSHA Annual 8-hour Refreshers OSHA 40-hour HAZWOPER** IRAINING AND CERTIFICATIONS

Confined Space Entry Rescue – Team Member Boom Deployment, Fast Water Weapons of Mass Destruction Awareness Fil-Tested for Respirator Use **Cuttent Medical Suiveillance Documentation** Contractor Salety (Range Resources, Rice Energy, Contractor Safely/Down Une Awareness (AEP) SateLandUSA/PEC Basic Ottentation Coast Guard, Shoreline Assessment/Clean-up Rail Car Competent Person Excavation/Tranching Competent Person Advanced First Aid/CPR (American Red Cross) DOT/PUCO Hazardous Waste Transportation/Trainer onker Roll-over, Transfer and Recovery Isavy Equipment. Operations/Rescue



Operations Manages, Environmental Services FRANK CLARK

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and removal, hazardous waste excavation/inin the environmental services industry, including liansportation manager, and oper project manager, hazardous/non-hazardou mat responder, sile foreman, site superintendent a number of toles including field technician. hazground water treatment systems. He has served in remediation SVE (Soll Vapor Extraction), and situ treatment, TSCA remediation/excavation. transportation and disposal, UST installation rank Clark has more than 25 years of expetience **IDNOSS HIVEIND**

Associates degree, Business Md EDUCATION

OSHA 30-hour Salety Confined Space Entry – Supervisor **Confined Space Enlry** OSHA 40-hour HAZWOPER Technical Institute, 1986-1987 TRAINING AND CERTIFICATIONS

(TWIC)

Trenching & Excavation – (Association of Reciprocal Safety Council)

framportation Worker Identification Credenliat

Fall Protection

Institute)

UST Installation/Retrofitting (NCCER Pipeline)

Worksale (API) Drug & Alcohol Awareness – Supervisor OSHA Hazardous Waste - Supervisor ERAILSAFE Cerlification DOT Hazardous Moletial **RCRA Hazardous Wasle Management** Operation Aerial Work Platforms - Scissor & Boom Lift Sale Roadworker Safely lank Entry (API) - Supervisor ransportation Worker Identification Credenliab Advanced Fank Car Specialist (CSX - 24-hour)



JOSH Environmental Services **Operations Manager** DEARING

releases, hazardous/non-hazardous chemical spills, UST instalkations and removals, and cleaning/ responses, including train derailments, pipeline expetience in the environmental services industry as a field technician, haz-mat responder, site demotilion of ASIs. Josh has experise in responding to emergency superintendent, and operations manager. Josh Dearing has more than 18 years of



S DE C i work. Business, Eureka College,

E-RAILSAFE Certification Tank Entry – Supervisor (American Petroleum Advanced Tank Car Specialist (CSX – 24-hour) Confined Space Enliy Rescue – Team Member Confined Space Enliy – Supervisor **DOI Hazardous Malerial** Advanced First Aid/CPR (American Red Cross) RCRA Hazardous Waste Management RAINING AND CERTIFICATIONS EN ADD エイトランコスム 8-hour Refreshers **WZWOPER**



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Advanced Hist Ald/CPR (American Red Cross)

Current Medical Surveillance Documentation

Fit-Tested for Respirator Use

RCRA Hazardous Waste Managar

DOT Hazardous Material Canfined Space Enliny

TRAINING AND CERTIFICATIONS **OSHA Annual 8-hour Refreshers**

University, 1994

OSHA 40-hour HAZWOPER

Masters, Applied Communication Theory and Methodology, Cleveland State University, 2000 Bachelors of Arts, Communication, Cleve<u>land S</u>tate

EDUCATION relations.

salety program development; worker Iraining; data

characterization. transportation and disposal.

characterization and remediation; wasle In the hazardous waste industry with sile

lim Gress has more than 25 years of experience

policy and program development. He has worked in project management, sile supervision, training, data management, technical willing and public

management: and corporate-level regulatory

Director, Environmental, Health

& Safely

GRESS

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Environmental Management Specialists, Inc.

OILFIELD SERVICES

from tank cleaning to emergency response, and super sucker vacuum trucks, EMS provides a wide range of Emergency response (Irac-outs, spills, etc.) services to the oil and gas industry, including:

> vacuum trucks to remove liquids, sludges and/or sollds from a wide variety of sites. Our super sucker vacuum

EMS owns and operates a fleet of wet and dry

VACUUM TRUCK SERVICES

NOISIVID

disposal facilities or transfer waste to vacuum boxes, frac tanks, or other containers for temporary storage

on-site or off-site at an EMS service center.

trucks can transport waste directly to appropriate

- - Tank cleaning

- Waste containers (roll-off/vac boxes)
 - Air knifing (pipeline excovation)
 - Equipment decontamination Roll-off trucking

extraction). product transfers, dewatering and support for various industrial service, emergency response, and EMS vacuum trucks also provide various onsite services

Including vacuum enhanced recovery (dual phase

EMS has thoroughly trained technicians and owns the

TANK AND PIT CLEANING

storage tank management needs.

equipment required to enter and clean various-sized

space entry trained and have experience cleaning even the most difficult-to-clean spaces while safely tanks and pits to remove all kinds of liquids. sludges

managing a wide variety of hazardous conditions.

solids, and debris. All EMS employees are confined

PRESSURE WASHING

Our partable fleet consists of unlis that range from 3.000 pst to 10.000 pst and includes both cold and hot pressure washing capabilities, which can be coupled EMS performs a variety of pressure washing services. with the use of environmentally intendity degreasers to clean oils, lubricants, greases and tats. We also provide field equipment designed to provide self-contained water to clean areas that have Amiled water availability.





transported off-sile into a vacuum truck to be contained and/or excavation point while the soll slurry is vacuumed excavation equipment is directed at the desired angles, while preserving natural surroundings. Hydro-

from the crea using a powerful vacuum. Air kning (aka potholing or daylighting) 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 slury air kniling results in dry soil waste, which typically expand, and break up soil. The soil is then removed air kniling utilizes high velocity air to penetrate,

- ulfalles Surgical excavation around known or suspected
- Pre-drilling location clearance
- Underground utility location vertication
- Underground piping and conduit repairs Rehabilitation/desilting of small diameter

injection wells

EQUIPMENT DECOMMISSIONING AND FACILITY

DECONTAMINATION

from small-scale product into 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 AN

as fast-track waste approval and shipment. Customers rely on EMS to handle all kinds of RCRA hazardous waste. 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 identilication, hazardous and non-hazardous waste in bulk as well characterization, containerization, transportation, treatment, and disposal atternatives for all types of

the receipt and processing at the materials at the disposal facility. EMS personnel are experts allematives related 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 shict 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 teams, 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 teams 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 teams have more in-Unlike non-entry rescue, which offen can be

cients 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

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 more than checking baxes. We focus on helping the "how to" in the classroom. EMS training is about uniquely-qualified frainers to put salely procedures field with extensive hands-on experience in a wide

trainees learn and truly understand what to da, how





a lasting impact and leads to salety 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**
- ICAO/IATA Hazardous Materials
- IMO/IMDG Dangerous Goods
- ockaut Tag Out
- PEC SafeLand
- Personal Protective Equipment
- 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 Management Specialists, Inc. 2

ENVIRONMENTAL CASE STUDIES

containers in addition to bulk waste ulfizing 5.000-psi hol pressure wash units. EMS safety protocols required space procedures, and continuous and removal of various hazardous air monitoring throughout the work Former Automotive Stamping Industrial clearing. EMS removed approximately 250,000 gallans of and pressure washed all surfaces Plant - Waste and Industrial oil and water fram two oil water EMS provided characterization the implementation of lockout/ temoval and confined space separators and five press pilts. lagoul procedures, confined and non-hazardous waste Services - Hilliord, OH

ferminal - Emergency Railroad Locamolive

Response – Indianapolis, IN ENS responded to a large gasalno to a retention basin. EMS mobilized lechnicians to the project site from split at a locomotive terminal in Indianapolis. The cause of the split properly which in turn discharged was a leaking petroleum pipeline gasalne was discharged to a 3 supervisors, 6 operators and 5 4 different EMS locations along with 5 service trucks, 3 vacuum inucks, and assorted PPE, pads, Approximately 100,000 gallons drainage ditch localed on the that ran through the terminal.



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drainage ditch. Aller the bulk liquia equipment operation to remediate the impacted soils. Over 4,000 tons pillows and booms. EMS crews worked around the clock (12-hour of impacted soll, as well as 500,000 gallons of water and product, was for five days vacuuming gasofine kniling, hand digging, and heavy removed and transported for offshifts) and through the weekend from the retention pond and the was removed from the affected areas, EMS transitioned to air site disposal. Storm Damage (37 Transformer response. All 37 siles were granled 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 As a result of a severe winds lorm. EMS responded to multiple challenges. EMS overcame these challenges while ato addressing all commitments associated with had released PC8 and non-PC8 offs. Several EMS crews with proper personal protective to complete site cleanup, waste management and thorough site were closed out in accordance documentation for a total of 37 than extraordinary ettort by our seven days following the storm supervisors and crews enabled Response – Southern Ohlo and remote location of many locations where transformers of the siles presented unique equipment (PPE) worked for Split Sites) - Emergency with applicable regulatory requirements.

Irain Derailment - Emergency EMS responded to a train deraitment with the release of Response – Northern Ohla

13.000 gallons of flammable liquid. crew to complete installation and EMS mobilized a multidisciplinary

excavation near a major liber oplic line. EMS also conducted extensive In total, EMS mobilized two incident femporary waler freatment system provide 24-hour product recovery services. EMS simultaneously assisted in defineating the extent addillonal exploratory excavation, vacuum Irucks, three roll-off trucks, installation, and site maintenance. la provide daily product recovery inillal response. EMS was relained support and waste transportation After establishing the Emits of the prevent product from impacting and 12 service hucks, in addition two air lancers with compressors, operators, 15 technicians, seven examining on-site subterranean structures for spill-related waste. of remediation technologies to 500 linear teet of sheet piting to spill. EMS assisted in the design miligate off-sile migration and a nearby marsh. Following the consequently completed the test pltting. Including air knite Installation of opproximately of the spill through precision contined space entry work, managers, six supervisors, 11 services while assisting with commanders, two project

Industrial Services - Cincinnall, **Terminal Storage Facility** fank Cleaning at Major

equipment, 10 carbon vessels and

lo multiple pieces of heavy

our fully-equipped project trailers.

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 tank and unloaded the Ine from the involved the use of a 10,000-pst EMS provided tank and line cleaning services for fanks Đ



As a result of our attention-to-detail 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 this terminal.

permitting and field coordination to allow for disposal of hydrostatic test water to the local sanitary Northern Kentucky. Responsibilitie: containment/response measures; solutions and rinse water; analysis, and disposal of cleaning solutions sewer system: analysis, treatment for hydrostatic testing projects in and tinse water at an approved tacility: overall environmental plan: providing roll alt containen Hydrostatic Testing Projects response spill support, including salely. Additional roles taken on Included providing emergency providing erosion and sediment project management; and site and Emergency Response during these projects included EMS was awarded a contract controls for disturbed areas in - Environmental Services emergency response support accordance with the SWPPP storage of pipeline cleaning environmental services and by a major utility to provide vac truck services and spill Northern Kentucky

services for hydrostatic testing frac tanks; and providing asbestos abatement of coal for coatings and gastets encountered on the pipelines and anciliary 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 gos

Tank and PH Cleaning for Shale mulliple drill pads across Eastern Ohio and Western Pennsylvania. washer units and vacuum trucks frac tank cleaning, plt cleaning EMS was contracted to provide Pads - Industrial Services and vacuum truck services for During rig skids or moves, EMS Eastern Ohio and Western Gas Drill and Completion crews utlized hot pressure Pennsylvania

Recovery - Canolitan, OH Emergency Response, Air Knifing and Vapor/Fluid Residential Property -

produce

as key EMS differentiators.

been recognized by this

resulted in the safe and permanent efimination of hazardous conditions construction. Ine jet camera video recovery (dual phase extraction) SVE system installation (soil vapor extraction) including design and refease from a petroleum tacility installation, vacuum enhanced onto a residential property. This inspection and site restoration. EMS responded to a gasoline EMS's multhstage approach project included air kniiing. excavation. backfill, well on the property. Solidification Services for Shale EMS was contracted to provide 24-hour on-site solicification services solidifying 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 solidity the waste in preparation shale gas dill 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 Ohio responsible for continuously duties as requested.

frac tanks and pits, often under

Responsiveness, a slrang work detailed record-keeping have

extreme weather conditions.

ethic, quality equipment and

to clean studge and mud from

and more projects of varying size and complexity.

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systems which provide a barrier against vapor intrusion water-based, and VOC-free membranes and venting EMS installs a variety of seamless cold spray applied. VOC-free vapor intrusion coaling systems that consist impaired sites. EMS also Installs various 2-part odorless, into structures on brownfields or other environmentally

26

Environmental Management Specialists, Inc. 28 have extensive civil construction experience. As such, Many of our equipment operators and site supervisors restoration services provided by ENS include:
 Cleating and multihing
 Earthwork and grading (GPS accuracy and laser-grade quality) Geo-composite liner (GCL), HDPE liner, and cap EMS specializes in landfill capping, repairs, closures EMS is able to provide a seamless transition from remediation to restoration of the project sile. Sile Lease and access road construction Water and sewer line construction LANDFILL REMEDIATION Stream and wettand restoration Geo-composite Ining (GCL) and cell expansions. Including: Leachate collection piping Limited new cell expansion SITE RESTORATION Revegetation construction Excavation Backfilling Paving 2 extensive project management experience on complex. Ngh-profile redevelopment sites. Our project execution and documentation in this arena are experienced personnel and investing in specialized demotition equipment. EMS is able to provide turn-key projects involve a combination of demotition and site Not anly is EMS able to reduce costs far our customers often features with strategic partners in the demolition industry. Combining resources and expertise on large-scale brownfield projects has proven to be the safest. deploying a broad range of construction techniques and measures in ecologically-sensitive systems, while habilat, increased stability, diverse riparian corridors, work. but we are also better able to manage quality Because a large percentage of brownfield cleanup demotition services along with our core remediation by self-performing both demolition and remediation remediation. EMS has expanded our capabilities to control and provide an exceptional level of project and improved water quality. We are well-versed in working within the regulatory parameters for these include demosition services. By hiring qualited and On large siles with complex demolillon needs. EMS most economical, and most efficient approach to in valious disciplines, a proven track record and We have a fremendous safely record, expertise **BROWNFIELD DEMOLITION** specialized restoration projects. reporting and documentation. many of our projects. second to none. capabilities. provides fum-key removal services for various sizes at aboveground storage tanks (ASTs) and underground wellands to systems with anhanced fish and wildlife learn is qualified to restore degraded streams and STORAGE TANK REMOVAL EMS provides comprehensive tonk removal. decommissioning, and demotilion services across consultants to implement design-build plans that improve the condition of wellands, streams. EMS specializes in working collaboratively with channels, and other natural systems. The EMS Wilh several certified personnel on staff. EMS storage tanks (USTs), including the following: Product removal and tank clearing Tank decommissioning and demolition WETLAND, STREAM, AND CHANNEL RESTORATION Contaminated soil removal Permitting and inspection Tank system removal UST closure-in-place our operating area. Site restoration

of chemically resistant maleriak to protect existing floor stabs and structures from the threat of contaminant vopor intrusion.

SHEET PILING

this service as a component of our site remediation capabilities, as well as a containment measure during EMS provides installation of sheet pilling in various configurations and site conditions. Using a vibratory drive head attached to a 35-metric-ten excavator. EMS has installed thousands of feel of steel 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 farge-scale dewatering for dewatering and solidilying sediment and sludge. and solidication projects.



Environmental Management Specialists, Inc

Environmental Management Specialists, Inc. 3

and more projects of varying size

waste profiles for rush approval and was able to remabilize to petroleum-contaminated soil was site, an additional 1,300 tons of sile redevelopment project on with slandby lime and kept lhe minimized the costs associated hazardous soil. The fast lumaround the site the next day to begin results, EMS immediately submitted lacility. After receipt of analytical being hauted to a ISCA disposal high-level PCB-contaminated soll 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 soll of soil, lab analysis indicated tank installer. Prior to removal hauled for bloremediation chedule. From other areas on the emoving both hazardous and non

and complexity.

existing utility lines at this former walk, contaminated soil, and basements, vaults and retaining building foundations, stabs, EMS was contracted to provide Demolillon - Cleveland, OH **Site Remediation and** impact on neighboring properties temaval and disposal of all Former Industrial Facility -

ullized as needed based on air

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 slandard. Mbring look place in Alt above the hazardous waste with initial PCE concentrations silu with the contaminated sol sile, chemicals were mixed intreatment designed for the part of a chemical oxidation hazardous wasle standard. As of 2,360 tons of soil with iniliat well as treatment and removal hazardous PCE concentrations of 7.320 tons of soll with non-

of personal protective equipment

1

contaminated hazardous waste and remove 2.000 tons of leadphase of the project to excavate Blazz species soll. EMS completed this sail remobilized during a subsequent from the Ballimore area. EMS received from local contractors to the customer compared to blds EMS delivered a 25 percent savings project was completed in six days site. The projected two-week contaminated sail from the project and 200 lons of petroleumeight USTs, five all/water separators EMS was confracted to remove Manufacturer - Sile Removal ~ Baltimore, MD Remediation and Tank former Automotive

-

REMEDIATION CASE STUDIES

areas were reslared with native drainage system. All adjacent

amount of rainfall encountered at the jab site during construction

industrial sile. EMS removed a

challenges and the project was EMS worked through these

Superfund Sile - Sile

and 1,430 lans of C&D debils, as

PCE concentrations above the

challenging former industrial site grade compaction; and restored all surface features across this

this project included 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 petroleum-contaminated water from three 20,000-gation USTs and

all excavations with constructionpoint of compliance; backfilled

One notable obstacle on this associated engineering controls landfill cap and liner, as well as al 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 to specifications developed by ions of clay and graded the site then excavaled and transported regulatory standards. The soil was lead-contaminated soil at the stabilization of 10,000 tons of Remediation and Landill Cap

project was the unusually large

budget removal an schedule and under

> according to the specifications; bainter in-situ remediation systems

industrial facility, immediately and dispose of a wide variely of

nazardous wastes inside the former

to identify, containerize, transport Before demoition of the existing

ive-story building, EMS mobilized Removal – Cleveland, OH Site Remediation and Tank

to remove 90,000 gallons of following demolilion, EMS mobilized (SVE), and groundwater hydraulic

(PCE)-contaminated soll to the removed perchloroethylene EMS successfully installed at

sparge, sail vapor extraction freatment - Canton, OH **Remediation System**

Installation and In-situ Sof Former Industrial Property complete satisfaction. completed to the consultant's

Former Industrial Facility -

various fill malecials and graded The onlire 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.

Former Landill - Welland disposal as hazardous wasle. have been associated with all-site compared to costs that would turn delivered significant savings soil in place (In-silu), which in stabilized the lead-contaminated 0

were then planted with native welland plant material for the other areas on site. The wetlands berms and basin areas. Following 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 fillration controls 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 instatled to maintain water two separate wetland teatures. to provide for the instaliation of from a former landfill. A total of the liealmant of leachate seeps two bioremedial wellands for EMS was contracted to construct Construction – Steubenville,

Treatment - Cleveland, OH In accordance with a Rule 13 Development - Site Remediation and In-situ Sot Commercial Property permit and the Ohio EPA Voluntary

discharge through an engineered

Former Dry Cleaner - Sile

60-mil LiquidBool® liner mote than 240,000 square feel of 2-inch diameter vent pipe and more than 16,000 linear test at

On an especially expedited Remediation - Lyndhurst, OH

> properties. EMS utilized vapar phases of the project. suppressing toom during certain the close proximity to neighboring waste sail for incineration. Due fa and 388,000 pounds of hazardous for treatment or direct landfill, 700 tans of hazardous waste sail 6.800 tons of non-hazardous soll EMS excavated and disposed of live distinct disposal categories. Identified areas across the site into contaminated soil in several with the environmental consultant to characterize and classify icherane; ENS Worked closely

> > of hazardous waste standards. EMS tans of soil contained lead in excess heavy metals. Of that total 3,000 contaminated with petroleum and and removed 38,000 lans of soil this former manufacturing factility Action Program. Bits mobilized to

Plant (MGP) Facility - Site

Former Manufactured Gas

while protecting underground utilities in the area. This \$1 million In conjunction with soil removal to remove contaminated soil knling in the right-of-way in order In addition, EMS conducted air contaminated groundwater. structures and 10,000 gallons of 200 tons of subsurface concrete compaction. EMS also removed the site with construction-grade 7,700 tons at engineered fill across activities. EMS placed more than

result of historic gas manufacturing activities on this 1.06-acre sile. to remove all solts impacted as a Remediation - Marton, OH the objective of this project was

Former Automotive exceptionally well weather and cubic yards of backfill, and placed contaminated soil, placed 10,000 surrounding neighbathood. EMS temoved a total of 19,000 tons of of site workers and residents in the area and the health and safety while protecting utilities in the work compaction. with backfill placement and related chollenges associated time and under budget despite This project was completed on lopsoil and seed across the site

to miligate potential residual of a passive vent system designed vapor barrier was installed as part Program (VAP), appraximately 240,000 square teet of 60-mil gas under the Ohio Voluntary Action compliance standards required Due to the site history and Barrier - Columbus, OH Manufacturer - Gas Vapor

vapors and meet residential indoor air standards. In total, EMS installed

the environmental consultant and

to the complete satisfaction of start to finish), under budget, and schedule (23 working days from Clean Ohio Revitalization Fund

property developer.

project was completed by EMS an

29 Environmental Management Specialists, Inc.



CLEVELAND

HEADQUARTERS & SERVICE CENTER 6909 ENGLE ROAD, SUITE C-31 CLEVELAND, OH 44130 440.816.1107

CHICAGO

1949 NORTH WOODLAWN AVENUE GRIFFITH, IN 46319 219.314.0367

CINCINNATI

1231 4TH AVENUE DAYTON, KY 41074 513.729.9238

COLUMBUS

4601 HOMER OHIO LANE GROVEPORT, OH 43125 614.567.6273

INDIANAPOLIS 2852 RAND ROAD INDIANAPOLIS, IN 46241 317.550.2495

TOLEDO

27800 LEMOYNE ROAD MILLBURY, OH 43447 419.386.2331

WHEELING | PITTSBURGH 229 BUTTE STREET STEUBENVILLE, OH 43952 740.278.3000

ZANESVILLE

2055 GRIEF ROAD ZANESVILLE, OH 43702 740,204,2210



Safety. Customer. Efficiency. Sustainability.

DATE: 9/12/2016

COMPANY: Atwell, LLC ATTENTION: Mike Koenig LOCATION: 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

*FE 000 00 11C		
\$33,800.00 LS	1 Lump Sum	\$55,800.00
\$27,500.00 LS	1 Lump Sum	\$27,500.00
\$4,800.00 LS	1 Lump Sum	\$4 800.00
\$500.00 EA	30 55-GAL Drum	\$15,000,00
	\$27,500.00 LS \$4,800.00 LS \$500.00 EA	\$27,500.00 LS 1 Lump Sum \$4,800.00 LS 1 Lump Sum \$500.00 EA 30 55-GAL Drum

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

- 1.1 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
- 2.1 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

- 3.1 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 1%% 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 tiabilities, 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

- 9.1 To the fullest extant 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' fees 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

15.1 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 confidentially, 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.
- 16.2 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

X X X X X X X X X

- 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)
 - o Household hazardous waste from donation centers and city collection programs

o \$1.3 M in Department of Defense contracts scheduled for 2017

Key customers

- o Nike
- o Goodwill
- o 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)



April 14, 2017

5500 Old Brecksville Road • Independence, Ohio 44131 (216) 642-6040 • fax (216) 642-6041

We are an equal opportunity employer

Mr. Tom Leigh Atwell, LLC. 7100 East Pleasant Valley Road Suite 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.

Sinterely,

C

James Bower Project Manager

Precision Environmental Co.

SERVICES

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- Ashestos Abatement
 Environmental
- Remediation
- Selective Demolition
- Concrete Sawing & Drilling
- Floor Preparation
- HVAC Duct Cleaning
- ✓ Firestopping



Industrial Plant Experience

Honesty. Respect. Integrity. Innovation. Safety. Quality Workmanship. Loyalty. Commitment.

5500 Oid 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. 710JP of deactivated Righ voltage cable from the west pempus substation.



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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 bollers and associated insulation from vessels, fan ducts, heat exchangers, hoppers and other components. In addition, over 15,000 linear feat of plpe 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

2222

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

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 PRENCIPAL OFFICE: 5500 Old Brecksville Road

Independence, Ohio 44131

- [X] Corporation
- [] Partnezahip
- [] 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 added 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 laft margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA tend.

This document has important legal consequences. Consultation with an etiomey is encouraged with respect to its completion or modification.

This form is approved and recommended by the American Institute of Architects (AIA) and The Associated General Contractors of America (AGC) for use in evaluating the qualifications of contractors. No endorsement of the submitting party or vertication of the information is made by AIA or AGC.

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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

§ 1.2.1 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

§1.3.3 President's name: Anthony DiGeronimo

§ 1.3.4 Vice-president's name(s)

John E. Savage, Jr. Joseph DiGeronimo

§1.3.5 Scoretary's name: James Reeves

§1.1.6 Treasurer's name: Anthony DiGeronimo

§ 1.4 If your organization is a partnership, answer the following: § 1.41 Date of organization:

§ 1.A.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:

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§ 1.5.2 Name of owner;

§ 1.8 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.

§ 1. ECPERIENCE

§ 3.1 List the categories of work that your organization normally performs with its own forces.

Please see attached list

§ 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?

§ 3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

No

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3

(2533788901)

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 over 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

§ 4. REFERENCES § 4.1 Trade References:

See attached

§ 4.2 Bank References:

PNC Bank 23000 Millcreek Boulevard Highland Hills, Ohio 44122 Contact: Andrew Rutherford (216) 222-7146

§ 4.3 Surety:

§4.3.1 Name of bonding company: Great American Insurance

§ 4.3.2 Name and address of agent: Jackson, Dieken & Associates

27893 Clemens Road, Suite 1

Contact: Maggie Loeser (440)250-6873

Westlake, Ohio 44145

5. FINANCING

000

§ 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:

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6

6

- § 5.1.3 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

56. SIGNATURE

§ 6.1 Dated at this 13th day of April , 2017 Name of Organization: Precision Environmental Company By: Y Savage, Jr. - Vice President Title: John E. \$ 6.2

being duly swom deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and swom before me this 13th day of April 20 17

Notery Public:

I

My Commission Expires:

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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 Jarnes 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>driscche</u> Received by Cathy Fox – <u>cfox@pred</u>	el@precision-env.com Cision-env.com	
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	
neurit 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 New Jersey

Asbestos Contractor

#01212

Exp: 09-02-17

State of Colorado

State of Illinois Asbestos Contractor #500-0743 Exp: 05-15-17 State of Indiana Asbestos Contractor #193606025 Exp: 02-16-18

> State of W.V. Contractor # WV034878 Exp: 02-09-18

State of Georgia Asbestos #70NF011866 Exp: 01-06-18

State of Virginia

Asbestos 3306001217 11/30/2017 State of Maryland Asbestos Contractor #M36-00-432 Exp: 8/3/2017

State of W.V. Asbestos #AC002482 Exp: 02-28-18

State of Kentucky

Asbestos

C17-516-1

Exp: 1-18-18

Asbestos #20961 Exp: 03-31-17 State of Tennessee

Asbestos A-F-4421-49755 4/30/2017 State of NY Asbestos Handling #29861 Exp: 04-30-17

State of S Carolina Contractor #CO-00435 Exp: 02-22-17

State of Virginia Contractor 2705161344

2/05161344 10/31/2018

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Attachment D Closure Plan This page intentionally left blank.

CLOSURE 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

September 2020

P.O. Box 24261 Cleveland, Ohio 44124 216-274-0112 | 800-588-7962 www.ensafe.com



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APPENDICES

- Engineering Evaluation/Cost Analysis Appendix A
- Appendix B Prior Environmental Reports
- Appendix C Health and Safety Plan
- Appendix D Safety Data Sheets
- Appendix E Sampling and Analysis Plan

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 to demonstrate compliance with the administrative requirements of Ohio Administrative Code (OAC) Chapters 3745-65 and 3745-66; the substantive requirements of OAC Chapters 3745-54 and 3745-55, including but not limited to, the groundwater protection program in accordance with OAC rules 3745-54-90 through 54-100; and Title 40 of the Code of Federal Regulations (CFR), Part 264, Subpart G.¹ 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

¹ Garrison Southfield is also implementing the substantive closure performance standards in 40 CFR Part 265, Subpart G and OAC Rules 3745-66-11 through 3745-66-15, as applicable or relevant, and appropriate requirements under the Comprehensive Environmental Response, Compensation and Liability Act.

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 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 Southfield. These documents will be maintained until certification of closure has been approved by the Ohio EPA. This plan and any revisions have also been submitted to 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 on а 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). 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
- Crushed 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 Southfield 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 Southfield 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 Crushed 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:

•	Whole CRT tubes	2,163,603 pounds
•	Complete CRT units (shrink wrapped)	1,115,288 pounds
•	Complete CRT units (in Gaylord containers)	354,591 pounds

•	Projection lamps 0 pound	ds
•	CRT crushed glass113,750,757 pound	ds
•	Scrap plastic 15,120 pound	ds
•	Scrap metal with glass 324,648 pound	ds
•	CRT panel glass with metal bands 175,273 pound	ds
	Estimated total weight 117,899,280 pound	ds
This a	nalysis was summarized as follows:	
•	Non-processed CRTs3,633,482 pound	ds
•	CRT crushed glass113,750,757 pound	ds
•	Recyclable plastic, glass, and steel 515,041 pound	ds
Based 1655 V	on Atwell's analysis, the following are estimated weights of CRT-related material in th Vatkins Road warehouse:	he
•	Whole CRT tubes6,576,765 pound	ds
•	Complete CRT units (shrink wrapped)	ds
•	Complete CRT units (in Gaylord containers)2,648,869 pound	ds
•	Projection lamps	s2
•	CRT crushed glass0 poun	ds

² 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	19,440 pounds
•	Scrap metal with glass	1,944 pounds
•	CRT panel glass with metal bands	14,406 pounds
	Estimated total weight	10,288,093 pounds
This a	nalysis was summarized as follows:	
•	Non-processed CRTs	10,252,303 pounds
•	CRT crushed glass	0 pounds

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).

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 crushed 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 substantive closure performance standard specified in OAC 3745-55-11(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 crushed 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 crushed 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 crushed 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.

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:

Non-processed CRT-related materials........... CRT processor, lead smelter, hazardous waste landfill, or non-hazardous waste landfill

•	Crushed CRT glass hazardous waste landfill
•	Floor sweepings hazardous waste or non-hazardous waste landfill
•	Hazardous wastehazardous waste landfill
•	Water from floor sweeping and facility washing City of Columbus sanitary sewer
•	Decontaminated warehouse materials construction and demolition debris landfill
•	Decontaminated Gaylord boxes

Based on currently available information, it is anticipated that whole CRTs that have not been damaged will be recycled by either NovoTec Recycling LLC ("NovoTec") or CompuPoint USA LLC, with the commodities extracted and sold and with the leaded funnel glass sent to either Korea Zinc in Ulsan, South Korea or Teck in Trail, British Columbia via Korean and Canadian import permits, respectively. Recycling does not, however, currently appear to be an economically viable option for the vast majority of the other CRTs and electronic wastes given current site conditions and the manner in which these materials were originally processed. The crushed CRT glass, for example, contains mixed funnel/panel glass with low lead content, includes plastic impurities, has insufficient granularity, and is in deteriorating Gaylord containers, rendering this stream unsuitable for processing in lead smelters. The approximately 113,750,757 pounds of mixed funnel/panel glass is accordingly slated for disposal at a RCRA Subtitle C landfill, consistent with the cost proposal provided by NovoTec, which is based on landfill disposal. These materials are currently expected to be transported to the Max Environmental RCRA Subtitle C landfill in Yukon, Pennsylvania as lead-contaminated hazardous waste (D008) for treatment (chemical treatment/encapsulation) and land disposal. The Max Environmental facility is EPA identification number ("ID") No. PAD004835146 and Pennsylvania Department of Environmental Protection ID No. 301071.

Management of these materials is subject to change based on a number of variables, including, but not limited to, changes in recycling/disposal costs; transportation costs; disposal/recycling facility regulatory status; availability of downstream recycling/landfill outlets; further evaluation of material conditions; or other factors. Selection of alternate vendors/facilities, if applicable, will be documented in the closure report with an explanation of the reasons for selection of the alternate vendor/facility, as applicable.

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.

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 crushed CRT glass
- Initiation of Phase III warehouse decontamination activities

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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 substantive RCRA closure performance standard in OAC 3745-55-11(A and B), OAC 3745-55-14, and OAC 3745-55-15 ("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 CRTs (up to 580 days) 0 to 580 days
•	Decontamination of Warehouses (90 days)
•	Closure Documentation (60 days following decontamination) 670 to 730 days
Buildi	ng 1675
•	Removal of CRTs (up to 490 days)
•	Decontamination of Warehouses (180 days)1,220 to 1,400 days

• Closure Documentation (60 days following decontamination) 1,400 to 1,460 days

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).

Closure activities are anticipated to be performed sequentially and will be coordinated with closure of a third Closed Loop warehouse, located at 2200 Fairwood Avenue in Columbus, Ohio, which has a separate closure plan. The current schedule anticipates the following closure order:

- (1) 1655 Watkins Road;
- (2) 2200 Fairwood Avenue; and
- (3) 1675 Watkins Road.

This project sequencing accounts for the fact that Garrison Southfield and the owner of the 2200 Fairwood Avenue facility may be using one or more of the same environmental services providers, among other considerations.



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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.



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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, crushed 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:
 - 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

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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

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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 may 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.



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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.



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



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FIGURES

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(15) 1 2 5 6 \bigcirc 8 9 10 (11) (12) (13) (14) (16) 3 4 Ø-B C **NEIGHBORING** D-**TENANT** E-E7 G-CONVEYOR PROCESSING AREA FIGURE 2 SITE LAYOUT MAP 1655 WATKINS ROAD COLUMBUS, OHIO **LEGEND** REQUESTED BY: NB NAD 1983 STATE PLANE CLOSED LOOP LEASE SPACE OHIO SOUTH FEET DRAWN BY: KMB CRT - RELATED MATERIALS IN BOXES 50 100 Λ DATE: 2/19/2019 Creative thinking. Custom solutions LOADING DOCK DOORS SCALE IN FEET PROJECT: 0888823935 800.588.7962 www.ensafe.com

DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215



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ᠿ 2 5 8 9 10 (\mathbf{f}) (12) (13) (14) (15) (16) 3 6 \bigcirc 4 **A**-B Ô **NEIGHBORING** D-TENANT Ð E7 CRZ G LΖ CONVEYOR PROCESSING AREA FIGURE 4 CONTAMINATION REDUCTION ZONE MAP NAD 1983 STATE PLANE OHIO SOUTH FEET 1655 WATKINS ROAD 100 50 0 COLUMBUS, OHIO SCALE IN FEET LEGEND REQUESTED BY: NB DOOR FOR TWO MOTORS WITH CLEAR CRZ 40'X80', LZ SAME DIMENSIONS CLOSED LOOP LEASE SPACE PVC STRIP CURTAINS PLASTIC CONTAINMENT TO GO TO CEILING DRAWN BY: KMB CRT - RELATED MATERIALS IN BOXES CRZ FITTED WITH NEGATIVE AIR MACHINES LOADING DOCK DOORS DATE: 9/14/2020 Creative thinking. Custom solutions INTERIOR OF CRZ AND LZ TO BE FINISHED WITH CRZ LZ CONTAMINATION REDUCTION ZONE PLYWOOD ON BOTTOM 4 FEET LOADING ZONE PROJECT: 0888823935 800.588.7962 www.ensafe.com

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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

September 2020

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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 crushed 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 crushed 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.

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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. 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.

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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
- Crushed 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 Southfield 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 samples
- 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:

_	Non-processed CRTs	10,252,303 pounds
_	CRT crushed glass	0 pounds
_	Recyclable plastic, glass, and steel	35,790 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:

—	Non-processed CRTs	3,633,482 pounds
_	CRT crushed glass	113,750,757 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 (e.g., dust accumulation) and the nature of Closed Loop's processing operations (e.g., crushed CRT glass is a commingled waste that contains mixed funnel/panel glass with low lead content, includes plastic impurities, has insufficient granularity, and is in deteriorating Gaylord containers) may preclude recycling of certain 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

•	Removal of CRTs (up to 580 days)	0 to 580 days
•	Decontamination of Warehouses (90 days)	580 to 670 days

Building 1675

- Decontamination of Warehouses (180 days)......1,310 to 1,400 days
- Closure Documentation (60 days following decontamination) 1,400 to 1,460 days

Closure activities are anticipated to be performed sequentially and will be coordinated with closure of a third Closed Loop warehouse, located at 2200 Fairwood Avenue in Columbus, Ohio, which has a separate Closure Plan. The current schedule anticipates the following closure order:

- (1) 1655 Watkins Road;
- (2) 2200 Fairwood Avenue; and
- (3) 1675 Watkins Road.

This project sequencing accounts for the fact that Garrison Southfield and the owner of the 2200 Fairwood Avenue facility may be using one or more of the same environmental services providers, among other considerations.



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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 disposal or recycling of non-processed CRT-related materials from 1655 Watkins Road at authorized facilities.
- Phase II field removal action activities, with offsite transportation and disposal or recycling of non-processed CRT-related materials and crushed CRT glass from 1675 Watkins Road 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 disposal or recycling of non-processed CRT-related materials from 1655 Watkins Road at authorized facilities
- Phase II field removal action activities, with offsite transportation and disposal or recycling of non-processed CRT-related materials and crushed CRT glass from 1675 Watkins Road 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.		
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 personal protection would be addressed during implementation through use of qualified personnel and implementation of lead safety standards and procedures.	Worker personal 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, and 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 crushed 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) landfills; (b) CRT processor(s); and (c) lead smelter(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.

Although the subject property has an old rail line, use of this rail line as a viable transportation option was evaluated and rejected for the following reasons:

- 1. Representatives from Norfolk Southern advised that the line is not operational, and that repairs and upgrades would require a full engineering study, a new switch, a bidding process, and an estimated 9-month turnaround.
- 2. Special rail cars equipped with roofs would be required given that they would be transporting hazardous materials.

- 3. A containment structure, loading ramps, access road, and fencing would need to be constructed.
- 4. The CRTs and electronic wastes must be kept under negative pressure during transfers from the Closed Loop facility and into the railcars.
- 5. The Closed Loop facility does not have sufficient bay door access to the rail line.
- 6. Storm water and engineering controls would be required.

Since rail transportation is not a viable option, the CRTs and other electronic wastes will be transported via roadway.

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.



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ENS/IFE

7.0 **REFERENCES**

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FIGURES



(15) 1 2 5 6 \bigcirc 8 9 10 (11) (12) (13) (14) (16) 3 4 Ø-B C **NEIGHBORING** D-**TENANT** E-E7 G-CONVEYOR PROCESSING AREA FIGURE 2 SITE LAYOUT MAP 1655 WATKINS ROAD COLUMBUS, OHIO **LEGEND** REQUESTED BY: NB NAD 1983 STATE PLANE CLOSED LOOP LEASE SPACE OHIO SOUTH FEET DRAWN BY: KMB CRT - RELATED MATERIALS IN BOXES 50 100 Λ DATE: 2/19/2019 Creative thinking. Custom solutions LOADING DOCK DOORS SCALE IN FEET PROJECT: 0888823935 800.588.7962 www.ensafe.com

DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215



DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215

ᠿ 2 5 8 9 10 (\mathbf{f}) (12) (13) (14) (15) (16) 3 6 \bigcirc 4 **A**-B Ô **NEIGHBORING** D-TENANT Đ E7 CRZ G LΖ CONVEYOR PROCESSING AREA FIGURE 4 CONTAMINATION REDUCTION ZONE MAP NAD 1983 STATE PLANE OHIO SOUTH FEET 1655 WATKINS ROAD 100 50 0 COLUMBUS, OHIO SCALE IN FEET LEGEND REQUESTED BY: NB DOOR FOR TWO MOTORS WITH CLEAR CRZ 40'X80', LZ SAME DIMENSIONS CLOSED LOOP LEASE SPACE PVC STRIP CURTAINS PLASTIC CONTAINMENT TO GO TO CEILING DRAWN BY: KMB CRT - RELATED MATERIALS IN BOXES CRZ FITTED WITH NEGATIVE AIR MACHINES LOADING DOCK DOORS DATE: 9/14/2020 Creative thinking. Custom solutions INTERIOR OF CRZ AND LZ TO BE FINISHED WITH CRZ LZ CONTAMINATION REDUCTION ZONE PLYWOOD ON BOTTOM 4 FEET LOADING ZONE PROJECT: 0888823935 800.588.7962 www.ensafe.com

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DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215

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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For additional information, answers to questions, or to join the mailing list, please contact:

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Community Relations Plan Closed Loop Refining & Recovery Columbus, Ohio Revision 0.0 April 2020

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.



Community Relations Plan Closed Loop Refining & Recovery Columbus, Ohio Revision 0.0 April 2020

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:

—	Non-processed CRTs	. 10,252,303 pounds
_	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:

 - CRT crushed glass 113,750,757 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.



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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

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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			
	• Establish and public notice the availability of the Information Repository and Administrative Record File. Establish mailing list.			
	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

Community Relations Plan Closed Loop Refining & Recovery Columbus, Ohio Revision 0.0 April 2020

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



FIGURES



(15) 1 2 5 6 \bigcirc 8 9 10 (11) (12) (13) (14) (16) 3 4 Ø-B C **NEIGHBORING** D-**TENANT** E-E7 G-CONVEYOR PROCESSING AREA FIGURE 2 SITE LAYOUT MAP 1655 WATKINS ROAD COLUMBUS, OHIO **LEGEND** REQUESTED BY: NB NAD 1983 STATE PLANE CLOSED LOOP LEASE SPACE OHIO SOUTH FEET DRAWN BY: KMB CRT - RELATED MATERIALS IN BOXES 50 100 Λ DATE: 2/19/2019 Creative thinking. Custom solutions LOADING DOCK DOORS SCALE IN FEET PROJECT: 0888823935 800.588.7962 www.ensafe.com

DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215



DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215

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

Darrel Koerber, Deputy Director Franklin County Emergency Management & Homeland Security 5300 Strawberry Farms Boulevard Columbus, OH 43230-1049

Marion Franklin Civic Association President Robert Patterson 2664 Diane Place Columbus, Ohio 43207

Columbus Southside Area Commission Neighborhood Liaison Beth Fairman Kinney 280 Reeb Avenue Columbus, Ohio 43207 Columbus Division of Fire c/o Prevention Inspector 23 James Kennard 3639 Parsons Avenue Columbus, Ohio 43207

Far South Columbus Area Commission Neighborhood Liaison Beth Fairman Kinney 280 Reeb Avenue Columbus, Ohio 43207

Alum Crest Acres Civic Association President Eileen Neale 2488 Liston 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/m ³) 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 $\mu\text{g}/100$ 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 Standard	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 (<i>Treatment</i> standards for hazardous debris. Table 1: Alternative Treatment Standards for Hazardous Debris)	Section 11.3.6 of the Closure Plan	
	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 (<i>Treatment</i> standards for hazardous debris. Table 1: Alternative Treatment Standards for Hazardous Debris)	Section 11.3.3 of the Closure Plan	

Table B-2 Location-Specific ARARs				
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 .	City of Columbus City Codes, Title 11, Chapter 1145.20 (<i>Water,</i> <i>Sewer, and Electricity Code</i> — <i>Prohibited Discharges</i>).	Section 9.2 of the Closure Plan

	Table B-3				
Action/Media	Requirement	Prerequisite	Citation(s)	Requirement Met In This Section	
Prohibited discharges to publicly owned treatment works	No inductrial user chall discharge any pollutant in violation of applicable protectment standards	If wastewater generated during CRT-related material removal or during building decontamination is	OAC 3745-3-04(A,C) (<i>Prohibited</i> <i>Discharges</i>)	Section 9.2 of the Closure Plan	
		discharged to the City of Columbus sewer system this is Applicable .	40 CFR §403.5 (<i>National Pretreatment Standards: Prohibited Discharges</i>)		
Emissions restrictions for	No person shall cause or permit any fugitive dust source to be operated; or any materials to be handled, transported, or stored; or a building or its appurtenances or a road to be used, constructed,	If fugitive dusts emissions (non- stack) are uncontrolled, this is	OAC 3745-17-08(B) (<i>Restriction of Emission of Fugitive Dust</i>)	Section 9.1 of the Closure Plan	
fugitive dusts	altered, repaired, or demolished without taking or installing reasonably available control measures to prevent fugitive dust from becoming airborne.	Applicable.	40 CFR §50.13 (<i>National Primary and</i> Secondary Ambient Air Quality Standards for PM2.5)		
	The part of the facility where a demolition or renovation operation will occur shall be thoroughly inspected by a certified asbestos hazard evaluation specialist, in accordance with Ohio Administrative Code (OAC) 3745-22-02(C) prior to the commencement of the demolition or renovation for the presence of asbestos, including category I and category II nonfriable asbestos-containing material.	If demolition of building materials will occur, this is Applicable .	OAC 3745-20-02 (<i>Standard for</i> Demolition and Renovation, Facility Inspection, and Determination of Applicability)		
			40 CFR §61.145(a) (<i>Standard for</i> Demolition and Renovation)		
	Notice of intention to demolish or renovate shall be provided on a form and in manner prescribed by the director at least 10 working days before the beginning of any demolition operation, asbestos stripping or removal work, or any other activity including salvage activities and preparations that break up, dislodge or similarly disturb asbestos material.	If asbestos containing materials are identified in site building materials that will be demolished this is Applicable .	OAC 3745-20-03 (<i>Standard for</i> <i>Notification Prior to Demolition or</i> <i>Renovation</i>)		
Standards for asbestos			40 CFR §61.145(b) (<i>Standard for Demolition and Renovation</i>)	Prior to conducting demolition, building	
waste handling	All regulated asbestos-containing material shall be removed from a facility being demolished or renovated before any activity begins that would break up, dislodge, or similarly disturb the materials or preclude access to the materials for subsequent removal in accordance with the procedures of OAC 3745-20-04.	If asbestos containing materials are identified in site building	OAC 3745-20-04 (<i>Demolition and</i> <i>Renovation Procedures for Asbestos</i> <i>Emission Control</i>)	building renovation is anticipated.	
		materials that will be demolished this is Applicable .	40 CFR §61.145(c) (<i>Standard for Demolition and Renovation</i>)		
	All asbestos-containing waste material shall be deposited as soon as is practical by the waste generator at an approved waste disposal site.	If asbestos containing materials are identified in site building materials that will be demolished this is Applicable .	OAC 3745-20-05 (<i>Standard for Asbestos</i> <i>Waste Handling</i>)		
			40 CFR §61.150(b) (<i>Standard for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, and Spraying Operations</i>)		
Scrap metal recycling	Scrap metal is excluded from solid waste and hazardous waste regulations when recycling is used as	If scrap metal is recycled as part of	OAC 3745-51-06 (A)(3)(b) (<i>Requirements for Recyclable Materials</i>)	Section 11.2 of the Closure Plan	
	final disposal.	final disposition this is Applicable .	40 CFR §261.6(3)(ii) (<i>Requirements for</i> <i>Recyclable Materials</i>); 40 CFR §261.4(a)(13) (<i>Exclusions</i>)		

Action/Media	Table Requirement	B-3 Prereguisite	Citation(s)	Requirement Met In This Section
Recycling CRTs	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 following phrases: "Used cathode ray tubes- contain leaded glass" or "Leaded glass from	If used or broken CRTs are	OAC 3745-51-39(A)(1-4) (Conditional Exclusion for Used, Broken CRTs and Processed CRT Glass Undergoing Recycling)	- Sections 7.2.3 and 7.2.4 of the Closure Plan
	The used, broken CRTs shall be transported in an appropriate container that is properly labeled. Glass from used 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.	recycled this is Applicable .	40 CFR §261.39(a)(1-4) (Conditional Exclusion for Used, Broken Cathode Ray Tubes (CRTs) and Processed CRT Glass Undergoing Recycling)	
	Exporters of used, broken CRTs shall notify U.S. Environmental Protection Agency (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).	If used CRTs will be exported for recycling this is Applicable .	OAC 3745-51-39(A)(5) (Conditional Exclusion for Used, Broken CRTs and Processed CRT Glass Undergoing Recycling)	
			40 CFR §261.39(a)(5)(i-xi) (<i>Conditional</i> Exclusion for Used, Broken Cathode Ray Tubes (CRTs) and Processed CRT Glass Undergoing Recycling)	
Exporting used CRTs for	Used, intact cathode ray tubes (CRTs) exported for recycling are not wastes if such CRTs meet the notice and consent conditions of 40 CFR §261.39(a)(5), and if such CRTs are not "accumulated speculatively" as defined in OAC 3745-51-01(C)(8).	If used CRTs will be exported for recycling this is Applicable .	OAC 3745-51-40 (<i>Conditional Exclusion</i> for Used, Intact CRTs Exported for Recycling)	Sections 7.2.4 and 7.2.5 of the Closure Plan. Processed CRT glass may be shipped to Canada and Korea per approved permits for recycling. Export for recycling will comply with these rules.
Recycling			40 CFR §261.40 (<i>Conditional Exclusion</i> for Used, Intact Cathode Ray Tubes (CRTs) Exported for Recycling)	
	Any person wanting to export used, intact cathode ray tubes (CRTs) to a foreign country shall comply with 40 CFR §261.41.	If used CRTs will be exported for recycling this is Applicable .	OAC 3745-51-41 (<i>Notification and</i> <i>Recordkeeping for Used, Intact CRTs</i> <i>Exported for Reuse</i>)	
			40 CFR §261.41 (Notification and Recordkeeping for Used, Intact Cathode Ray Tubes (CRTs) Exported for Reuse)	
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	If solid waste is to be discarded	OAC 3745-52-11(A-C) (<i>Hazardous Waste</i> Determination)	Sections 11.0 and 13.0 of the Closure Plan
	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.	offsite this is Applicable .	40 CFR §262.11(a-d) (<i>Hazardous Waste</i> Determination and Recordkeeping)	Sections 11.0 and 15.0 of the closure main
	If the solid waste is determined to be hazardous, refer to OAC 3745-51, 3745-54 to 3745-57, 3745-65	If solid waste is determined to be	OAC 3745-52-11(D) (<i>Hazardous Waste</i> Determination)	
	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.	hazardous waste this is Applicable.	40 CFR §262.11(e) (<i>Hazardous Waste</i> Determination and Recordkeeping)	Section 11.0 of the Closure Plan

Table B-3					
Action/Media	Requirement	Prerequisite	Citation(s)	Requirement Met In This Section	
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	OAC 3745-27-05 (<i>Applicability and Relation to Other Laws</i>)	Section 7.2.5 of the Closure Plan	
		this is Applicable .	40 CFR §239 through §259 (<i>Regulations for Solid Waste</i>)		
Contractor of Classics Disc	The closure plan shall identify steps necessary to perform partial or final closure of the facility at any	If a closure plan is created this is	OAC 3745-66-12 (<i>Closure Plan and</i> Amendment of Closure Plan)	Closure Plan complies with this requirement	
	point during the active life of the facility in accordance with OAC 3745-66-11.	Applicable	40 CFR §265.112 (<i>Closure Plan;</i> <i>Amendment of Plan</i>)		
Decontamination of	During the partial and final closure periods, all contaminated equipment, structures, and soil must be	If equipment is decontaminated	OAC 3745-66-14 (<i>Disposal or</i> Decontamination of Equipment, Structures and Soils)	Section 11.0 of the Closure Plan and Sections	
equipment	3745-67-58, 3745-67-80, or 3745-68-10 of the Administrative Code.	this is Applicable	40 CFR §265.114 (<i>Disposal or</i> Decontamination of Equipment, Structures and Soils)	10.1 and 10.3 of the HASP	
			OAC 3745-52-12 (Generator Identification Number)		
Hazardous waste generator ID	A generator must not store, treat, dispose, or transport hazardous wastes without a generator number	er If hazardous waste is generated this is Applicable .	40 CFR §262.18 (<i>EPA Identification</i> <i>Numbers and Re-Notification for Small</i> <i>Quantity Generators and Large Quantity</i> <i>Generators</i>)	Existing Closed-Loop generator identification number will be used.	
Onsite transportation of	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 Requirements</i>)	This rule will apply when moving hazardous waste onsite between the two properties	
hazardous waste			40 CFR §262.20(f) (<i>General Requirements</i>)		
	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 (<i>Manifest - General</i> <i>Requirements</i>)		
			40 CFR §262.20(a-b) (<i>General Requirements</i>)		
	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 Copies</i>)		
			40 CFR §262.22 (Number of Copies)		
Offsite transportation of	The generator shall sign the manifest certification by hand, obtain the handwritten signature of the	If initiating shipment of bazardous	OAC 3745-52-23(a-b) (<i>Use of the Manifest</i>)		
nazardous waste	OAC 3745-52-40(A). The generator shall give the transporter the remaining copies of the manifest.	waste offsite this is Applicable.	40 CFR §262.23(a-b) (<i>Use of the</i> <i>Manifest</i>)	Hazardous waste management will comply with these rules.	
	A generator who initiates a shipment of hazardous waste must certify to one of the waste	If initiating shipment of hazardous	OAC 3745-52-27 (<i>Waste Minimization</i> <i>Certification</i>)		
	minimization statements in item 15 of the uniform hazardous waste manifest.	waste offsite this is Applicable.	40 CFR §262.27 (<i>Waste Minimization</i> <i>Certification</i>)		
	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>)		
			40 CFR §262.30 (Packaging)		

Action /Modia	Table	B-3 Proroguisito	Citation(s)	Poquiroment Met In This Section
Action/ Media	Requirement	rerequisite		Requirement met in mis section
	generator shall label each package of hazardous wastes 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 .	40 CFR §262.31 (<i>Labeling</i>)	
	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 119 gallons or less used in such transportation with the following words and information displayed in accordance with the requirements of 49 CFR 172.304: "Hazardous waste – Federal law prohibits improper disposal. If found, contact the nearest police or public safety authority, or the U.S. Environmental Protection Agency. Closed Loop 1675 Watkins Road, Columbus, Ohio; OHR000167718; Manifest Document Number"	f If initiating shipment of hazardous waste offsite this is Applicable .	OAC 3745-52-32 (Marking)	
hazardous waste cont'd			40 CFR §262.32(a-b) (<i>Marking</i>)	Hazardous waste management will comply with these rules.
	Before transporting hazardous wastes or offering hazardous wastes for transportation off-site, a	If initiating shipment of hazardous	OAC 3745-52-33 (Placarding)	
	generator must placard or offer the initial transporter the appropriate placards according to U.S. DOT regulations for hazardous materials under 49 CFR §172 Subpart F.	waste offsite this is Applicable .	40 CFR §262.33 (<i>Placarding</i>)	
	A (<i>large quantity</i>) generator who generates greater than 1,000 kilograms of hazardous waste (1 quart of acutely hazardous waste) in a calendar month may, for 90 days or less accumulate or conduct treatment of hazardous waste that is generated on-site without an Ohio hazardous waste permit, provided that the generator complies with the remaining requirements of OAC 3745-52-34(A, B), as applicable.	t If a generator generates greater than 1,000 kilograms of hazardous – waste in a calendar month this is Applicable.	OAC 3745-52-34(A)(1)(a), (A)(2), (A)(3) (Accumulation Time of Hazardous Waste)	
Temporary storage of hazardous waste onsite			40 CFR §262.17(a) (Conditions for Exemption for a Large Quantity Generator that Accumulates Hazardous Waste)	Temporary storage of newly generated hazardous waste will comply with these rules. It should be noted that existing materials in
	A generator may accumulate as much as 55 gallons of hazardous waste (1 quart 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 with OAC 3745-66-71, 3745-66-72, and 3745-66-73(A) and marks the containers either with the words "Hazardous Waste" or with other words that identify the contents of the containers. A generator who accumulate hazardous waste in excess of 55 gallons at or near any point of 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.	If a generator operates a satellite accumulation area this is Applicable .	OAC 3745-52-34(C) (Accumulation Time of Hazardous Waste)	
			40 CFR §262.15 (<i>Satellite Accumulation</i> <i>Regulations for Small and Large Quantity</i> <i>Generators</i>)	the warehouses have conditional exclusion for used Cathode Ray Tubes per OAC 3745 51 38
	A (<i>small quantity</i>) generator who generates greater than 100 kilograms but less than 1,000 kilograms of hazardous waste in a calendar month may, for 180 days or less, accumulate or conduct treatment of hazardous waste that is generated on-site without an Ohio hazardous waste permit, provided that the quantity of waste accumulated on-site never exceeds 6,000 kilograms; and the generator complies with the remaining requirements of OAC 3745-52-34(D, E, and F).	If a generator generates greater than 100 kilograms but less than 1,000 kilograms of hazardous waste in a calendar month this is Applicable .	OAC 3745-52-34(D) (Accumulation Time of Hazardous Waste)	
			40 CFR §262.16(a-b) (<i>Conditions for</i> <i>Exemption for a Small Quantity</i> <i>Generator that Accumulates Hazardous</i> <i>Waste</i>)	
Us an advance of a star	A small-quantity generator must keep the following records for a period of 3 years: a copy of each		OAC 3745-52-40 (Recordkeeping)	Hazardous waste records will be maintained in
Hazardous waste recordkeeping	manifest; a copy of each land-disposal restriction notification; a copy of any exception reports; and records of any test results, waste analyses, or other waste determinations. A large quantity generator must retain the same records and also retain copies of training records and biennial reports.	If initiating shipment of hazardous waste offsite this is Applicable .	40 CFR §262.40 (<i>Recordkeeping and</i> <i>Reporting Applicable to Small and Large</i> <i>Quantity Generators</i>)	accordance with this rule. Copies of these records will be included in the Project Completion Report.
Hazardous waste biennial report	A generator who ships any hazardous waste off-site shall prepare and submit to Ohio EPA the "Hazardous Waste Biennial Report" by March first of each even numbered year. The generator shall	If a generator is a large quantity	OAC 3745-52-41 (<i>Biennial Report-Generator Standards</i>)	If hazardous wastes are removed in an odd- numbered year, a Hazardous Waste Biennial Report will be prepared and submitted in accordance with this rule.
	prepare the "Hazardous Waste Biennial Report" using Ohio EPA forms EPA 9027, EPA 9028, and EPA 9029 provided by the director upon the request of the generator.	any odd-numbered calendar year month this is Applicable .	40 CFR §262.41 (<i>Biennial Report for Large Quantity Generators</i>)	

	Table B-3				
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 days after the date the waste was accepted by the initial transporter, must contact the transporter and/or the owner or operator of the designated facility to determine the status of the hazardous waste. An exception report must be submitted to Ohio EPA if a copy of the manifest with the handwritten signature of the owner or operator of the designated facility is not received within 45 days after the date the waste was accepted by the initial transporter.	If initiating shipment of hazardous waste offsite as a large quantity	OAC 3745-52-42(A) (Exception Report)	If an exception report is necessary, it will be developed in accordance with these rules.	
Hazardous waste		generator of hazardous waste this is Applicable .	40 CFR §262.42(a)(1-2) (<i>Exception</i> <i>Reporting</i>)		
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 days after the date the waste was accepted by the initial transporter must submit to Ohio EPA a	If initiating shipment of hazardous waste offsite as a small quantity	OAC 3745-52-42(B) (Exception Report)		
	legible copy of the manifest, with some indication that the generator has not received confirmation of delivery. [Comment: The submittal to Ohio EPA need only be a legible handwritten or typed note on the manifest itself, or on an attached sheet of paper, stating that the return copy was not received.]	generator of hazardous waste this is Applicable .	40 CFR §262.42(b) (<i>Exception</i> <i>Reporting</i>)		
Characterization of	Must obtain a detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, the analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with OAC 3745-54 to 3745-57, 3745-205, and 3745-270.	If hazardous waste treatment, storage, or disposal is occurring this is Applicable .	3745-54-13(A) (General Waste Analysis)	Section 2.1 of the Sampling and Analysis Plan	
hazardous waste			40 CFR §264.13(a) (<i>General Waste</i> <i>Analysis</i>)		
Security for Hazardous	Hazardous waste facilities must be secured so that unauthorized and unknowing entry are minimized or prohibited. This includes an artificial or natural barrier which completely surrounds the active portion of the facility and a means to control entry at all times. A sign with the legend, "Danger - Unauthorized Personnel Keep Out" (or equal) must be posted at each entrance to the active portion of a facility.	If hazardous waste treatment, storage, or disposal is occurring this is Applicable .	3745-54-14 (<i>Security</i>)	The building is locked and access is controlled through limited access doorways; signs will be posted at building entrance points.	
Waste Facilities			40 CFR §264.4 (<i>Security</i>)		
Hazardous waste personnel training requirements	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 monitoring equipment; communications or alarm systems; response to fires or explosions; and shutdown of operations. Facility personnel shall successfully complete the training program within 6 months after assignment to the facility, or to a new position at a facility, whichever is later and shall take part in an annual review of the initial training during each period from January 1 to December 31 and within 15 months after 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.	If hazardous waste treatment, storage, or disposal is occurring this is Applicable .	3745-54-16 (Personnel Training)	Field personnel will comply with training requirements in accordance with this rule before the start of closure activities. Training	
			40 CFR §264.16 (<i>Personnel Training</i>)	records will be maintained in accordance with this rule and copies will be maintained by contractors performing removal actions.	
Design & Operation of Hazardous Waste Facilities	Facilities shall be designed, constructed, maintained, and operated to minimize the possibility of a fire,	If hazardous waste treatment,	3745-54-31 (Maintenance and Operation of Facility)	The facility will be maintained/operated to minimize the possibility of a fire, explosion, or	
	explosion or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.	storage, or disposal is occurring this is Applicable .	40 CFR §264.31 (<i>Maintenance and</i> <i>Operation of Facility</i>)	unplanned release of hazardous waste or hazardous waste constituents.	

Table B-3							
Action/Media	Requirement	Prerequisite	Citation(s)	Requirement Met In This Section			
	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 summoning emergency assistance from local police departments, fire departments, or local or Ohio EPA emergency response teams; portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment; and water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.	If hazardous waste treatment,	3745-54-32 (Required Equipment)	Waste accumulation areas will contain			
		this is Applicable .	40 CFR §264.32 (Required Equipment)	appropriate emergency response equipment. Fire Extinguisher (ABC Multi-Purpose Dry Chemical) and Spill Kit (containing absorbent pads, granular clay absorbent pellets, booms,			
Hazardous waste facility required equipment	All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, shall be tested and maintained as necessary to assure	If hazardous waste treatment, storage, or disposal is occurring this is Applicable .	3745-54-33 (<i>Testing and Maintenance of Equipment</i>)	and caution tapes) will be available in the waste accumulation areas. The specific			
	proper operation of the equipment in time of emergency. The owner or operator shall record the inspections in a log or summary.		40 CFR §264.33 (<i>Testing and</i> <i>Maintenance of Equipment</i>)	location of waste accumulation areas will be determined based on the quantity of wastes in each building and the sequence of work. Site			
	Whenever hazardous waste is being handled, all personnel involved in the operation shall have immediate access to an internal alarm or emergency communication device, either directly or through	If hazardous waste treatment,	3745-54-34 (Access to Communications or Alarm System)	Maps will be updated to include the waste accumulation areas prior to closure activities and if areas are moved.			
	visual or voice contact with another employee, unless such a device is not required under OAC 3745- 54-32.	this is Applicable .	40 CFR §264.34(a) (Access to Communications or Alarm System)				
Hazardous waste facility	Maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, unless aisle space is not needed for any of the above-mentioned purposes.	If hazardous waste treatment, storage, or disposal is occurring this is Applicable .	3745-54-35 (Required Aisle Space)	Waste accumulation areas will comply with this			
aisle space			40 CFR §264.35 (Required Aisle Space)	requirement.			
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 .	3745-54-37 (Arrangements with Local Authorities)	Arrangements will be made with local			
			40 CFR §264.37 (Arrangements with Local Authorities)	activities.			
	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-	If hazardous waste treatment,	3745-54-52 (<i>Content of Contingency</i> <i>Plan</i>)				
Hazardous waste contingency plan	 54-37. 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 	this is Applicable.	40 CFR §264.52 (<i>Content of Contingency</i> <i>Plan</i>)	A hazardous waste contingency plan will be developed prior to the start of closure			
	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 3745-54-52(C).	If hazardous waste treatment, storage, or disposal is occurring this is Applicable .	3745-54-53 (Copies of Contingency Plan)	activities, and updated as necessary.			
			40 CFR §264.53 (<i>Copies of Contingency</i> <i>Plan</i>)				
	Table B-3						
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Action/Media	Requirement	Prerequisite	Citation(s)	Requirement Met In This Section			
Hazardous waste	The contingency plan must be reviewed, and immediately amended, if necessary, whenever 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,	If hazardous waste treatment, storage, or disposal is occurring	3745-54-54 (Amendment of Contingency Plan)				
contingency plan cont'd	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; of if required by the Director of the Ohio EPA.	this is Applicable.	40 CFR §264.54 (Amendment of Contingency Plan)				
Hazardous waste facility	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,	If hazardous waste treatment,	3745-54-55 (Emergency Coordinator)				
emergency coordinator	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.	this is Applicable .	40 CFR §264.55 (<i>Emergency</i> <i>Coordinator</i>)				
Hazardous waste facility	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	If hazardous waste treatment,	3745-54-56 (Emergency Procedures)	A designated emergency coordinator will be identified prior to closure activities and he/she (or designee) will adhere to these rules.			
emergency procedures	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.	this is Applicable.	40 CFR §264.56 (<i>Emergency Procedures</i>)				
Hazardous waste	Groundwater protection rules are applicable to owners or operators of facilities that treat, store, or dispose of bazardous waste. These requirements include detection, characterizing, and responding to	Groundwater contamination is not known or suspected to exist. In	3745-54-90 (Applicability- Groundwater Protection)	In the event that groundwater contamination is suspected, the <i>Closure Plan</i> may be			
applicability	dispose of nazardous waste. These requirements include detecting, characterizing, and responding to releases to the uppermost aquifer.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.90 (Applicability- Groundwater Protection)	amended to address groundwater, as applicable.			
Hazardous waste	In the event that groundwater contamination becomes suspect, a detection monitoring program must be instituted. If contaminants are detected, then a compliance monitoring program must be	Groundwater contamination is not known or suspected to exist. In the event that groundwater	3745-54-91 (Required Programs)	In the event that groundwater contamination is suspected, the <i>Closure Plan</i> may be			
programs	instituted. If a ground water protection standard is exceeded, a corrective action program must be implemented.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.91 (<i>Required Programs</i>)	amended to address groundwater, as applicable.			
Hazardous waste	Hazardous constituents in OAC 3745-54-93/40 CFR §264.93 should not exceed specified concentration	Groundwater contamination is not known or suspected to exist. In	3745-54-92 (Groundwater Protection Standard)	In the event that groundwater monitoring is			
groundwater standards	compliance during the compliance period.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.92 (<i>Groundwater Protection</i> <i>Standard</i>)	applicable.			
Hazardous waste	Hazardous constituents are defined as those detected in groundwater in the uppermost aquifer	Groundwater contamination is not known or suspected to exist. In	3745-54-93 (Hazardous Constituents)	In the event that groundwater monitoring is required, the <i>Closure Plan</i> will be amended, as applicable.			
constituents	from, waste contained in a regulated unit.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.93 (<i>Hazardous</i> <i>Constituents</i>)				

	Table B-3						
Action/Media	Requirement	Prerequisite	Citation(s)	Requirement Met In This Section			
Hazardous waste	Groundwater concentration limits shall not exceed the background level, or the maximum contaminant	Groundwater contamination is not known or suspected to exist. In	3745-54-94 (Concentration Limits)	In the event that groundwater monitoring is			
groundwater limits	approved standard.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.94 (Concentration Limits)	applicable.			
Hazardous waste	The point of compliance is a vertical surface located at the hydraulically downgradient limit of the	Groundwater contamination is not known or suspected to exist. In	3745-54-95 (Point of Compliance)	In the event that groundwater monitoring is			
point	waste management area that extends down into the uppermost aquifer underlying the regulated unit.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.95 (Point of Compliance)	applicable.			
Hazardous waste	The compliance period is the number of years until the owner or operator can demonstrate that the	Groundwater contamination is not known or suspected to exist. In	3745-54-96 (Compliance Period)	In the event that groundwater monitoring is			
period	consecutive years.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.96 (<i>Compliance Period</i>)	applicable.			
	The ground water monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples from the uppermost aquifer. Wells	Groundwater contamination is not known or suspected to exist. In	3745-54-97 (General Groundwater Monitoring Requirements)	In the event that groundwater monitoring is			
Hazardous waste	accurately measure hazardous constituents, evaluate the groundwater surface, and results must be statistically analyzed.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.97 (<i>General Groundwater</i> Monitoring Requirements)	applicable.			
groundwater monitoring requirements	Groundwater must be monitored for indicator parameters (e.g., specific conductance) and waste constituents that provide a reliable indication of the presence of hazardous constituents in monitorial with the theorem of the presence of hazardous constituents in the second s	Groundwater contamination is not known or suspected to exist. In	3745-54-98 (Detection Monitoring Program Appendix- Groundwater Monitoring List)	In the event that groundwater monitoring is			
	groundwater with wens at the compliance point and monitoring at appropriate requencies. The groundwater monitoring list will include parameters found in the appendix to this rule or a site-specific subset of constituents from the list.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.98 (<i>Detection Monitoring</i> Program Appendix- Groundwater Monitoring List)	applicable.			
Hazardous waste	The compliance groundwater monitoring program will be performed to determine whether regulated units are in compliance with the groundwater protection standard in OAC 3745-54-92/40 CFR §264.92 and will be determine whether compliance with the groundwater protection standard in OAC 3745-54-92/40 CFR §264.92	Groundwater contamination is not known or suspected to exist. In	3745-54-99 (Compliance Monitoring Program)	In the event that groundwater monitoring is			
monitoring	procedures, evaluation of groundwater flow, and notification of the Director of the Ohio EPA if concentrations limits are found to exceed limits.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.99 (<i>Compliance Monitoring</i> <i>Program</i>)	applicable.			
Hazardous waste	The owner or operator must take corrective action to ensure that regulated units are in compliance with the ground water protection standards by installing a system to prevent hazardous constituents from exceeding their respective constraints limits at the compliance point by removing the	Groundwater contamination is not known or suspected to exist. In	3745-54-100 (Corrective Action Program)	In the event that groundwater monitoring is			
applicability	hazardous waste constituents or treating them in place. The corrective action program will include a groundwater monitoring program to determine its effectiveness.	contamination becomes suspect, this <i>may become Applicable</i> .	40 CFR §264.100 (<i>Corrective Action</i> <i>Program</i>)	applicable.			
Closure of hazardous	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 nun-off. or bazardous waste decomposition products to the ground or surface	If hazardous waste is stored in a	OAC 3745-55-11 (<i>Closure Performance Standards</i>)	Section 11.3 of the Closure Plan describes			
waste container storage area	waters or to the atmosphere; and (c) complies with the closure requirements of OAC 3745-54 to 3745- 57 and 3745-205, including, but not limited to, the requirements of OAC 3745-55-78, 3745-55-97, 3745-56-28, 3745-56-58, 3745-56-80, 3745-57-10, 3745-57-51, 3745-57-91 to 3745-57-93, and 3745- 205-102.	container storage area this is Applicable.	40 CFR §264.111 (<i>Closure Performance Standard</i>)	procedures for clean closure of the site building, including any less-than-90-day hazardous waste storage areas.			

	Table B-3					
Action/Media	Requirement	Prerequisite	Citation(s)	Requirement Met In This Section		
	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 3745-55-71 (Condition of Containers) 40 CFR §264.171 (Condition of Containers)			
	Must use a container made of or lined with materials which will not react with, and are otherwise	-	OAC 3745-55-72 (<i>Compatibility of Waste with Container</i>)			
	compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.		40 CFR §264.172 (<i>Compatibility of Waste with Containers</i>)			
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.		OAC 3745-55-73 (Management of Containers)			
	or stored in a manner which may rupture the container or cause it to leak.	If hazard waste is stored in	40 CFR §264.173 (<i>Management of</i> <i>Containers</i>)	Hazardous waste materials will be managed in		
	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	containers this is Applicable .	OAC 3745-55-74 (Inspections - Containers)	accordance with these rules.		
	deterioration of containers and the containment system caused by corrosion or other factors.	-	40 CFR §264.174 (Inspections)			
	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		OAC 3745-55-77 (Special Requirements for Incompatible Wastes - Containers)	_		
	separated from the other materials or protected from the other materials by means of a dike, berm, wall, or other device.	-	40 CFR §264.177 (Special Requirements for Incompatible Wastes)			
	At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous		OAC 3745-55-78 (<i>Closure</i>)			
	waste or hazardous waste residues must be decontaminated or removed.		40 CFR §264.178 (<i>Closure</i>)			
Characterization of	Must obtain a detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, the analysis must contain all the information which must be known to treat, store, or	If hazardous waste treatment, storage, or disposal is occurring	3745-65-13(A) (General Waste Analysis)	Section 2.1 of the Sampling and Analysis Plan		
nazardous waste	dispose of the waste in accordance with OAC 3745-65 to 3745-69, 3745-256, and 3745-270.	this is Applicable.	40 CFR §265.13(a) (<i>General Waste</i> Analysis)			
Security for Hazardous	Hazardous waste facilities must be secured so that unauthorized and unknowing entry are minimized or prohibited. This includes an artificial or natural barrier which completely surrounds the active portion of the facility and a means to control entry at all times. A sign with the legend. "Danger -	If hazardous waste treatment, storage, or disposal is occurring	3745-65-14 (<i>Security</i>)	The building is locked and access is controlled		
Waste Facilities	Unauthorized Personnel Keep Out" (or equal) must be posted at each entrance to the active portion of a facility.	this is Applicable .	40 CFR §265.4 (<i>Security</i>)	posted at building entrance points.		
Hazardous waste personnel training requirements	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 monitoring equipment; communications or alarm systems; response to fires or explosions; and shutdown of operations.	If hazardous waste treatment,	3745-65-16 (<i>Personnel Training</i>)	Field personnel will comply with training requirements in accordance with this rule before the start of docure activities.		
	Facility personnel shall successfully complete the training program within 6 months after assignment to the facility, or to a new position at a facility, whichever is later and shall take part in an annual review of the initial training during each period from January 1 to December 31 and within 15 months after 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.	this is Applicable .	40 CFR §265.16 (<i>Personnel Training</i>)	records will be maintained in accordance with this rule and copies will be maintained by contractors performing removal actions.		
Design & Operation of Hazardous Waste Facilities	Facilities shall be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.	If hazardous waste treatment, storage, or disposal is occurring this is Applicable .	3745-65-31 (Maintenance and Operation of Facility) 40 CFR §265.31 (Maintenance and Operation of Facility)	The facility will be maintained/operated to minimize the possibility of a fire, explosion, or unplanned release of hazardous waste or hazardous waste constituents.		

	Table B-3					
Action/Media	Requirement	Prerequisite	Citation(s)	Requirement Met In This Section		
	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 summoning emergency assistance from local police departments fire departments or local or Obio	If hazardous waste treatment,	3745-65-32 (Required Equipment)	Waste accumulation areas will contain		
	EPA emergency response teams; portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment; and water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.	this is Applicable .	40 CFR §265.32 (Required Equipment)	appropriate emergency response equipment. Fire Extinguisher (ABC Multi-Purpose Dry Chemical) and Spill Kit (containing absorbent pads, granular clay absorbent pellets, booms,		
Hazardous waste facility required equipment	All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, shall be tested and maintained as necessary to assure	If hazardous waste treatment,	3745-65-33 (<i>Testing and Maintenance of Equipment</i>)	gioves, googles, boot covers, disposal bags, and caution tapes) will be available in the waste accumulation areas. The specific		
	proper operation of the equipment in time of emergency. The owner or operator shall record the inspections in a log or summary.	this is Applicable.	40 CFR §265.33 (<i>Testing and</i> <i>Maintenance of Equipment</i>)	determined based on the quantity of wastes in each building and the sequence of work. Site		
	Whenever hazardous waste is being handled, all personnel involved in the operation shall have immediate access to an internal alarm or emergency communication device, either directly or through	If hazardous waste treatment, storage, or disposal is occurring	3745-65-34 (Access to Communications or Alarm System)	Maps will be updated to include the waste accumulation areas prior to closure activities and if areas are moved.		
	visual or voice contact with another employee, unless such a device is not required under OAC 3745- 65-32.	this is Applicable .	40 CFR §265.34(a) (Access to Communications or Alarm System)			
Hazardous waste facility aisle space	Maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment. and decontamination equipment to any area of facility operation in an emergency.	If hazardous waste treatment, storage, or disposal is occurring	3745-65-35 (Required Aisle Space)	Waste accumulation areas will comply with thi requirement.		
	unless aisle space is not needed for any of the above-mentioned purposes.	this is Applicable .	40 CFR §265.35 (Required Aisle Space)			
Hazardous waste facility	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	If hazardous waste treatment,	3745-65-37 (Arrangements with Local Authorities)	Arrangements will be made with local authorities prior to the start of closure activities.		
authorities	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.	this is Applicable.	40 CFR §265.37 (Arrangements with Local Authorities)			
	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-	If hazardous waste treatment,	3745-65-52 (<i>Content of Contingency</i> <i>Plan</i>)			
Hazardous waste contingency plan	 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 	storage, or disposal is occurring this is Applicable .	40 CFR §265.52 (<i>Content of Contingency</i> <i>Plan</i>)	A hazardous waste contingency plan will be		
	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 (Copies of Contingency Plan) 40 CFR §265.53 (Copies of Contingency	developed prior to the start of closure activities.		
		and is reprised to	Plan)			

Action/Media	Table Requirement	B-3 Prerequisite	Citation(s)	Requirement Met In This Section	
Hazardous waste	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	If hazardous waste treatment,	3745-65-54 (Amendment of Contingency Plan)		
contingency plan cont'd	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.	this is Applicable .	40 CFR §265.54 (Amendment of Contingency Plan)		
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, stress of the facility is contingency plan.		If hazardous waste treatment, storage, or disposal is occurring	3745-65-55 (Emergency Coordinator)		
emergency coordinator	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.	this is Applicable.	40 CFR §265.55 (<i>Emergency</i> <i>Coordinator</i>)		
Hazardous waste facility	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 ardous waste facility extent of any released materials; assess potential hazards to human health or the environment; notify		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.	
emergency procedures	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.	this is Applicable.	40 CFR §265.56 (<i>Emergency Procedures</i>)		
Closure of hazardous waste container storage	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	If hazardous waste is stored in a container storage area this is	OAC 3745-66-11 (<i>Closure Performance Standards</i>)	Section 11.3 of the Closure Plan describes procedures for clean closure of the site	
area	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, 3745-67-58, 3745-67-80, 3745-68-10, 3745-68-51, 3745-68-81, 3745-69-04, and 3745-256-102.	Applicable.	40 CFR §265.111 (<i>Closure Performance Standard</i>)	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 (Condition of Containers) 40 CFR §265.171 (Condition of		
	Must use a container made of or lined with materials which will not react with and are otherwise	-	Containers) OAC 3745-66-72 (Compatibility of Waste		
Condition and	compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.		40 CFR §265.172 (Compatibility of Waste with Containers)		
hazardous waste containers	Containers holding hazardous waste must always be closed during storage, except when it is		OAC 3745-66-73 (Management of Containers)		
	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 .	40 CFR §265.173 (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		OAC 3745-66-74 (<i>Inspections -</i> <i>Containers</i>)		
	owner or operator shall record inspections in an inspection log or summary.		40 CFR §265.174 (Inspections)		

	Table B-3						
Action/Media	Requirement	Prerequisite	Citation(s)	Requirement Met In This Section			
Condition and management of	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		OAC 3745-66-77 (Special Requirements for Incompatible Wastes - Containers)				
hazardous waste containers cont'd	separated from the other materials or protected from the other materials by means of a dike, berm, wall, or other device.		40 CFR §265.177 (Special Requirements for Incompatible Wastes)				
	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-	If hazardous waste treatment is	OAC 3745-270-09(A) (<i>Special Rules</i> <i>Regarding Wastes that Exhibit a</i> <i>Characteristic</i>)				
	49. This determination may be made concurrently with the hazardous waste determination required in OAC 3745-52-11.	occurring this is Applicable .	40 CFR §268.9(a) (<i>Special Rules</i> <i>Regarding Wastes that Exhibit a</i> <i>Characteristic</i>)				
Management of hazardous waste	If the waste displays a hazardous characteristic (and is not D001 non-wastewater treated by CMBST,	If waste displays hazardous	OAC 3745-270-09(A) (<i>Special Rules</i> <i>Regarding Wastes that Exhibit a</i> <i>Characteristic</i>)				
	hazardous constituents" (as defined in OAC 3745-270-02) in the characteristic waste.	characteristic this is Applicable .	40 CFR §268.9(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 $3745-270-40$, 2745 -2746 -2746	If hazardous waste is being land	OAC 3745-270-07(A) (Testing, Tracking, and Recordkeeping Requirements for Generators, Treaters, and Disposal Facilities)				
	waste determination required in OAC 3745-52-11 in each two ways: testing the waste or using knowledge of the waste.	disposed this is Applicable.	40 CFR §268.9(a)(1) (<i>Testing, Tracking,</i> and Recordkeeping Requirements for Generators, Reverse Distributors, Treaters, and Disposal Facilities)				
Waste specific	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)	If characteristically hazardous	OAC 3745-270-34(A, E) (<i>Waste Specific</i> Prohibitions- Toxicity Characteristic Metal Wastes)	Hazardous waste materials will be disposed in			
prohibitions	are prohibited from land disposal unless the wastes meet the applicable treatment standards specified in OAC 3745-270-40 to 3745-270-49.	this is Applicable.	40 CFR §268.34(a) (<i>Waste Specific</i> Prohibitions- Toxicity Characteristic Metal Wastes)	accordance with these rules.			
	Prohibited waste identified in the table "Treatment Standards for Hazardous Wastes" may be land		OAC 3745-270-40(A) (<i>Applicability-</i> <i>Treatment Standards</i>)				
Land disposal of hazardous wastes	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.	If hazardous waste is going to be land disposed this is Applicable .	40 CFR §268.40(a) (Applicability of Treatment Standards); 40 CFR §268.7(a)(2) (Testing, Tracking, and Recordkeeping Requirements for Generators, Reverse Distributors, Treaters, and Disposal Facilities)				
	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	If characteristic hazardous waste	OAC 3745-270-40(E) (<i>Applicability-Treatment Standards</i>)				
	270-02).	Applicable.	40 CFR §268.40(e) (<i>Applicability of</i> <i>Treatment Standards</i>)	Hazardous waste materials will be disposed in accordance with these rules.			
Land disposal of	Hazardous debris must be treated prior to land disposal unless Ohio EPA determines under OAC 3745- 51-03(F0(2) that the debris is no longer contaminated with hazardous waste or the debris is treated to	If land disposal of hazardous	OAC 3745-270-45(A) (<i>Treatment</i> Standards for Hazardous Debris)				
nazardous debris	the waste-specific treatment standard provided in OAC 3/45-2/0-40 to 3/45-270-49 for the waste contaminating the debris.	debris this is Applicable .	40 CFR §268.45(a) (<i>Treatment Standards for Hazardous Debris</i>)				

	Table B-3						
Action/Media	Requirement	Prerequisite	Citation(s)	Requirement Met In This Section			
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	If hazardous waste is going to be	3745-270-48 (<i>Universal Treatment</i> <i>Standards</i>)				
	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.	land disposed this is Applicable .	40 CFR §268.48 (<i>Universal Treatment Standards</i>)				
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</i> <i>Functions</i>)	Hazardous waste materials will be transported in accordance with 49 CFR 171-180.			

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Attachment C Cost Estimate Backup This page intentionally left blank.

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	¢1.688.250
E-waste kemoval, kecycling, and Disposal		Mixed Funnel/Panel Glass in Gaylords	0	\$0.1025	\$0	\$1,000,230
		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 Onsite Waste Water Treatment and Disposal		\$553,380		+F00 200
				\$36,900		\$390,280
Wall Construction	HEPA Environmental Services					\$6,800
Project Management	AKT Peerless				\$324,724 (including \$30,000 for closure report)	
SUBTOTAL						\$2,659,654

1675 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	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	\$12 318 493
L-waste Removal, Recycling, and Disposal		Mixed Funnel/Panel Glass in Gaylords	113,750,757	\$0.1025	\$11,659,453	÷12,12,125
		Steel with Glass	324,648	\$0.05	\$16,232	
		Plastic	15,120	\$0.05	\$756	
		Panel with Metal	175,273	\$0.09	\$15,775	
Lead Abstement: Decontamination	HEPA Environmental Services	Decontamination \$874,700		4,700	\$920.200	
	HELA ENVIOLIMENTAL SERVICES	Onsite Waste Water Treatment and Disposal		\$45,500		\$525,200
Wall Construction	N/A					N/A
Project Management	AKT Peerless			\$726,449 (including \$45,000 closure report)		
SUBTOTAL						\$14,014,742

Both Properties

Property	Estimate
1655 Watkins Road	\$14,014,742
1675 Watkins Road	\$2,659,654
Contingency Costs (20%)	\$3,334,879
TOTAL REMOVAL PROJECT CEILING	\$20,009,275

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614-236-2222 www.novotecrecycling

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

Submitted by: Novotec Recycling LLC

Date: April 13, 2020

NOVC

recycling

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, broken or 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

recycling

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.

3960 Groves Rd. Columbus, OH 43232

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

recycling

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.
- 2) 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.
- 5) 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.

- 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.

recycling

- 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 <u>tbolon@novotecrecycling.com</u>.

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



3960 Groves Rd. Columbus, OH 43232

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: CEO	Date: 4-13-20
Print Name: Tom 13clor	

Attachment A

		See Notes B	elow 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	(\$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.

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.
 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 kaminskij@aktpeerless.com February 7, 2020

RE: Closed loop clean up and closure 1655 Watkins.

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.
- 3. 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.
- 9. 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.
- 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 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

Acceptance—The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be outlined herein. If the above meets with your approval please sign, retain a copy for your records and return original to us.

Rick Kuhlman, President	2-7-20	
HEPA Environmental Services Inc. Representative	Date	

Representative of Customer

Asbestos Confined Space Entry 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 M (440) 251-5377 kaminskij@aktpeerless.com

February 7, 2020

RE: Closed loop clean up and closure 1675 Watkins.

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 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.
- 6. 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. AKT Peerless Environmental 30675 Solon Road, Suite 101, Solon, OH 44139 M (440) 251-5377 kaminskij@aktpeerless.com February 7, 2020

RE: Closed loop clean up and closure 1675 Watkins.

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 decontamination

Acceptance—The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be outlined herein. If the above meets with your approval please sign, retain a copy for your records and return original to us.

Rick Kuhlman, President	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

AKTPEERLESS

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. 1375302

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 4Project 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

\$324,724

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.

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

AKTPEERLESS

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. 1375302

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

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

Jaroslaw Kaminski Sr. Project Manager

Authorized By:

Signed

Date

Typed/Printed

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Appendix B Prior Environmental Reports This page intentionally left blank.
SEPA Environmental Protection

- You are here: EPA Home
- Envirofacts
 <u>RCRAInfo</u>
 Search Results

Search Results

Home

Multisystem Search

Topic Searches

System Data Searches

About the Data

Data Downloads

Widgets

Services

Mobile

Other Datasets



LIST OF FAC	CILITY 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 / Unspecified U <u>HANDLER 1</u> Small Quantit	FACILITY CLASSIF niverse for the facility <u>YPE</u> y Generator	ICATION y listed above.				
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Go To Top Of The Page

Total Number of Facilities Retrieved: 1



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.

Central District Office * 50 West Town Street * Suite 700 * P.O. Box 1049 * Columbus, OH 43216-1049 www.epa.ohio.gov * (614) 728-3778 * (614) 728-3898 (fax) 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: <u>http://www.epa.ohio.gov/dmwm/.</u>

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 Site EPA ID No.	required to be submitted to CO should be EPA ID Number: OHR 000 167 718	e e-mailed	to RCRAInfoData@	Depa.state.oh.us.			
Site Name	Name: Closed Loop Recycling						
Site Location Information	Street Address: 1675 Watkins Rd.						
	City, Town, or Village: Columbus	State: OH					
Site Land Type (check only one) NAICS code(s)	County Name: Franklin Private County District	Federal	Zip Code: 43207 Indian Muni	7 cipal State Othe]			
w/w.census.gov/epcd/ww w/neics.html							
Facility Representative	First Name: Eric	MI:	Last Name:	Howell			
Additional names can be recorded in number 12	Title: Operations Manager Phone Number: 614-295-8165		Phone Number	Extension:			
Only provide address information if it is different	E-Mail Address: Fax Number: Street or P.O. Box:						
than the site address	City, Town or Village:						
Legal Owner And	State: Zip Code:						
Operator of the Site. List Additional Owners and/or Operators in the Comment Section or on	Owner Private County Distri Type:	ct Feder	dd/yyyy): al Indian Mu	nicipal State Other			
another copy of this form	City, Town or Village:	TOwne	ter Phone #:				
page	State:	ry: Zip Code:					
	Name of Site's Operator: Date Became Operator: Closed Loop Recycling (mm/dd/yyyy): 0			perator 5/01/2012			
	Operator Private County Distribution Type: Image: County Image: County Image: County Image: County Image: County Street or P.O. Box: 435 S. 59 th Avenue	ict Fede	ral Indian Mur	nicipal State Othe			
	City, Town or Village: Phoenix	Operate	erator Phone #: 602-538-3634				
1	State: AZ	Country	USA	Zip Code: 85043			
VIOLATIONS CITED?	Yes No		_				
WARD OF HALING MAL PART							
TYPE OF HANDLER - MAR			0				
I Not a HW Generator	Cited for violation of 3745-52-11						
in the second seco	Short-Term/Temporary Generator		Small Quantity Generator (SQG)				
	(generates from a short-term or	Condit	Conditionally Exempt Small Quantity Generato				
	one-time event and not from on-going	U.S. Ir	U.S. Importer of Hazardous Waste				
	processes). Check the box for the applicable generator status and provide a comment.			is and Radioactive)			

TYPE OF REGULATED WAST	E ACTIVITY (MARK "X" I	N ALL OF THE APP	ROPRIATE BOXES)
Hazardous Waste Transport	ter	Exempt Boiler	and/or Industrial Furnace
Hazardous Waste Transfer I	Facility	Small Qua	Intity On-Site Burner Exemption
Treater, Storer or Disposer of	of Hazardous Waste	Smelting,	Melting, Refining Furnace Exemption
Recycler of Hazardous Was	te	Underground I	njection Control Facility
72-Hour Recycler		Receives Haza	ardous Waste from Off-site
CHECK ALL BOXES THAT AP	ES (INDICATE TYPES C	F UNIVERSAL WAS	STE MANAGED
Small Quantity Handler of L	nivereal Waste		cility for Universal Waste
Large Quantity Handler of U	niversal Waste	Destination ra	ionity for oniversal weate
(accumulates 5,000 kg. or m	ore)		
CHECK ALL BOXES BELOW	THAT APPLY FOR THE	TYPES OF UNIVER	SAL WASTE THE FACILITY MANAGES
Batteries			
Lamps	ent		
LISED OF ACTIVITIES INDIC	ATE TYPE/SI OF ACTIV	TV/C)	
Used Oil Generator	ATE TIFE(0) OF ACTIV	11(0)	
Used Oil Transporter			
Used Oil Transfer Facility			
Used Oil Processor			
Used Oil Re-refiner			
Off-Specification Used Oil B	urner		
Used Oil Fuel Marketer who	directs shipment of Off-S	pec Used Oil	
Used Oil Fuel Marketer who	first claims the Used Oil	meets the specificati	ons
pursuant to OAC rules 3745-52-200 thm	Laboratories: Facility has p ough 3745-52-216. Check the	reviously notified that the box(es) below to indicate	ey are opting into managing laboratory hazardous waste the laboratory type.
College or University			
Teaching hospital that is own	ned by or has a formal wr	itten affiliation agree	ment with a college or university
Non-profit Institute that is ow	ned by or has a formal w	ritten affiliation agree	ement with a college or university
Waste Codes for Federally Regu	lated Hazardous Wastes.	Please list the codes for	the federally regulated hazardous waste handled at the
site. List them in the order they are pre	sented in the regulations (e.g.,	D001, D003, F007, U112	2) Use an additional page or list them in the comments if payment and the page of list them in the comments if
indicate the date of the most recent sou	Irce record.	e most recent richamio	source record, you do not need to list main. Instead just
		and the local and and	
COMMENTS: USE THIS AREA	TO DESCRIBE WHETH	ER THE INSPECTIC	ON WAS ANNOUNCED, WHETHER THE
Appounded Ver	No Additional Fasility). Democrantations	Dent Decker
	No Additional Facility	Representatives:	Brent Bennam
Containers Ves	No		
	110	the second se	Date of Inspection/Time
Name of Inspector(s)	Name of Inspe	ctor(s)	(mm/dd/vvvv) (hh:mm)
Peter Maneff	Melissa Storc	h	09/30/2013
			10/10/2013
Sector of Sector Sector			
Comments:			the second s
Facility is recyling CRTs under	er a conditional exclusion	on and was not a ge	enerator at the time of the inspection.
racility requested to remain m	notified as a SQG.		

Revised 09.05.10

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	TUBE	S			_	
NOT ray tu Useo Unite parag	E: This ubes (C I, intact ed State graph (I	inspec RTs) th "CRTs" s unles C)(8) of	tion checklist applies to CRT collectors and processors of used in at are destined for recycling. It does not apply to companies who "as defined in rule 3745-50-10 of the Administrative Code (and b s they are disposed, or unless they are speculatively "accumulate rule 3745-51-01 of the Administrative Code by CRT collectors or	tact ar genera elow) a ed spec glass j	nd us ate al are no culati proce	ed bro nd sto ot was vely" essors	oken bre C stes as d S.	catho RTs. within efined	the the
REC	YCLER	S RECI	EIVING BROKEN USED CRTS AND PROCESSED CRT GLASS	SUND	ERG	OING	RE	CYCL	ING
1	Prior	to proce	essing,.						
	a.	Are un follow or cas broke spille	sed broken CRTs stored properly by: [3745-51-39(A)(1)] as is: (A used, broken CRT means glass removed from its housing sing whose vacuum has been released) Both intact and en CRT's are being stored outside the facility and have ed on the ground.	Yes		No		N/A	
		ł.	Stored in a building with a roof, floor and walls? Or	Yes		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	ch container containing CRTs labeled or marked clearly with of the following phrases "Used cathode ray tube(s) – containing ed glass" or "Leaded glass from televisions or computers" and is container also labeled "Do not mix with other glass materials"?	Yes		No	\boxtimes	N/A	
	C.	Are C	CRTs transported in a container: [3745-51-39(A)(3)]	Yes		No		N/A	
		i.	Constructed, filled, and closed to minimize releases to the environment of CRT glass? And	Yes		No		N/A	
		11.	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		Νο		N/A	
	d.	If CR const recyc 266-2	Ts are accumulated speculatively or used in a manner tituting land disposal, does the owner or operator (o/o) of the cling facility comply with the applicable requirements in 3745- 20 to 3745-266-23? [3745-51-39(A)(4)]	Yes		No		N/A	
	e.	If the an in Unite to (a)	facility is an exporter of CRTs, does the o/o notify U.S. EPA of tended exports before the CRTs are scheduled to leave the d States, based on the requirements in 40 CFR 261.39(a)(5)(i) 0(5)(ix)? [3745-51-39(A)(5)]	Yes		No		N/A	\boxtimes
2.	Are	used, br	oken CRTs undergoing "CRT processing":	Yes		No		N/A	
	a.	Stora The proce ques accu wast	age [3745-51-39(B)(1)] processor is speculatively accumulating the CRTs undergoing essing or have been processed if either of the following tions is answered "No". If the processor is speculatively mulating CRTs or processed CRT glass that is a hazardous e they are storing a hazardous waste in violation of ORC §	Yes		No		N/A	
		Can mean list.	the processor demonstrate that the CRTs have a feasible ns of being recycled; and Ohio EPA has requested a recycler	Yes		No		N/A	
		Durir of ma	ng the calendar year, commencing January first, is the amount aterial that is recycled, or transferred to a different site for	105		110			

{Closed Loop Recycling/September 30, 2013} [OHR000167718] ConditionalExclusionsforUsedCRTs/October 2012 Page 1 of 2

		recy of th cale Ibs)	cling, equals at least seventy-five per cent by weight or volume e amount of that material accumulated at the beginning of the ndar year. Received Inventory report for 1/1/13 (9.969 million						6
	b.	Processing							
		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	
		ii.	With no activities that use temperatures high enough to volatilize lead from CRTs? [3745-51-39(B)(2)]	Yes		No		N/A	
NOT or fur moni	E: CR ther bi tors."	T proce reaking	essing activities defined in 3745-50-10(A)(25)(b) and (c) include "i or separating broken CRTs" and "sorting or otherwise managing	ntentio. glass r	nally emov	break ved fri	king i om (intact CRT	CRTs
З.	Is gli man [374	ass from ufacture 5-51-39	n used, broken CRTs destined for recycling at a CRT glass er or a lead smelter after processing accumulated speculatively? 9(C)]	Yes		No		N/A	
4.	If gla	ass from comply	used CRTs is used in a manner constituting disposal, does the with 3745-266-20 to 3745-266-23? [3745-5139(D)]	Yes		No		N/A	
EXPO	ORTS	OF USI	ED, INTACT CRTs						

NOTE: Used, intact CRTs exported for recycling are not wastes if they meet the notice and consent conditions of 40 CFR 261.39(a)(5) and if they are not accumulated speculatively. [3745-51-40]

NOTE: Violations regarding exporting used, intact CETs foreign destinations should be referred to U.S. EPA Region 5 because the federal counterpart provisions are not delegable to states.

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.

{Closed Loop Recycling/September 30, 2013} [OHR000167718] ConditionalExclusionsforUsedCRTs/October 2012 Page 2 of 2



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 S. 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 11. 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.



9/30/

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

Pic 18. 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



OHIO 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,

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:

Ohio Environmental Protection Agency

Craig W. Butler, Director

JUN 1 0 2014

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

BRENT BEN HAN

Printed or Typed Name

(FO

Title

5/13/14 Date

bo



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

January 30, 2015

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: <u>http://www.epa.ohio.gov/dmwm/</u>

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,

Fet MAL

Peter Maneff Division of Materials and Waste Management Central District Office

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.

REC	YCLEF	RS RECEIVING BROKEN USED CRTS AND PROCESSED CRT GLA	SS UNE	DERC	GOING R	ECYC	LING					
1.	Prior	Are used broken CRTs stored properly by (3745-51-39(A)(1)) as Non-NZ Non-NZ										
	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 🗌] 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						
		 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 3745-266-232 [3745-51-39(A)(4)]			No 🗌	N/A						
	е.	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	sed, broken CRTs undergoing "CRT processing":	Yes		No 🗌	N/A						
	а.	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 Ohio EPA has requested a recycler			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	Yes		No 🗌	N/A						

		caler upda	dar year. Ohio EPA has requested and is waiting on an ited inventory report.						
	b.	Proce	essing						
		* ****	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	۹ <u>(</u>)	N/A	
		ii.	With no activities that use temperatures high enough to volatilize lead from CRTs? [3745-51-39(B)(2)]	Yes	\boxtimes	No	<u> </u>	N/A	
or furt monit 3.	ther bre ors."	proces eaking o ss from	ssing activities defined in 3745-50-10(A)(25)(b) and (c) include "in or separating broken CRTs" and "sorting or otherwise managing used, broken CRTs destined for recycling at a CRT glass	ntentioi glass n Yes	nally emov	breaki red fro No	ing int m CR	tact (RT N/A	
	[3745	-51-39([C]						
4.	If glas o/o co	s from mply w	used CRTs is used in a manner constituting disposal, does the vith 3745-266-20 to 3745-266-23? [3745-5139(D)]	Yes		No	<u> </u>	I/A	\boxtimes
EXPO	RTS C	F USE	D, INTACT CRTs		<u> </u>				
NOTE CFR 2	:: Usec 261.39(d, intact (a)(5) ai	CRTs exported for recycling are not wastes if they meet the not nd if they are not accumulated speculatively. [3745-51-40]	ice and	l cons	sent c	onditic	ons	of 40
NOTE 5 beca	: Viola ause th	tions re e feder	egarding exporting used, intact CETs foreign destinations should al counterpart provisions are not delegable to states.	be refe	ərrəd	to U.S	S. EPA	4 Re	gion

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 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 SUMM	rs IARY S	HEE	Т						
CESQG SQG: Be LQG: ≥ NOTE:	i: ≤100I etween 1,000 k <i>To con</i> t	Kg. (Approximately 25-30 gallons) of waste in a calendar month or < 1 k 100 and 1,000 Kg. (About 25 to under 300 gallons) of waste in a calence Kg. (~300 gallons) of waste in a calendar month or ≥ 1 Kg. of acutely haz vert from gallons to pounds: <u>Amount in gallons x Specific Gravity x 8.34</u>	(g. of a dar mo ardous 5 = Am	cutel nth. s was <u>ounts</u>	y haza ste in a <u>s <i>in p</i>o</u>	ardou a cale ounds	is wa Indar	ste. month.			
Safety E	quipm	ent Used:									
GENER	AL RE	QUIREMENTS									
1.	Have [374	all wastes generated at the facility been adequately evaluated? 5-52-11]	Yes	\boxtimes	No		N/A				
2.	Has	he generator obtained a U.S. EPA I.D. number? [3745-52-12]	Yes		No	۵	N/A				
3.	Has waste [ORC	he generator transported or caused to be transported hazardous to other than a facility authorized to manage the hazardous waste? \$ 3734.02 (F)]	Yes		No		N/A				
4.	Has the generator disposed of hazardous waste on-site without a permit Yes No X N/A variable variabl										
5.	Does the generator accumulate hazardous waste? Yes 🛛 No 🗌 N/A 🗍										
NOTE: requirem	If the S nents m	QG does not accumulate or treat hazardous waste, it is not subject to 5. ight still apply, e.g. manifest, marking, LDR, etc.	2-34 st	anda	rds. A	All oth	ner				
6.	3. Has the generator accumulated hazardous wastes in excess of (180/270) days without a permit or an extension from the Director? [3745-52-34; ORC §3734-02(E)&(F)]										
NOTE: 3 (E)]	SQG's	shipping waste to a facility greater than 200 miles away can accumulate	on-site	e for	270 da	ays. [3745	5-52-34			
7.	Is the	generator accumulating more than 6,000 kg on site? [3745-52-34(D)]	Yes		No	Ø	N/A				
NOTE: (without a standard	6,000 k an exter Is apply	g = approximately 27, 55-gallon drums. If the facility is accumulating wa osion/permit or is accumulating greater than 6,000 kg on-site, it is classi . Complete applicable TSD checklists.	aste for fied as	grea a sto	ater tha brage f	an 18 facility	30/27 y and	0 days 1 TSD			
8.	Does	the generator treat hazardous waste in a:									
	a.	Container that meets 3745-66-70 to 3745-66-77?	Yes	Ø	No		N/A				
	b.	Tank that meets 3745-66-101?	Yes		No	1	N/A				
	С.	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	1	N/A	\boxtimes			
NOTE: C	Comple	te appropriate checklist for each unit.				interior de la compañía de					
NOTE: I	f waste	is treated to meet LDRs, use LDR checklist.									
MANIFE	ST REC	QUIREMENTS									
9.	Are al as def a mar	hazardous wastes either reclaimed under a contractual agreement ined in OAC rule 3745-52-20(E), or shipped off-site accompanied by ifest (U.S. EPA Form 8700-22)? [3745-52-20(A)(1)]	Yes		No	□ N	N/A				
10.	Are wa	astes reclaimed under a contractual agreement? If so: [3745-52-0(E)]	Yes		No	X N	I/A				

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1	T		·····				
	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	\boxtimes
NOTE:	lf waste	s are reclaimed under a contractual agreement and an answer to quest	tions 10	$\Omega(a) t$	hrough 10	(c) is	no the
aenerato	or is in v	violation of 3745-52-20 (A) (B) & (D) 3745-52-22 and 3745-52-23 Even	n if the	waet	niougn ro a is haina	roclai	imod
under ac	rreemei	nt TDRs still apply Complete TDR checklist	111 010	wasi	e is being	reciai	meu
11.	Have	items 1 through 20 of each manifest been completed?	Yes	Ø	No 🗔	N/A	[]
	[3745	-52-20(A)(1)] & [3745-52-27(A)]					
NOTE: situation	U.S. EF s, items	PA Form 8700-22(A) (the continuation form) may be needed in addition is (21) through (35) must also be complete. [3745-52-20(A)(1)]	to Form	n 870	00-22. In t	hese	
12.	Does	each manifest designate at least one facility which is permitted to	Yes		No E	N/A	
	handle	e the waste? [3745-52-20(B)]	103	ß		IW/A	
NOTE	The cer	paratar may designate on the mention effective feather feather than the	L				
NOTE.	rne ger	rerator may designate on the manifest one alternative facility to handle t	the was	ste in	the event	t of an	
emerger	icy whic	ch prevents the delivery of waste to the primary designated facility. [374.	5-52-2()(C)]			
13.	If the i	transporter was unable to deliver a shipment of hazardous waste to	Yes	X	No 🗖	N/A	
	the de	signated facility did the generator designate an alternative TSD	_	ц <u>т</u> я			L
	facility	or give the transporter instructions to return the waste? [3745-52-			ander Stelland Stellen for		
	20(D)]					
14.	Have	the manifests been signed by the generator and initial transporter?	Vee	E		NICA	
	13745	-52-23 (A) (1) and (2)	res	\mathbf{X}		N/A	
NOTE: I	Remind	the generator that the certification statement they signed indicates: 1) to	hey ha	ve pr	operly pre	pared	l the
shipmen	t for trar	nsportation and 2) they have made a good faith effort to minimize their v	vaste g	ener	ation.		
15.	If the g	generator received a rejected load or residue, did the generator:					
	a	Sign item 20 of the new manifest or item 18c of the original					
	ч.	manifest2 [3745-52,23/E)/1)	Yes		No 🗌	N/A	\boxtimes
	b.	Provide the transporter a copy of the manifest? [3745-52-23(F)(2)]	Yes		No 📋	N/A	
							K_1
	С.	Send a copy of the manifest to the designated facility that returned	Vas	<u> </u>	No E	NI/A	57
		the shipment with 30 days after delivery of the rejected shipment?	100	[]		11/74	
		[3745-52-23(F)(3)]					
16	If the c	penerator did not receive a return conv of each completed manifest					
,0.	within	60 days of being accorted by the transporter did the consistent	Yes	\Box	No 🗌	N/A	
	oubmi	to Obje EDA a constrait the mentifect with server indition that the					
	subrin	to Onio EPA, a copy of the manifest with some indication that the					
	genera	ator has not received confirmation of delivery? [3745-52-42(B)]					
17.	Are sig	ned copies of all manifests being retained for at least three years?	Yes	M	No 🗆	N/A	
	[3745-	52-40]	· · · -	¥¥	والنسبية المراجع		·
NOTE	appor	ator who sends a shinment of hazardous wasta to a TSD facility with the					<u> </u>
facility on	n genere	tor who sends a simplifient of hazardous waste to a TSD facility with the	unaer	stanc	ang that ti	ne i Si	D
	to the u	wate on site for c00 days or c190 days days and in primeric back as a reje	эскеа к	bad o	r resiaue i	may	
accumula	ale ine v	vasie on-sile for <90 days or <180 days depending on the amount of ha	zardou	is wa	ste on-site	e in th	at
calendar	montn.	[3745-52-34(M)]					
NOTE: V	Vaste ge	enerated at one location and transported along a publicly accessible roa	d for te	empo	rary cons	olidate	ed
storage o	r treatm	nent on a contiguous property also owned by the same person is not cor	nsidere	d "on	-site" and	mani	festina
and trans	porter r	equirements must be met. To transport "along" a public right-of-way the	destin	ation	facility h	se to e	oct as a
transfer f:	acility of	have a permit because this is considered to be "off-site ". For additional	l inform	notin	n conthe	dofinii	tion of
"on-site" i	n OAC	rule 3745-50-10		auv	ମ ବଟଟ ଯାଟ	uenni	
nornan	EDUEO						
TREPAR	EDNES						
18.	is an e	mergency coordinator available at all times (on-site or on-call)?	Yes	\boxtimes	No 🗖 I	N/A	
						-	
		[Closed Loop Ref	ing and	a Rec	covery/Jan	uary '	16,2015]
					[OF	IR000	167718]
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<u></u>	1071					
	[3/4	5-52-34(D)(5)(a)]				
19.	Has	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.	Are e [374:	mployees familiar with waste handling and emergency procedures? 5-52-34(D)(5)(c)]	Yes	\boxtimes	No 🔲 N/A	
21.	Has 34(D	he facility properly responded to all fires and spills? [3745-52-)(5)(d)]	Yes		No 🖂 N/A	\boxtimes
22.	ls the unpla 31]	e 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.	Does requi	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	\boxtimes	No 🗌 N/A	٥
	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	\boxtimes	No 📋 N/A	
	d.	Water of adequate volume/pressure per documentation or facility rep? [3745-65-32(D)]	Yes	\boxtimes	No 🔲 N/A	
24.	ls em prope	ergency equipment tested (inspected) as necessary to ensure its r 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	\boxtimes	No 🗋 N/A	
25.	Do pe comm is not	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.	If ther a dev exterr 32)? [e is only one employee on the premises is there immediate access to ice (ex. phone, hand-held two-way radio) capable of summoning nal emergency assistance (<i>unless not required under OAC 3745-65</i> -3745-65-34(B)]	Yes		No 🖸 N/A	
27.	ls ade or spi	quate aisle space provided for unobstructed movement of emergency I control equipment? [3745-65-35]	Yes		No 🔲 N/A	
28.	Has ti possil	ne generator attempted to familiarize emergency authorities with ole hazards and facility layout? [3745-65-37(A)]	Yes		No 🗌 N/A	
29.	Where has th	e authorities have declined to enter into arrangements or agreements, e generator documented such a refusal? [3745-65-37(B)]	Yes		No 🗖 N/A	⊠
SATELL	ITE AC	CUMULATION AREA REQUIREMENTS				
30.	Does	the generator ensure that satellite accumulation area(s):				·····
	а.	Are at or near a point of generation? [3745-52-34(C)(1)]	Yes	\boxtimes	No 🔲 N/A	
	þ.	Are under the control of the operator of the process generating the waste? [3745-52-34(C)(1)]	Yes	\boxtimes	No 🗋 N/A	
	C.	Do not exceed a total of 55 gallons of hazardous waste per waste stream? [3745-52-34(C)(1)]	Yes	\boxtimes	No 🔲 N/A	

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	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	Ø	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 listed	generator accumulating hazardous waste(s) in excess of the amounts 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		No □ N/A	⊠
hazardo	on in th ous wast	e process under the control of the operator of the process generating the e). There could be individual waste streams accumulated in an area fro	re wasi om diff	e (le. erent	ss than 1 quart points of genei	for acute ration.
USE AN	ID MAN	AGEMENT OF CONTAINERS	1			
32.	Has tl [3745	ne generator marked containers with the words "Hazardous Waste?" -52-34(D)(4)]	Yes	\boxtimes	No □ N/A	
33.	Is the	accumulation date on each container? [3745-52-34(D)(4)]	Yes	\boxtimes	No 🗌 N/A	
34.	Are ha	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	\boxtimes	No 🗌 N/A	
	C.	Compatible with wastes stored in them? [3745-66-72]	Yes	\boxtimes	No 🗌 N/A	
	d.	Handled in a manner which prevents rupture/leakage? [3745-66- 73(B)]	Yes		No 🗌 N/A	
NOTE:	Record I	ocation on process summary sheets and photograph the area.				
35.	Is the period	container accumulation area(s) inspected at least once during the from Sunday to Saturday? [3745-66-74]	Yes	\boxtimes	No 🗌 N/A	
	a.	Are inspections recorded in a log or summary? [3745-66-74]	Yes		No 🗌 N/A	
36.	Are co means	ntainers of incompatible wastes stored separately from each other by of a dike, berm, wall or other device? [3745-66-77(C)]	Yes		No 🖸 N/A	
37.	If the g materi 17(B)?	enerator places incompatible wastes, or incompatible wastes and als in the same container, is it done in accordance with 3745-65- [3745-66-77(A)]	Yes		No □ N/A	
38.	If the g previou 65-17(enerator 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	
NOTE: (mixture c undesira	DAC 374 or comm ble conc	45-65-17(B) requires that the generator treat, store, or dispose of ignital ingling of incompatible wastes, or incompatible wastes and materials so litions or threaten human health or the environment.	ble or r b that it	eacti does	ve waste, and ti s not create	he

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	\boxtimes	No 🗌 N/A	
40.	Does each container ≤119 gallons have a completed hazardous waste label? [3745-52-32(B)]	Yes	\boxtimes	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.	I			

GENERATOR LDR CHECKLIST DOES NOT APPLY TO CESQGS

L		BOED NOT AT ET TO DE 000									
GENERA	AL REC	QUIREMENTS			********			www			
1.	If LDF the H [3745	Rs do not apply, does the generator have a statement that lists how W was generated, why LDRs don't apply and where the HW went? -270-07(A)(7)]	Yes		No		N/A				
2.	treatment standard prior to disposal? Generator knowledge or testing may be used. [3745-270-07(A)(1)] If not,										
	a. Did the generator send the waste to a permitted HW TREATMENT Yes No N/A facility? [3745-270-07(A)(1)]										
NOTE: Tr treatment determina 3745-270	his is d t standa ation is)-49 (al	one by determining if the HW /soil contains levels of constituents greate ard in 3745-270-40. However, if a specific treatment method is given in required [3745-270-07(A)(1)(b)]. If soil, generator can choose to have ternative treatment levels for soils).	er than 1 3745- soil tre	the I 270- ated	evels 40 for to LD	give the IR le	en in it HW, i evels g	s LDR 10 liven in			
3.	Does HW/so [3745-	the generator have documentation of how he determined whether the bil meets or does not meet the LDR treatment standard in 2, above? -270-07(A)(6)(a) or 3745-270-07(A)(6)(b)]	Yes		No		N/A				
4.	Does for at l site fo	the generator keep the documentation required in #2, above, on-site least three years from the last date the HW/soil was sent on-site/off- r treatment/disposal? [3745-270-07(A)(8)]	Yes		No		N/A				
5.	Does t yes,	the generator generate a listed HW that exhibits a characteristic? If	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				
FOR EXA	MPLE: in 3745	F006 that exhibits the characteristic for silver or K062 that is corrosive 5-270-40 to determine what constituents the listed HW is treated for.	, D002.	Re	view L	.DR	treatri	nent			
6.	Did the hazard	e generator determine if its characteristic HW contains underlying lous constituents that need to be treated? [3745-270-09(A)]	Yes	\boxtimes	No		N/A				
NOTE: Th universal contains >	nis is do treatme >10% T	one by evaluating which underlying hazardous constituents (UHC) are in ent standards given in 3745-270-48. This requirement does not apply to OC) D001 wastes or listed HWs.	n the H high te	W at otal c	t level organi	s ab c ca	ove th rbon (ie ï.e.,			
NOTE: W	ritten d	ocumentation of this determination is not required.									
7.	Did the standa	e generator treat his HW /soil on-site <u>to meet</u> the LDR treatment rd?	Yes		No	\boxtimes	N/A				
NOTE: If	"Yes" s	ee question #16.									
8.	Did the first sh	e generator send a one-time LDR notification form to the TSD with the ipment to that facility? [3745-270-07(A)(2)]	Yes		No		N/A				
		[Closed Loop Re	fing an	d Re	cover	y/Ja	nuary	16,2015			

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·		1					
	a.	If the waste each	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 🗆
		i	Applicable HW codes?	Yes		No 🗆 N/	/A 🗆
		İİ	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	X	No 🗆 N/	′A □
9.	Did th HW c	e gene hanged	rator resubmit the LDR notification form to the TSD when the or the generator used a new TSD? [3745-270-07(A)(2)]	Yes		No 🗆 N/	A
10.	Does [3745-	the ger -270-07	nerator have a copy of the LDR notification form/notice on file? (A)(2)]	Yes		No 🖂 N/	A
	a.	ls the [3745-	form/notice kept on file for three years after last HW shipped? 270-07(A)(8)]	Yes		No 🗆 N/	A 🗆
NOTIFI	CATION	FORM		_	••••••		
11.	Does	the LDF	R Notification form contain the following information:			·····	
	a.	Manife 07(A)(est number of the first waste shipment to the TSD? [3745-270-2)]	Yes	\boxtimes	No 🗆 N/.	A 🗆
	b.	Applic HW if	able 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)(ement that conveys that the HW is subject to LDRs and must ated to meet LDR treatment requirements? [3745-270- 2)]	Yes		No 🗔 N//	4
	d.	A desi [3745-	gnation whether the HW is a wastewater or non-wastewater? 270-07(A)(2)]	Yes	\boxtimes	No 🗔 N//	A []
wastewa method	A wastel ater or no 9060a fo e.	water co on-wast or TOC. Desigr [3745-]	ontains <1% by wt. total suspended solids(TSS) and <1% by wi ewater, the HW can be tested using for example, Standard Mer nation of the waste subcategory when applicable? 270-07(A)(2)]	t. TOC. thods (Yes	If yı SM) ⊠	ou doubt the F 160.2 for TSS, No ⊡ N/A	łW is a , SW-846
NOTE:	Subcate	gories a	are found on the LDR treatment standards table under the appli	L cable v	vaste	code. Not ali	I HWs
nave su	categor	18S A listin	a of the underlying hererdaus constituents for which a	T			
1.075	I.	charac	teristic waste must be treated? [3745-270-07(A)(2)]	Yes		No 🗆 N/A	
NOTE: 1	vot requ	ired if ti	he waste is high TOC D001 or the TSD tests its treatment resid	ues for	all u	nderlying haza	ardous
	g.	If the H form w and mu	W is F001-F005 or F039, did the generator note on the LDR hat solvents or constituents, respectively, the waste contains ust be treated for? [3745-270-07(A)(2)]	Yes		No 🗆 N/A	
NOTE: I	Vot reau	ired if th	ne TSD tests its treatment residues for all underlying hazardous	consti	tuont		·····
PROHIB	ITED DI	LUTIO	V	00113(1	uent	ა.	
12.	Is the H	-W trea	ited by burning?	Yes		No 🗆 N/A	
	If "No"	go to #	15.				
13.	Is the H	I W a m	etal-bearing HW?	Yes		No 🗆 N/A	
NOTE: G metals.)	enerally A list of t	, metal- he resti	bearing HWs contain heavy metals above TCLP levels or were ricted metal-bearing HWs are given in the Appendix to 3745-27	listed o 0-03.	due t	o the presence	e of
			[Closed Loop Re	fing an	d Re	covery/Januar	y 16,2015

14.	a.	Metal-bearing HWs cannot be incinerated	, combusted or, blended				9		
		[3745-270-03(c)]	wing conditions apply.						
		i. Contains > 1% TOC?	an an an an an an an an an an an an an a	Yes		No		N/A	
		ii. Contains organic constituents or cy than the UTS levels?	anide at levels greater	Yes		No		N/A	
		iii. Is made up of combustible materia plastic?	e.g., paper, wood,	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. a improperly treated by dilution, violation of being treated by dilution?	re "No", HW is being 3745-270-03(C). Is HW	Yes		No		N/A	
5.	Was	e HW treated by wastewater treatment?		Yes		No		N/A	
	a.	Is a LDR treatment method, other than DE specified for the waste? [3745-270-03(B) a	ACT or a numerical value, and 3745-270-40(A)(3)]	Yes		No		N/A	
IOTE:	If "Yes"	HW is improperly being treated by dilution.							
	b.	Does the waste carry the D001 code and o	contain ≥10% TOC?	Yes	۵	No		N/A	
	C.	Does the wastewater treatment process in separate/recover the organic phase of the	clude a process to waste?	Yes		No		N/A	
VOTE: s in viol	lf the ar ation of	wers to b & c are "yes" and "no", respectiv 3745-270-03(B)] and 3745-270-40(A)(3)].	ely, waste is improperly beir	ng treat	ted by	y dilut	ion a	and ge	enerato
IOTE:	A list of	eparation/recovery processes are given in	3745-270-42 under RORG.						
ENER	ATOR	REATMENT							
6.	Does	e generator treat to meet LDRs on-site?		Yes		No		N/A	\boxtimes
	Did th drip p	generator treat his hazardous waste/soil o d or containment building <u>to meet t</u> he LDR	n-site in a tank, container, treatment standard?	Yes		No		N/A	\boxtimes
	It "Yes	complete the rest of the checklist. If "No	"stopyou are done.						
	a.	Does the generator have a written waste a describes the procedures he will follow to t LDR treatment standard? [3745-270-07(A)	nalysis plan (WAP) that reat the HW/soil to the (5)]	Yes		No		N/A	
	b.	Did the generator use a detailed chemical the HW/soil in order to develop the WAP?	and physical analysis of 3745-270-07(A)(5)(a)]	Yes		No		N/A	
OTE: T	⁻ his is a	aboratory analysis but it does not have to b	e kept by the generator.		·····	ada <u>idin tabih</u> a			
	C.	Does the WAP contain all information nece o the LDR treatment standard? [3745-270	ssary to treat the HW/soil 07(A)(5)(a)]	Yes		No		N/A	
	d.	Does the WAP include the testing frequence o demonstrate that the LDR treatment star 3745-270-07(A)(5)(a)]	y of the treated HW/soil ndard is being met?	Yes		No		N/A	\boxtimes
	e,	Does the generator keep the WAP on-site?	[3745-270-07(A)(5)(b)]	Yes		No		N/A	\boxtimes
	f.	s the WAP available for the inspector's rev nspection? [3745-270-07(A)(5)(b)]	iew during the	Yes		No		N/A	\boxtimes

NOTIF		N FOR	W FOR	GENERATOR TREATMENT		 	
17.	a.	Cont	ains a	Il information in #11 a-g above and	Yes	No 🗌 N/A	\boxtimes
	b.	If the certif	treate ication	ed HW/soil is listednotification contains the following statement:	Yes	No 🗆 N/A	
		"I cer am fa know comp to 37 are s the p	tify un amiliar /ledge blies w 45-27(ignifica ossibil	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."			
	С.	If the longe	treated HW/soil no longer exhibits a characteristic and is no er a HW, did the generator: Prepare a one-time notification? [3745-270-09 (D)]				
		i.	Prep	pare a one-time notification? [3745-270-09 (D)]	Yes	No 🗆 N/A	X
		Ĭ.	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	\boxtimes
			5.	Underlying hazardous constituents present when generated?	Yes	No 🖂 N/A	
		iv.	Cont 3745	ain the certification statement as required by -270-07(B)(4)?	Yes	No 🗆 N/A	

Send to Central Office	Ohio Environmenta RCRA SUBT IDENTIFICATION/VE	I Protection ITLE C SI ERIFICATI	Diffection Agency E C SITE FICATION FORM				
Completed verification for	ns required to be submitted to C	O should be	e-mailed t	to RCRAInfoData@e	pa.state.oh.us.		
Site EPA ID No.	EPA ID Number: OHR 000 1	67 718					
Site Name	Name: Closed Loop Refinir	ng and Reco	overy	Website: (Optional)			
Site Location Information	Street Address: 1675 Watkir	ıs Rd.					
	City, Town, or Village: Colun	nbus		State: OH			
	County Name: Franklin		*********	Zip Code: 43207			
Site Land Type	Private County	District	Indian Municip	al State Other			
(check only one)							
NAICS code(s)							
www.census.gov/epco/ww							
Facility Representative	Eirst Name: Pohort		ħ.ΛΙ-	Lost Marsa Or			
	Title: Operations Manager	J.	IV#1.	Last Name: Cr	UZ		
Additional names can be	Phone Number: 614.295 816			Dhana Number Eu			
recorded in number 12	E-Mail Address:			Flione Number Ext	ension;		
Only provide address	Eav Number	************		F ast Niemels and F ast a			
information if it is different	Street or B.O. Poyr			Fax Number Exten	sion:		
than the site address				*********			
	City, Town or Village:						
1 shall on the state	State:						
Operator of the Site	Closed Loop Refining and	Recovery	Date E	decame Owner			
List Additional Owners	Owner Private County	V Distric:	t Federa	au/yyyy). al Indian Munici	inal State Other		
and/or Operators in the	Type:						
Comment Section or on	Street or P.O. Box:			· · · ·			
another copy of this form	City, Town or Village:		Owner	Phone #:			
hane	State:		Countr	y: Zip	Code:		
	Name of Site's Operator:		Date E	Secame Operator			
	Closed Loop Refining and I	Recovery	(mm/d	d/yyyy): 05/01/2012			
	Tune: M Coun	ty Distric	t Feder	al Indian Municip	oal State Other		
and the second second second second second second second second second second second second second second secon	Street or P.O. Boy: 435 S 59	th Avenue					
a se anna seas anna anna	City Town or Village: Phoeni	iv	Onerato	r Dhone #: 602 529	2C2 /		
	State: AZ		Country	ISA 7in	Code: 95042		
			Obundy		Code. 05045		
VIOLATIONS CITED?							
TYPE OF HANDLER - MAR	K "X" AS APPROPRIATE		e og nør og og ve				
Not a HW Generator			Large (Quantity Generator (I	06)		
	Cited for violation of 3745-52-1	1					
] Short-Term/Temporary Generation	ator	Small C	Quantity Generator (S	SQG)		
	(generates from a short-	Quantity Generator					
	one-time event and not from on-going U.S. Importer of Hazardous Waste						
	applicable generator status and	d provide	Mixed \	Naste (Hazardous ar	nd Radioactive)		
	a comment.		Genera	ator			

TYPE OF DECLILATED MACTE ACTIVITY MADE ***	ALL OF THE ADDRODUATE DOVED
Hazardous Waste Transporter	C Event Peiler and/or Industrial Eveness
Hazardous Waste Transfer Facility	Small Quantity On Site Dynamics
Treater Storer or Disposer of Hazardous Waste	Small Quality On-Site Burner Exemption
Recycler of Hazardous Waste	
UNIVERSAL WASTE ACTIVITIES (INDICATE TYPES OF	INWEDOW WARTEN WILLOWS
CHECK ALL DOYES THAT ADDIVI	UNIVERSAL WASTEIVIANAGED
Small Quantity Handler of Universal Maste	Destination Easility for Universal Maste
Sinal Quantity Handler of Universal Waste	
(accumulates 5,000 kg. or more)	
CHECK ALL BOXES BELOW THAT APPLY FOR THE TY	PES OF UNIVERSAL WASTE THE FACILITY MANAGES
USED OIL AUTIVITIES (INDIGATE TYPE(S) OF ACTIVITY	
Un-Specification Used Oil Burner	
Used Oil Fuel Marketer who directs shipment of Oπ-Spe	c Used UI
	ers the specifications
pursuant to OAC rules 3745-52-200 through 3745-52-216. Check the box	lously houled that they are opting into managing laboratory hazardous waste (es) below to inflicate the laboratory type
	(au) point to induced the industry type.
College of University	
I leaching nospital that is owned by or has a formal writte	en amiliation agreement with a college or university
	en amilation agreement with a college or university
site List them in the order they are presented in the regulations (e.g. DA	ase list the codes for the rederally regulated hazardous waste handled at the
more space is needed. If the waste codes are the same as listed in the n	tost recent RCRAInfo source record, you do not need to list them. Instead just
Indicate the date of the most recent source record	
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 Re	epresentatives: Patrick O'Hara
Tanks 🔄 Yes 🙀 No	
Containers 🛛 Yes 🗀 No	
	Date of Inspection/Time
Name of Inspector(s) Name of Inspecto	r(s) (mm/dd/yyyy) (hh mm)
Peter Maneff	01/16/2015
Commenter C	TIMEC
Comments:	<i>D</i>
Facinity is recyning Units under a conditional exclusion.	*

Revised 09.05.10

J

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	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.

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.

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.



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

		VAP						Buildin	ng 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.

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.

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.



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

Building	Sample Grid	Date	Time	Mercury Concentration (mg/m ³)
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



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APPROX. SCALE: 1"=60'





JT

МW

60447615

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

RMA# 2266937

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

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 Calibrat	tion				
		Actual		Calibratio	n Gas	Allowable Range		
Incoming:	Level 1 RSD %	0.064 11. 7 9	mg/m3 Hg	0.101	mg/m3 Hg	0.096 - 0.106 <5%	mg/m3 Hg	
Outgoing:	Level 1 RSD % Level 2	0.101 0.80	mg/m3 Hg mg/m3 Hg	0.100 0.025 mg/i	mg/m3 Hg m3 Hg	0.095 - 0.105 <3% 0.020 - 0.030 m	mg/m3 Hg ng/m3 Hg	
SD Level 3 SD			mg/m3 Hg	0.010 mg/i	m3 Hg	<0.005 mg/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

Temperature °F: 74.40

% Relative Humidity: 34.10

Recalibration Date: 21-Sep-2016

yl thadek

Date Approved: 25-Sep-2015

Title: Cheryl Hradek - Quality Control

Equipment Used:

Approved By:

 Permeation Tube:
 <u>498-45577</u>
 NIST#:
 <u>ISO12712</u>; 072958-697-060314

 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: <u>89990030</u> NIST#: <u>7000660</u> Calibration Date: <u>14-Apr-2015</u> Calibration Date Due: <u>14-Apr-2016</u>

Flowmeter: <u>154482</u> NIST#: <u>150422154482_000</u> Calibration Date: <u>22-Apr-2015</u> Calibration Date Due: <u>22-Apr-2016</u>

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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APPENDIX C



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.

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

Table 1Sample and Analysis Summary

(1) Method References: Metals TCLP = 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 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.

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 methodrequired 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

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									
Parameter	Units	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	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										
		DS-01-1675	DUP B	DS-02-1675	DS-03-1675	DS-04-1675	DS-08-1675	DS-09-1675	DS-10-1675	DS-11-1675	DS-12-1675	DS-13-1675	DS-14-1675
		11/12/2015	11/12/2015	11/12/2015	11/9/2015	11/9/2015	11/9/2015	11/9/2015	11/12/2015	11/9/2015	11/9/2015	11/9/2015	11/9/2015
Parameter	Units												
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

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.

LINKS **Review your project** results through Total Access Have a Question? Ask-The Expert Visit us at:

Visit us at: www.testamericainc.com

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3

Qualifiers

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Metals		
Qualifier	Qualifier Description	
U	Indicates the analyte was analyzed for but not detected.	E
В	Compound was found in the blank and sample.	2
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	
General Che	mietry	

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.	2
¤	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	
ND	Not detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	
QC	Quality Control	
RER	Relative error ratio	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	
TEQ	Toxicity Equivalent Quotient (Dioxin)	

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.

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 11/17/2015 and analyzed on 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.

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	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

Sample Summary

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-57899-1	DS-01-1675	Solid	11/12/15 00:00	11/13/15 14:34
240-57899-2	DS-01-1655	Solid	11/12/15 00:00	11/13/15 14:34
240-57899-3	DS-02-1655	Solid	11/12/15 00:00	11/13/15 14:34
240-57899-4	DS-10-1675	Solid	11/12/15 00:00	11/13/15 14:34
240-57899-5	DS-02-1675	Solid	11/12/15 00:00	11/13/15 14:34
240-57899-6	DUP B	Solid	11/12/15 00:00	11/13/15 14:34

TestAmerica Canton

Lab Sample ID: 240-57899-1

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

Lab Sample ID: 240-57899-3

Lab Sample ID: 240-57899-4

Lab Sample ID: 240-57899-5

Lab Sample ID: 240-57899-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	150	J	400	8.2	mg/Kg	20	₩ \[\] \] \[\]	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	¢	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

This Detection Summary does not include radiochemical test results.

TestAmerica Canton
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	₩.	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	¢	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
Hg	0.18		0.11	0.016	mg/Kg	1	¢	7471B	Total/NA

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57899-1 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

Method: 6010C - Metals (ICI	P) - TCLP								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0047	JB	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 (C	VAA) - TCLP								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020	0.000090	mg/L		11/17/15 14:00	11/18/15 08:41	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	0.89		0.10	0.10	%			11/13/15 16:36	1

Client: URS Corporation Project/Site: Closed Loop

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

Percent Solids: 99.1

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Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	230	U	230	64	mg/Kg	₩ 	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 Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-2 Matrix: Solid

	P								
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
- 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		11/17/15 14:00	11/18/15 08:43	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	0.79		0.10	0.10	%			11/13/15 16:36	1

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

5

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	<u> </u>	11/17/15 15:55	11/18/15 11:52	1

Client: URS Corporation Project/Site: Closed Loop

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

Client Sample ID: DS-02-1655 Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-3 Matrix: Solid

Percent Solids: 98.8

5

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	30	U	30	8.2	mg/Kg	₩	11/17/15 11:10	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	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Нд	0.084	J	0.10	0.014	mg/Kg	<u></u>	11/17/15 15:55	11/18/15 11:54	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	1.2		0.10	0.10	%			11/13/15 16:36	1

Client: URS Corporation Project/Site: Closed Loop

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

Client Sample ID: DS-10-1675 Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-4 Matrix: Solid

Percent Solids: 99.3

5

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	66	U	66	18	mg/Kg		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
Нд	0.10		0.096	0.013	mg/Kg	<u>Å</u>	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	1
Percent Moisture	0.66		0.10	0.10	%			11/13/15 16:36	1

Client: URS Corporation Project/Site: Closed Loop

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

Client Sample ID: DS-02-1675 Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-5 Matrix: Solid

Percent Solids: 99.3

5

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	270	U	270	75	mg/Kg	₩	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
Percent Moisture	0.71		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

Client Sample ID: DUP B Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-6 Matrix: Solid

Percent Solids: 99.0

5

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	260	U	260	72	mg/Kg	₩	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>Å</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

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-207131/2-A Matrix: Solid Analysis Batch: 207392

	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

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

Analysis Batch: 207392

Prep Batch: 207131 LCS LCS Spike %Rec. Added Limits Analyte **Result Qualifier** Unit D %Rec 2.00 Arsenic 2.09 mg/L 105 50 - 150 Barium 2.00 1.93 J 50 - 150 mg/L 96 Cadmium 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 **Matrix: Solid** Analysis Batch: 207392

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.5	U	1.5	0.41	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Barium	20	U	20	0.41	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Cadmium	0.50	U	0.50	0.021	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Chromium	0.0812	J	1.0	0.075	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Lead	1.0	U	1.0	0.022	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Selenium	2.0	U	2.0	0.34	mg/Kg		11/17/15 11:10	11/18/15 09:28	1
Silver	1.0	U	1.0	0.063	ma/Ka		11/17/15 11:10	11/18/15 09:28	1

Lab Sample ID: LCS 240-207146/2-A **Matrix: Solid** Analysis Batch: 207392

Client Sample ID: Method Blank Prep Type: Total/NA Prep Batch: 207146

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Prep Type: Total/NA Prep Batch: 207146

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

11/18/2015

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

Prep Type: Total/NA

Prep Batch: 207131

Prep Type: Total/NA

Client Sample ID: Method Blank

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

Lab Sample ID: LB 240-207 Matrix: Solid Analysis Batch: 207392	033/1-B LB	LB					Client Samp	le ID: Methoc Prep Type Prep Batch: 2	l Blank : TCLP 207131
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 - Mercur	ry (CVAA)								
Lab Sample ID: MB 240-207 Matrix: Solid Analysis Batch: 207339	'134/2-А МВ	МВ					Client Samp	le ID: Method Prep Type: To Prep Batch: 3	l Blank otal/NA 207134

Analyte	Result	Qualifier		RL		NDL	Unit		D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0	0020	0.000	090	mg/L		_	11/17/15 14:00	11/18/15 08:24	1
Lab Sample ID: LCS 240-207134/3-	Α							Clie	ent	Sample ID:	Lab Control	Sample
Matrix: Solid											Prep Type: To	otal/NA
Analysis Batch: 207339											Prep Batch:	207134
			Spike		LCS	LCS	;				%Rec.	
Analyte			Added		Result	Qua	lifier	Unit		D %Rec	Limits	
Mercury			0.00500	0	0.00568			mg/L		114	80 - 120	
_ Lab Sample ID: LB 240-207033/1-C										Client Sam	ple ID: Method	Blank
Matrix: Solid											Prep Type	: TCLP
Analysis Batch: 207339											Prep Batch:	207134
-	LB	LB										
Analyte	Result	Qualifier		RL	r	NDL	Unit		D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0	020	0.000	090	mg/L		_	11/17/15 14:00	0 11/18/15 07:39	1

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 240-207 Matrix: Solid Analysis Batch: 207407	′ 152/1-А мв	мв					Client Sam	ole ID: Method Prep Type: To Prep Batch: 3	l Blank otal/NA 207152
Analyte	Result	Qualifier	F	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.10	U	0.	10 C	.014 mg/k	íg –	11/17/15 15:55	11/18/15 11:17	1
Lab Sample ID: LCS 240-20 Matrix: Solid Analysis Batch: 207407	7152/2-A					Clien	t Sample ID:	Lab Control S Prep Type: To Prep Batch: 3	Sample otal/NA 207152
-			Spike	LCS	LCS			%Rec.	
Analyte Hg			Added	Result 0.815	Qualifier	Unit mg/Kg	_ <mark>D %Rec</mark>	Limits 80 - 120	

Method: Moisture - Percent Moisture

Lab Sample ID: 240-57899- Matrix: Solid Analysis Batch: 206747	1 DU					Cli	ent Sample ID: DS-01 Prep Type: To	I-1675 tal/NA
-	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Solids	99		 99		%		0.3	20
Percent Moisture	0.89		0.61	F3	%		38	20

|1 |2 |3

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					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57899-1	DS-01-1675	TCLP	Solid	3010A	207033
240-57899-2	DS-01-1655	TCLP	Solid	3010A	207033
LB 240-207033/1-B	Method Blank	TCLP	Solid	3010A	207033
LCS 240-207131/3-A	Lab Control Sample	Total/NA	Solid	3010A	
MB 240-207131/2-A	Method Blank	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: 207	339				
- Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch

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

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	Ргер Туре	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	

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

> |1 |2 |3

Batch

Number

Prepared

or Analyzed

207033 11/16/15 17:10 SMH

207131 11/17/15 10:30 DEE

207392 11/18/15 10:24 KLC

207033 11/16/15 17:10 SMH

207131 11/17/15 10:30 DEE

207392 11/18/15 10:58 KLC

207033 11/16/15 17:10 SMH

207134 11/17/15 14:00 DEE

207339 11/18/15 08:41 WAL

206747 11/13/15 16:36 BLW

Analyst

Lab

TAL CAN

TAL CAN

TAL CAN

TAL CAN

TAL CAN

TAL CAN

TAL CAN

TAL CAN

TAL CAN

TAL CAN

Dilution

Factor

1

5

1

1

Run

Prep Type

TCLP

TCLP

TCLP

TCLP

TCLP

TCLP

TCLP

TCLP

TCLP

Total/NA

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

Batch

Туре

Leach

Prep

Leach

Prep

Leach

Prep

Analysis

Analysis

Analysis

Analysis

Batch

1311

3010A

6010C

1311

3010A

6010C

1311

7470A

7470A

Moisture

Method

Lab Sample ID: 240-57899-1 Matrix: Solid

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: Solic

Percent Solids: 99.1

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 11:14	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

Client Sample ID: DS-01-1655 Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-2

Lab Sample ID: 240-57899-2

Matrix: Solid

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Γ	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			207146	11/17/15 11:10	DEE	TAL CAN

TestAmerica Canton

Percent Solids: 99.2

Matrix: Solid

Client Sam	ple ID: DS	-01-1655					Lab	Sample I): 240-57899-2
Date Collecte	d: 11/12/15	00:00							Matrix: Solid
Date Receive	d: 11/13/15 ′	14:34						Per	cent Solids: 99.2
	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	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 Sam	ple ID: DS	-02-1655					Lab	Sample I): 240-57899-3
Date Collecte	d: 11/12/15 (00:00							Matrix: Solid
Date Receive	d: 11/13/15	14:34							
_	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	Moisture		1	206747	11/13/15 16:36	BLW	TAL CAN	
Client Sam	ple ID: DS	-02-1655					Lab	Sample I): 240-57899-3
Date Collecte	ed: 11/12/15	00:00							Matrix: Solid
Date Receive	d: 11/13/15 ′	14:34						Per	cent Solids: 98.8
_	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	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		20	207392	11/18/15 10:41	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 11:54	WAL	TAL CAN	
Client Sam	ple ID: DS	-10-1675					Lab	Sample II): 240-57899-4
Date Collecte Date Receive	ed: 11/12/15 ed: 11/13/15	00:00 14:34							Matrix: Solid
	Batch	Batch		Dilution	Batch	Prenared			

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	206747	11/13/15 16:36	BLW	TAL CAN

Client Sample ID: DS-10-1675 Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

-	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 Sample ID: 240-57899-4

Matrix: Solid

Percent Solids: 99.3

Batch

Number

Batch

Number

Prepared

or Analyzed

Prepared

or Analyzed

207146 11/17/15 11:10 DEE

207392 11/18/15 11:18 KLC

207152 11/17/15 15:55 DEE

207407 11/18/15 11:59 WAL

206747 11/13/15 16:36 BLW

Analyst

Analyst

Lab

Lab

TAL CAN

TAL CAN

TAL CAN

TAL CAN

TAL CAN

Dilution

Factor

Dilution

Factor

200

1

1

Run

Run

Prep Type

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Client Sample ID: DS-02-1675 Date Collected: 11/12/15 00:00

Batch

Type

Batch

Type

Prep

Prep

Analysis

Analysis

Client Sample ID: DS-02-1675

Date Collected: 11/12/15 00:00

Date Received: 11/13/15 14:34

Analysis

Batch

Method

Moisture

Batch

Method

3050B

6010C

7471B

7471B

Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-5 Matrix: Solid

Lab Sample ID: 240-57899-5 Matrix: Solid Percent Solids: 99.3

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Client Sample ID: DUP B Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-6 Matrix: Solid

	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	Moisture		1	206747	11/13/15 16:36	BLW	TAL CAN	

Client Sample ID: DUP B Date Collected: 11/12/15 00:00 Date Received: 11/13/15 14:34

Lab Sample ID: 240-57899-6 Matrix: Solid Percent Solids: 99.0

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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

9

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EPA Region

Certification ID

01144CA

PH-0590

200004

E-10336

98016

L2315

OH001

10975

CL0024

68-00340

460175

999518190

C971

210

4062

039-999-348

OH-000482008A

T104704517-15-5

P330-13-00319

58

2927

Client: URS Corporation Project/Site: Closed Loop

Authority

California

California

Illinois

Kansas

L-A-B

Minnesota

New Jersey

New York

Ohio VAP

Pennsylvania

Oregon

Texas

USDA

Virginia

Washington

Wisconsin

West Virginia DEP

Nevada

Connecticut

Kentucky (UST)

Kentucky (WW)

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

State Program

State Program

State Program

State Program

State Program

State Program

State Program

State Program

State Program

DoD ELAP

NELAP

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Federal

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Program

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Expiration Date

06-30-14 *

04-30-17

12-31-15

07-31-16

01-31-16 *

02-26-16

12-31-15

07-18-16

12-31-15

07-31-16

11-30-15 *

03-31-16

09-14-17

02-23-16

08-31-16

08-31-16

11-26-16

09-14-16

01-12-16

12-31-15

08-31-16

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8
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12
13

* Certification renewal pending - certification considered valid.



TestAmerica Laboratories, Inc.

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13

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS

Chain of Custody Record

0.3/co.4 TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

	TAL-4142 (0408)																											
	Client AECOM			Projec	t Mani N	ager 1	w	e l	f										Date	11/	13			Ch	ain of t	Custody	Number	
	Address 1375 EUCLID AVE		Suite 60	0 Teleph 2-0	none N 16	lumbe 62	er (Area - L	· Coo	1e)/Fa - 4 C	1x Nu 9 O	mber								Lab I	<i>Vumbe</i>	<i>"</i> 4	0		Pá	age _		_ of	
	City Cleveland OH		Code 4415	Site C	ontact cff	Be	r k		Lab W	1 <i>Con</i>	r <i>ik</i>	Ĺ	. .	j.	104		י צו –	Ana. more	lysis (spac	Attac e is n	h list beede	if ed)		-		.		
	Project Name and Location (State)			Carrie		-B	imber	0	d	RI	バ	M	C		0.0										ļ	Snacial	Instruction	6/
	Contract/Purchase Order/Quote No.					M	atrix			1	Cont Pres	aine erva	ers &	;	8 4	8									C	Conditio	ns of Rece	ipt
	Sample I.D. No. and Description (Containers for each sample may be combined on one	e line)	Date	Time	Air	Aqueous	Sed. Soil	50 kc	Unpres.	H2SO4	HNO3	HCI	NaOH	NaOH	WV:		2											
	DS-01-1675 N		11/12					V	1						V	- 1	1				-							—
	DS-01-1635 1655	-						-	1						v	1 2	1											
	DS-02-1655							1	r						i	~									-			
Pag	1) 5 -10 -1675							2	1						v	/												
je 2	DS-02-1675								1						2	1				-								
8 of	DUP B							~	1						6													
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						·								-	-				+	+	\rightarrow							
	Possible Hazard Identification					ample	Dispos	al.	<u> </u>			1			I,													
	Non-Hazard Flammable Skin Irrita	nt	🗌 Poison B 🧎	- Unknow	$n \mid \Box$	Rei	um To	Clien	nt 🗙		Zispos	sal B	ly Lat	> [Arc	chive	For_		_ <i>Moi</i>	nths	(A fea longe	e may er than	be as 1 mo	sesse nth)	d if sai	nples are	retained	
	Ium Around Time Hequired	14 0	ave 🗌 21 Day		thar					^{QC}	Requ	lirem	nents	(Spec	cify)													
	1. Relinquished BV	14 Da		Date	<i></i>		Timo			1 5	Pocoli	OTT		~		7												
	film perly			1//	12		11:3	0		1.1.	10001	Л	<u>S</u>	7	0	6	·							1	i - 1 2	5-15	132	X
	2. Relindfished By Re (ab -5	ļ	~~	Date	13-,	バ	Time 14	4	4	2. F.	Receiu		Sy 1	~		ν	1								Date	3/15		<u>-</u> リ
11/18	3. Relinquished By			Date			Time			3. F.	Recein	red p	by -	•	/	/			;						Date		Time	+-
3/20	Comments						L			I																	L	
1 5	DISTRIBUTION: WHITE - Returned to Client with Re	port:	CANARY - Stave	vith the Sor	nnle	PINIE	- Field	Con	~																			. <u> </u>
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Test America Canton Sample Receipt Form/Narrative	$\frac{1}{1}$
Canton Facility	Login # :1 0-124
Client AECOM, Site Name i	Cooler unpacked by:
Cooler Received on $11/13/15$ Opened on $11/13/1$	5 (hur) 3
FedEx: 1 st Grd Exp UPS FAS Stetson Client Drop Off PestAmeric	ca Courser Other
TestAmerica Cooler #Foam Box (Client Cooler) Box	Other 4
Packing material used: Bubble Wrap Foam Plastic Bag None	Other 5
1. Cooler temperature upon receipt	
IR GUN# 53 (CF +0.1 °C) Observed Cooler Temp. $G. \geq$ °C Corrected	ed Cooler Temp. 🖸 , G
IR GUN# 48 (CF -0.3 °C) Observed Cooler Temp. °C Correcte	ed Cooler TempbC See Multiple7
IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C Correcte	ed Cooler Form
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity	Yes (No) 8
-Were custody seals on the outside of the cooler(s) signed & dated?	Yes No NA 9
3. Shippers' packing slip attached to the cooler(s)?	Yes (NO)
4. Did custody papers accompany the sample(s)?	Ver No
 6. Was/were the person(s) who collected the samples clearly identified on the Clearly i	OC? Yes No
7. Did all bottles arrive in good condition (Unbroken)?	Ver No
8. Could all bottle labels be reconciled with the COC?	Cler No
10. Sufficient quantity received to perform indicated analyses?	Yes No 13
11. Were sample(s) at the correct pH upon receipt?	Yes No NA H Strip Lot# <u>HC554612</u>
12. Were VOAs on the COC? 13. Were air hubbles > 6 mm in any VOA vials?	Yes No'
14. Was a trip blank present in the cooler(s)? Trip Blank Lot #	Yes No
Contacted PM Date by vi	a Verbal Voice Mail Other
14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	Samples processed by:
Samples It& have I'D's which	start with SN nother
than "DS", which is how they	are listed on the
15. SAMPLE CONDITION	
Sample(s) were received after the recomme	ended holding time had expired.
Sample(s) were received with bubb	le >6 mm in diameter. (Notify PM)
16. SAMPLE PRESERVATION	
Sample(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\WI-NC-099V-102115 Cooler Receipt Form.doc djl



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

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.

LINKS **Review your project** results through Total Access Have a Question? Ask-The Expert Visit us at: www.testamericainc.com

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3

Metals

Metals		
Qualifier	Qualifier Description	
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	5
U	Indicates the analyte was analyzed for but not detected.	J
В	Compound was found in the blank and sample.	
Glossar		

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	4
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
NC	Not Calculated	
ND	Not detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	
QC	Quality Control	
RER	Relative error ratio	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	

TEQ Toxicity Equivalent Quotient (Dioxin)

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

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.

Method Summary

Client: URS Corporation Project/Site: Closed Loop

Method 6010C

7470A

7471B

Moisture

TAL CAN

EPA

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	8
	9

TestAmerica Canton

Method Description	Protocol	Laboratory
Metals (ICP)	SW846	TAL CAN
Mercury (CVAA)	SW846	TAL CAN
Mercury (CVAA)	SW846	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

Percent Moisture

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

11/17/2015

Sample Summary

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Lab Sample ID	Client Sample ID	Matrix	Collected Received	1
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 5
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 8
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 9
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 1 ()
240-57769-15	DS-11-1655	Solid	11/09/15 00:00 11/11/15 10	:00

Client Sample ID: DS-11-1675

Lab Sample ID: 240-57769-1

Lab Sample ID: 240-57769-2

Lab Sample ID: 240-57769-3

Lab Sample ID: 240-57769-4

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

Analyte **Result Qualifier** RL MDL Unit Dil Fac D Method Prep Type Barium 230 J 1400 28 mg/Kg 100 🔅 6010C Total/NA 100 🌣 Cadmium 16 J 34 1.4 mg/Kg 6010C Total/NA Chromium 28 J 68 5.1 mg/Kg 100 🌣 6010C Total/NA Lead 2900 B 68 100 🌣 Total/NA 1.5 mg/Kg 6010C Silver 8.7 J 68 4.3 mg/Kg 100 🌣 6010C Total/NA Arsenic 0.0046 JB 0.50 0.0029 mg/L 6010C TCLP 1 Barium 7.5 JB 10 0.0010 mg/L 1 6010C TCLP 0.012 J 0.00014 mg/L Cadmium 0.10 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 0.000090 mg/L 7470A TCLP 0.00017 J 0.0020 1 0.093 J 0.096 0.013 mg/Kg 1 🌣 7471B Total/NA Hg

Client Sample ID: DS-13-1675

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

Analyte	Result Qualifier	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.

TestAmerica Canton

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Client Sample ID: DS-09-1675 (Continued)

Lab Sample ID: 240-57769-4

Lab Sample ID: 240-57769-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	23	J	42	1.7	mg/Kg	100	<u>₩</u>	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

Client Sample ID: DS-10-1655

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

Client Sample ID: DS-12-1655

Lab Sample ID: 240-57769-6

Lab Sample ID: 240-57769-7

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	Å.	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

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.

Client Sample ID: DS-08-1655 (Continued)

Lab Sample ID: 240-57769-7

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

Lab Sample ID: 240-57769-12

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

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This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Lab Sample ID: 240-57769-9

Lab Sample ID: 240-57769-10

Client Sample ID: DS-09-1655 (Continued)

Lab Sample ID: 240-57769-12

Lab Sample ID: 240-57769-13

Lab Sample ID: 240-57769-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	18		15	1.1	mg/Kg	20	Ţ	6010C	Total/NA
Lead	2500	В	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

Client Sample ID: DUP A

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

Client Sample ID: DS-08-1675

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

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	Þ	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

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Client Sample ID: DS-11-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Lab Sample ID: 240-57769-1 Matrix: Solid

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	(CVAA) - 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

Lab Sample ID: 240-57769-1 Matrix: Solid Percent Solids: 97.5

5

8 9

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	26	U	26	7.2	mg/Kg	 ₽	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
Нд	0.015	J	0.089	0.012	mg/Kg	<u>¢</u>	11/12/15 15:45	11/13/15 14:32	1

Result Qualifier

0.0046 JB

Client: URS Corporation Project/Site: Closed Loop

Analyte

Arsenic

Dil Fac

1

Client Sample ID: DS-03-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Lab Sample ID: 240-57769-2 Matrix: Solid

11/13/15 10:23 11/16/15 13:10

Analyzed

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
Γ									
Method: 7470A - Mercury (C	VAA) - TCLP								
Method: 7470A - Mercury (C Analyte	VAA) - TCLP Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 7470A - Mercury (C Analyte Mercury	VAA) - TCLP Result 0.00017	Qualifier J	RL 0.0020	MDL	Unit mg/L	D	Prepared 11/13/15 14:00	Analyzed 11/16/15 16:24	Dil Fac
Method: 7470A - Mercury (C Analyte Mercury General Chemistry	VAA) - TCLP Result 0.00017	Qualifier J	RL 0.0020	MDL 0.000090	Unit mg/L	<u>D</u>	Prepared 11/13/15 14:00	Analyzed 11/16/15 16:24	Dil Fac
Method: 7470A - Mercury (C Analyte Mercury General Chemistry Analyte	VAA) - TCLP Result 0.00017 Result	Qualifier J Qualifier	RL 0.0020	MDL 0.000090 MDL	Unit mg/L Unit	<u>D</u> 	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:24 Analyzed	Dil Fac
Method: 7470A - Mercury (C Analyte Mercury General Chemistry Analyte Percent Solids	VAA) - TCLP Result 0.00017 	Qualifier J Qualifier	RL 0.0020 RL 0.10	MDL 0.000090 MDL 0.10	Unit mg/L Unit %	D	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:24 Analyzed 11/12/15 15:23	Dil Fac 1 Dil Fac 1

RL

0.50

MDL Unit

0.0029 mg/L

D

Prepared

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

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8 9

TestAmerica Job ID: 240-57769-1

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	100	U	100	28	mg/Kg	₽	11/12/15 10:45	11/13/15 15:38	100
Barium	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
Lead	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
Method: 7471B - Mercury (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Нд	0.093	J	0.096	0.013	mg/Kg	<u>\$</u>	11/12/15 15:45	11/13/15 14:33	1
Result Qualifier

Client: URS Corporation Project/Site: Closed Loop

Analyte

Dil Fac

Client Sample ID: DS-13-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Lab Sample ID: 240-57769-3 Matrix: Solid

Analyzed

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 Analyte	(CVAA) - TCLP Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 7470A - Mercury Analyte Mercury	(CVAA) - TCLP Result 0.00011	Qualifier J	RL 0.0020	MDL 0.000090	Unit mg/L	D	Prepared 11/13/15 14:00	Analyzed 11/16/15 16:27	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry	(CVAA) - TCLP Result 0.00011	Qualifier J	RL 0.0020	MDL 0.000090	Unit mg/L	<u>D</u>	Prepared 11/13/15 14:00	Analyzed 11/16/15 16:27	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte	(CVAA) - TCLP Result 0.00011 Result	Qualifier J Qualifier	RL 0.0020	MDL 0.000090 MDL	Unit mg/L Unit	D	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:27 Analyzed	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Percent Solids	(CVAA) - TCLP Result 0.00011 Result 98	Qualifier J Qualifier	RL 0.0020 - RL 0.10 -	MDL 0.000090 MDL 0.10	Unit mg/L Unit	D	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:27 Analyzed 11/12/15 15:23	Dil Fac
Method: 7470A - Mercury Analyte Mercury General Chemistry Analyte Percent Solids Percent Moisture	(CVAA) - TCLP Result 0.00011 Result 98 1.8	Qualifier J Qualifier	RL 0.0020 RL 0.10	MDL 0.000090 MDL 0.10 0.10	Unit mg/L Unit %	D	Prepared 11/13/15 14:00 Prepared	Analyzed 11/16/15 16:27 Analyzed 11/12/15 15:23 11/12/15 15:23	Dil Fac 1 Dil Fac 1 1

RL

MDL Unit

D

Prepared

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

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Client Sample ID: DS-13-1675 Date Collected: 11/09/15 00:00

Date	Received:	11/11/15	10:00

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		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 (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.46		0.12	0.017	mg/Kg	¢	11/12/15 15:45	11/13/15 14:35	1

Client: URS Corporation Project/Site: Closed Loop 8

Client Sample ID: DS-09-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Lab Sample ID: 240-57769-4 Matrix: Solid

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 - Mercurv (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 15:49	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

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

Method: 6010C - Metals (ICP)		o				_			
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	120	U	120	34	mg/Kg	- X	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	J	83	6.2	mg/Kg	¢	11/12/15 10:45	11/13/15 15:51	100
Lead	11000	В	83	1.8	mg/Kg	₽	11/12/15 10:45	11/13/15 15:51	100
Selenium	170	U	170	28	mg/Kg	₽	11/12/15 10:45	11/13/15 15:51	100
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
Hg	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

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Lab Sample ID: 240-57769-5

Matrix: Solid

Client Sample ID: DS-10-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - T	CLP								
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 (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 15:51	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

11/17/2015

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

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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
Percent Solids: 99.0

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Arsenic	22	U	22	6.1	mg/Kg	— 	11/12/15 10:45	11/13/15 14:41	20	
Barium	180	J	300	6.1	mg/Kg	₽	11/12/15 10:45	11/13/15 14:41	20	
Cadmium	4.2	J	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	В	15	0.33	mg/Kg	¢	11/12/15 10:45	11/13/15 14:41	20	
Selenium	30	U	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 (CVAA Analyte) Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Hg	0.098		0.090	0.013	mg/Kg	<u>\$</u>	11/12/15 15:45	11/13/15 14:38	1	

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DS-12-1655 Date Collected: 11/09/15 00:00

Method: 6010C - Metals (ICP) - TCLP

Date	Received:	11/11/15 10:0	0

Lab	Sample	ID:	240-577	69-6
			Matrix:	Solid

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

Client: URS Corporation Project/Site: Closed Loop

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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
Percent Solids: 99.3

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	26	U	26	7.0	mg/Kg		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
Selenium	34	U	34	5.8	mg/Kg	¢	11/12/15 10:45	11/13/15 14:45	20
Silver	5.8	J	17	1.1	mg/Kg	¢	11/12/15 10:45	11/13/15 14:45	20
Method: 7471B - Mercury (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.092	J	0.10	0.014	mg/Kg	<u></u>	11/12/15 15:45	11/13/15 14:40	1

RL

0.50

0.10

0.50

0.50

0.25

0.50

10

MDL Unit

0.0029 mg/L

0.0010 mg/L

0.00014 mg/L

0.00055 mg/L

0.0019 mg/L

0.0040 mg/L

0.00092 mg/L

D

Prepared

Result Qualifier

1.8 J B

0.0091 JB

0.038 J

4.7

0.012 JB

0.25 U

0.50 U

Client: URS Corporation Project/Site: Closed Loop

Analyte

Arsenic

Barium

Lead

Silver

Selenium

Cadmium

Chromium

8

Dil Fac

1

1

1

1

1

1

1

1

1

1

Dil Fac

Dil Fac

Client Sample ID: DS-08-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Method: 6010C - Metals (ICP) - TCLP

Method: 7470A - Mercury (CVAA) - TCLP

Lab Sample ID: 240-57769-7 Matrix: Solid

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

11/13/15 10:23 11/16/15 13:32

Analyzed

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed
Mercury	0.0020	U	0.0020	0.000090	mg/L		11/13/15 14:00	11/16/15 15:47
General Chemistry								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed
Percent Solids	98		0.10	0.10	%			11/12/15 15:23
Percent Moisture	1.6		0.10	0.10	%			11/12/15 15:23
-								

Client: URS Corporation Project/Site: Closed Loop

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

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8 9

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	71	<u> </u>	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 (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.19		0.11	0.015	mg/Kg	<u>Å</u>	11/12/15 15:45	11/13/15 14:44	1

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Client	Sample	ID:	DS-1	4-1	675

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample	ID:	240-577	'69-8
		Matrix:	Solid

Percent Solids: 98.0

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	150	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	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 (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.25		0.11	0.015	mg/Kg	<u>Å</u>	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

Client: URS Corporation Project/Site: Closed Loop

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

Method: 6010C - Metals (ICP)									
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
Нд	0.30		0.090	0.013	mg/Kg	- \	11/12/15 15:45	11/13/15 14:47	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

Client: URS Corporation Project/Site: Closed Loop

Lab Sample ID: 240-57769-10 Matrix: Solid

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Client Sample ID: DS-07-1655

Percent	Solids:	99.6

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8

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	26	U	26	7.2	mg/Kg	¢	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	<u> </u>	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

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 Percent Solids: 99.6

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8 9

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	260	U	260	71	mg/Kg	\ ₽	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	J	170	11	mg/Kg	¢	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	<u> </u>	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

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 Percent Solids: 99.0

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8 9

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
Нд	0.052	J	0.10	0.014	mg/Kg	- \\\\	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
Percent Moisture	0.96		0.10	0.10	%			11/12/15 15:23	1

Client: URS Corporation Project/Site: Closed Loop

Client Sample ID: DUP A Date Collected: 11/09/15 00:00

Date R 44/44/45

Lab Sample ID: 240-57769-13 Matrix: Solid t Solide

8

Date Received: 11/11/15 10:00	e Received: 11/11/15 10:00									
Method: 6010C - Metals (ICP)	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Arsenic	140		140	38	ma/Ka	— -	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	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	J	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	
Нд	0.17		0.096	0.013	mg/Kg	<u>Å</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	

Client: URS Corporation Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

Client Sample ID: DS-08-1675 Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-14 Matrix: Solid Percent Solids: 99.2

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	64	U	64	18	mg/Kg	- X	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
Нд	0.10	J	0.11	0.015	mg/Kg	<u> </u>	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

Client: URS Corporation Project/Site: Closed Loop

Lab Sample ID: 240-57769-15 Matrix: Solid

Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Client Sample ID: DS-11-1655

Percent	Solids	: 99.1

5

8 9

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	28	U	28	7.7	mg/Kg	₩ \[\]	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	<mark>9</mark> 8		19	1.4	mg/Kg	¢	11/12/15 10:45	11/13/15 15:34	20
Lead	2300	В	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 (CV	(AA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.14		0.096	0.013	mg/Kg	<u>Å</u>	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

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-206494/1-A

Matrix: Solid Analysis Batch: 206868

	MB	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 Matrix: Solid

Analysis Batch: 206868

Prep Batch: 206494 LCS LCS Spike %Rec. Added Limits Analyte **Result Qualifier** Unit D %Rec 200 Arsenic 186 mg/Kg 93 80 - 120 Barium 200 185 93 80 - 120 mg/Kg Cadmium 5.00 4.67 mg/Kg 93 80 - 120 Chromium 20.0 18.8 mg/Kg 94 80 - 120 Lead 50.0 45.6 mg/Kg 91 80 - 120 Selenium 200 185 mg/Kg 92 80 - 120 Silver 5.00 4.83 97 80 - 120 mg/Kg

Lab Sample ID: MB 240-206678/2-A Matrix: Solid

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

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

Client Sample ID: Method Blank

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 Job ID: 240-57769-1

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 206494

Prep Type: Total/NA

9

RL

0.50

0.10

0.50

0.50

0.25

0.50

10

MDL Unit

0.0029 mg/L

0.0010 mg/L

0.00014 mg/L

0.00055 mg/L

0.0019 mg/L

0.0040 mg/L

0.00092 mg/L

D

Prepared

Analysis Batch: 206959

Matrix: Solid

Analyte

Arsenic

Barium

Lead

Silver

Cadmium

Chromium

Selenium

Client Sample ID: Method Blank

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

11/13/15 10:23 11/16/15 11:26

Analyzed

Prep Type: TCLP

Prep Batch: 206678

9

			1 1	
			1 1	
			1 1	

Dil Fac

1

Method: 7470A - Mercury (CVAA)

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

LB LB

0.00462 J

0.00325 J

0.00157 J

0.10 U

0.50 U

0.25 U

0.50 U

Result Qualifier

Lab Sample ID: LB 240-206575/1-B

Lab Sample ID: MB 240-206680/2-A Matrix: Solid Analysis Batch: 207017	МВ	мв							Clie	ent Samp	ble ID: Method Prep Type: To Prep Batch:	l Blank otal/NA 206680
Analyte	Result	Qualifier		RL	N	IDL	Unit) P	repared	Analyzed	Dil Fac
Mercury	0.0020	U	0	.0020	0.000	090	mg/L		11/1	3/15 14:00	11/16/15 15:26	1
Lab Sample ID: LCS 240-206680/3-/ Matrix: Solid Analysis Batch: 207017	4		Spike Added		LCS Result	LCS Qual	ifier	Clier	nt Sai	mple ID:	Lab Control S Prep Type: To Prep Batch: %Rec. Limits	Sample otal/NA 206680
Mercury			0.00500	(0.00507			mg/L		101	80 - 120	
Lab Sample ID: LB 240-206575/1-C Matrix: Solid Analysis Batch: 207017	LB	LB							Clie	ent Samp	ole ID: Method Prep Type Prep Batch:	l Blank : TCLP 206680
Analyte	Result	Qualifier		RL	N	IDL	Unit		о р	repared	Analyzed	Dil Fac
Mercury	0.0020	U	0	.0020	0.000	090	mg/L		11/1	3/15 14:00	11/16/15 15:24	1

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 240-20651 Matrix: Solid Analysis Batch: 206814	1/1-A	MR							Clie	ent Samı	ole ID: Method Prep Type: To Prep Batch: 3	l Blank otal/NA 206511
Analyte	Result	Qualifier		RL	I	MDL	Unit	D	P	repared	Analyzed	Dil Fac
Hg	0.10	U		0.10	0	.014	mg/Kg		11/1	2/15 15:45	11/13/15 11:23	1
Lab Sample ID: LCS 240-2065 Matrix: Solid Analysis Batch: 206814	11/2-A							Client	Sar	nple ID:	Lab Control S Prep Type: To Prep Batch: 3	Sample otal/NA 206511
			Spike		LCS	LCS					%Rec.	
Analyte Hg			Added 0.833		Result 0.850	Qual	lifier	Unit mg/Kg		%Rec	Limits 80 - 120	

Method: Moisture - Percent Moisture

Lab Sample ID: 240-57769- Matrix: Solid Analysis Batch: 206558	5 DU					Client S	ample ID: DS-10 Prep Type: Tot	-1655 al/NA
	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- Matrix: Solid Analysis Batch: 206558	14 DU					Client S	ample ID: DS-08 Prep Type: Tot	-1675 al/NA
	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

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	
0.40 57700 0					

240-37709-3	D3-13-1075	TOLAI/INA	Solia	/4/ ID	
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	Ргер Туре	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	

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	Ргер Туре	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	39-4 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	-57769-12 DS-09-1655		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	Ргер Туре	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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Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Matrix

Solid

Solid

Solid

Solid

Solid

Solid

Solid

Solid

Solid

Solid

Solid

Solid

Metals (Continued)

Lab Sample ID

240-57769-6

240-57769-7

240-57769-8

240-57769-9

240-57769-10

240-57769-11

240-57769-12

240-57769-13

240-57769-14

240-57769-15

Analysis Batch: 206868 (Continued)

Client Sample ID

DS-12-1655

DS-08-1655

DS-14-1675

DS-12-1675

DS-07-1655

DS-04-1675

DS-09-1655

DS-08-1675

DS-11-1655

Method Blank

Lab Control Sample

DUP A

Method

6010C

6010C

6010C

6010C

6010C

6010C

6010C

6010C

6010C

6010C

6010C

6010C

Prep Batch

206494

206494

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206494

206494

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206494

206494

206494

206494

9 10

Analysis Batch: 206959

LCS 240-206494/2-A

MB 240-206494/1-A

Lab Sample ID Client Sample ID		Prep Type		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	

TestAmerica Job ID: 240-57769-1

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	

Lab Sample ID: 240-57769-1 Matrix: Solid

Client Sample ID: DS-11-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 13:06	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 14:17	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 16:22	WAL	TAL CAN
Total/NA	Analysis	Moisture		1	206558	11/12/15 15:23	GNR	TAL CAN

Client Sample ID: DS-11-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample	ID: 240-57769-1
	March O all's

Matrix: Solid Percent Solids: 97.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared 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
Total/NA	Analysis	7471B		1	206814	11/13/15 14:32	DSH	TAL CAN

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

Lab Sample ID: 240-57769-2

	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	Туре	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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	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

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Percent Solids: 99.7

5 6

Matrix: Solid

Date Receive	d: 11/11/15 1	0:00						Percent So	lids: 99.7
	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Γ	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	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		50	206868	11/13/15 14:33	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 14:35	DSH	TAL CAN

Client Sample ID: DS-09-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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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TestAmerica Job ID: 240-57769-1

Lab Sample ID: 240-57769-2

Lab Sample ID: 240-57769-3

Lab Sample ID: 240-57769-3

Lab Sample ID: 240-57769-4

Matrix: Solid

Matrix: Solid

Matrix: Solid

Matrix: Solid

Percent Solids: 98.2

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 Percent Solids: 98.4 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 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 206814 11/13/15 14:36 DSH TAL CAN 1

Client Sample ID: DS-10-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab S	Sample	ID: 240-57769	-5
		Matrix: Sol	id

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-5 Matrix: Solid Percent Solids: 99.0

Lab Sample ID: 240-57769-6

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	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 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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Туре	Туре	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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Matrix: Solid

Matrix: Solid

Matrix: Solid

Percent Solids: 99.3

Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
TCLP	Analysis	7470A		1	207017	11/16/15 15:53	WAL	TAL CAN
Total/NA	Analysis	Moisture		1	206558	11/12/15 15:23	GNR	TAL CAN

Client Sample ID: DS-12-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	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 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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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 13:32	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	Analysis	7470A		1	207017	11/16/15 15:47	WAL	TAL CAN
Total/NA	Analysis	Moisture		1	206558	11/12/15 15:23	GNR	TAL CAN

Client Sample ID: DS-08-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	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		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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	206558	11/12/15 15:23	GNR	TAL CAN

Matrix: Solid

Lab Sample ID: 240-57769-6

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Lab Sample ID: 240-57769-7 Matrix: Solid

Lab Sample ID: 240-57769-7 Matrix: Solid Percent Solids: 98.4

Lab Sample ID: 240-57769-8

				Lab Chr	onicle				
Client: URS C	orporation						Tes	tAmerica Jol	o ID: 240-57769-1
liont Sam		-14-1675					Lah	Samplo IF	. 240-57769-8
Date Collecte	d. 11/00/15	-14-1075					Lab		Matrix: Solid
Date Receive	d: 11/11/15 1	10:00						Per	cent Solids: 98.0
_		5 / 1		B 11 (1					
Bron Type	Batch	Batch	Pup	Dilution	Batch	Prepared	Analyst	Lab	
Total/NA	Prep	3050B	Kuii		206494	11/12/15 10:45	DEF		
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 Sam	nle ID [.] DS	-12-1675					l ah	Sample IF)· 240-57769-9
Date Collecte	d: 11/09/15	00:00					Lab		Matrix: Solid
Date Receive	d: 11/11/15 1	10:00							
_				B H <i>4</i>	5 / 1	<u> </u>			
	Batch	Batch	Dum	Dilution	Batch	Prepared	Analyst	Lah	
	Analysis	Moisture	Kuli		206558	11/12/15 15:23			
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Client Som		10 1675					Lab	Somalo IF	240 57760 0
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Jate Receive	d: 11/11/15 1	10:00						Per	cent Solids: 98.4
Jate Receive	d: 11/11/15 1 Batch	Batch		Dilution	Batch	Prepared		Per	cent Solids: 98.4
Prep Type	d: 11/11/15 1 Batch Type	I0:00 Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab	cent Solids: 98.4
Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep	Batch Method 3050B	Run	Dilution Factor	Batch Number 206494	Prepared or Analyzed 11/12/15 10:45	Analyst DEE	Lab TAL CAN	cent Solids: 98.4
Date Receiver Prep Type Total/NA Total/NA	d: 11/11/15 1 Batch Type Prep Analysis	Batch Method 3050B 6010C	Run	Dilution Factor 250	Batch Number 206494 206868	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03	Analyst DEE KLC	Lab TAL CAN TAL CAN	cent Solids: 98.4
Prep Type Total/NA Total/NA Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep	Batch Method 3050B 6010C 7471B	Run	Dilution Factor 250	Batch Number 206494 206868 206511	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45	Analyst DEE KLC DEE	Lab TAL CAN TAL CAN TAL CAN	cent Solids: 98.4
Prep Type Total/NA Total/NA Total/NA Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis	Batch Method 3050B 6010C 7471B 7471B	Run	Dilution Factor 250	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN	cent Solids: 98.4
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis	Batch Method 3050B 6010C 7471B 7471B	Run	Dilution Factor 250	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN	240.57769-10
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis	Batch Method 3050B 6010C 7471B 7471B 74700	Run	Dilution Factor 250	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN	240-57769-10
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1	Batch Method 3050B 6010C 7471B 7471B -07-1655 00:00 10:00	Run	Dilution Factor 250	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Sample ID:	cent Solids: 98.4 240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receiver	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1	I0:00 Batch Method 3050B 6010C 7471B 7471B 7471B -07-1655 00:00 10:00	Run	Dilution Factor 250 1	Batch Number 206494 206868 206511 206814	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47	Analyst DEE KLC DEE DSH	Per Tal Can Tal Can Tal Can Tal Can Tal Can Sample ID:	cent Solids: 98.4 240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Turno	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 10:00 Batch Mathod	Run	Dilution Factor 250 1 Dilution	Batch Number 206494 206868 206511 206814 Batch	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed	Analyst DEE KLC DEE DSH Lab S	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Sample ID:	cent Solids: 98.4 240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receiver Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis	Batch Method 3050B 6010C 7471B 7471B 7471B 07-1655 00:00 Batch Method Moisture	Run	Dilution Factor 250 1 Dilution Factor	Batch Number 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Lab TAL CAN	cent Solids: 98.4 240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Received Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 Batch Method Moisture	Run	Dilution Factor 250 1 Dilution Factor 1	Batch Number 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Lab TAL CAN	240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis	Batch Method 3050B 6010C 7471B 7471B 7471B 07-1655 00:00 Batch Method Moisture	Run	Dilution Factor 250 1 Dilution Factor 1	Batch 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Cample ID:	240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA Client Sam Date Collecte	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 Batch Type Analysis ple ID: DS d: 11/09/15 0	Batch Method 3050B 6010C 7471B 7471B -07-1655 00:00 Batch Method -07-1655 00:00 Batch Method Moisture	Run	Dilution Factor 250 1 Dilution Factor 1	Batch Number 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Cample ID: Cample ID:	240-57769-10 Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Prep Type Total/NA Client Sam Date Collecte Date Collecte Date Collecte Date Collecte Date Collecte Date Collecte	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 Batch Method Moisture -07-1655 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00	Run	Dilution Factor 250 1 Dilution Factor 1	Batch Number 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Lab TAL CAN Sample ID: Per	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Prep Type Total/NA Client Sam Date Collecte Date Collecte Collecte Collecte Collecte Collecte Client Sam	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 Batch Method Moisture -07-1655 00:00 00:00 00:00 00:00 00:00 00:00 00:00	Run	Dilution Factor 250 1 Dilution Factor 1	Batch 206494 206868 206511 206814 Batch Number 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Lab TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: CAB TAL CAN CAN CAN CAN CAN CAN CAN CAN CAN CAN	240-57769-10 Matrix: Solid Matrix: Solid
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA Client Sam Date Collecte Date Collecte Date Receive	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0 d: 11/09/15 0 d: 11/11/15 1 Batch	Batch Method 3050B 6010C 7471B 7471B -07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method Moisture -00:00 Batch	Run	Dilution Factor 250 1 Dilution Factor 1 Dilution	Batch Number 206494 206868 206511 206814 Batch Number 206558 Batch	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23	Analyst DEE KLC DEE DSH Lab S Analyst GNR	Per Lab TAL CAN Sample ID: Cample ID: Per	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Received Prep Type Total/NA Client Sam Date Collecte Date Collecte	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0 d: 11/09/15 0 d: 11/09/15 0 d: 11/11/15 1	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 Batch Method Moisture -07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method 20500	Run	Dilution Factor 250 1 Dilution Factor Dilution Factor	Batch Number 206494 206868 206511 206814 Batch Number 206558 Batch Number	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23 Prepared or Analyzed	Analyst DEE KLC DEE DSH Lab S Analyst GNR Lab S	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Sample ID: Date of the second secon	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Received Prep Type Total/NA Client Sam Date Collecte Date Received Prep Type Total/NA Total/NA Total/NA Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis ple ID: DS d: 11/09/15 0 Analysis Analysi	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 Batch Method Moisture -07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method 3050B 6010C	Run	Dilution Factor 250 1 Dilution Factor 1 Dilution Factor 20	Batch Number 206494 206868 206511 206814 Batch Number 206558 Batch Number 206494 206969	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23 Prepared or Analyzed 11/12/15 10:45	Analyst DEE KLC DEE DSH Lab S Analyst GNR Lab S Analyst DEE	Per Lab TAL CAN TAL CAN TAL CAN TAL CAN Cample ID: Cample ID: Per Lab Per	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6
Prep Type Total/NA Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receiver Prep Type Total/NA Client Sam Date Collecte Date Collecte Date Receiver Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Prep Analysis	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 Batch Method 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00 00:00	Run Run Run Run	Dilution Factor 250 1 Dilution Factor 1 Dilution Factor 20	Batch 206494 206868 206511 206814 Batch Number 206558 Batch Number 206558 Batch Number 206494 206494 206868	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23 Prepared or Analyzed 11/12/15 10:45 11/13/15 15:14	Analyst DEE KLC DEE DSH Lab S Analyst GNR Lab S Analyst DEE KLC	Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Cample ID: Cample ID: Per Lab TAL CAN TAL CAN	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6
Prep Type Total/NA Total/NA Total/NA Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA Client Sam Date Collecte Date Receive Prep Type Total/NA	d: 11/11/15 1 Batch Type Prep Analysis Prep Analysis ple ID: DS d: 11/09/15 0 d: 11/11/15 1 Batch Type Analysis ple ID: DS d: 11/09/15 0 d: 11/09/15 0 d: 11/11/15 1 Batch Type Prep Analysis Prep	Batch Method 3050B 6010C 7471B 7471B 7471B 00:00 00:00 Batch Method Moisture -07-1655 00:00 Batch Method Moisture -07-1655 00:00 Batch Method 3050B 6010C 7471B	Run	Dilution Factor 250 1 Dilution Factor 1 Dilution Factor 20	Batch Number 206494 206868 206511 206814 Batch Number 206558 Batch Number 206558 Batch Number 206494 206495 206558	Prepared or Analyzed 11/12/15 10:45 11/13/15 16:03 11/12/15 15:45 11/13/15 14:47 Prepared or Analyzed 11/12/15 15:23 Prepared or Analyzed 11/12/15 15:14 11/12/15 15:14	Analyst DEE KLC DEE DSH Lab S Analyst GNR Lab S Analyst DEE KLC DEE	Lab TAL CAN TAL CAN TAL CAN TAL CAN TAL CAN Cample ID: Cample ID: Per Lab TAL CAN TAL CAN TAL CAN	240-57769-10 Matrix: Solid 240-57769-10 Matrix: Solid cent Solids: 99.6

Lab Sample ID: 240-57769-11

Lab Sample ID: 240-57769-11

Lab Sample ID: 240-57769-12

Lab Sample ID: 240-57769-12

Lab Sample ID: 240-57769-13

TAL CAN

TAL CAN

Matrix: Solid

Matrix: Solid

Matrix: Solid

99.0

Matrix: Solid

Matrix: Solid

Percent Solids: 99.6

Client Sample	ID: DS-04-1675
Date Collected: 1	1/09/15 00:00

Date Received: 11/11/15 10:00

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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-04-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Γ	Bat	ch Bat	tch		Dilution	Batch	Prepared		
Prep Ty	/ре Тур	e Me	thod	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	A Prej	p 305	50B			206494	11/12/15 10:45	DEE	TAL CAN
Total/NA	A Ana	ilysis 601	10C		250	206868	11/13/15 16:07	KLC	TAL CAN
Total/NA	A Prej	p 747	′1B			206511	11/12/15 15:45	DEE	TAL CAN
Total/NA	A Ana	ilysis 747	′1B		1	206814	11/13/15 14:52	DSH	TAL CAN

Client Sample ID: DS-09-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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-09-1655 Date Collected: 11/09/15 00:00 **Date Received: 1**

Prep

7471B

Analysis 7471B

1/11/15 1	0:00						Pei	cent Solids:
Batch	Batch		Dilution	Batch	Prepared			
Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Prep	3050B			206494	11/12/15 10:45	DEE	TAL CAN	
Analysis	6010C		20	206868	11/13/15 15:22	KLC	TAL CAN	

206511 11/12/15 15:45 DEE

206814 11/13/15 14:53 DSH

Client Sample ID: DUP A Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Prep Type Total/NA Total/NA Total/NA

Total/NA

_								
	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture			206558	11/12/15 15:23	GNR	TAL CAN

-										
Client Samp	DIE ID: DU	JP A					Lab Sample ID: 240-57769			
Date Collected	d: 11/09/15	00:00							Matrix: Solid	
Date Received: 11/11/15 10:00								Perc	ent Solids: 99.0	
Γ	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		

1

Lab Sample ID: 240-57769-14

Lab Sample ID: 240-57769-14

Client Sample ID: DUP A Date Collected: 11/09/15 00:00

Date Received: 11/11/15 10:00

Date Received	Percent Solids: 99.0							
Ргер Туре	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		100	206868	11/13/15 16:28	KLC	TAL CAN
Total/NA Total/NA	Prep Analysis	7471B 7471B		1	206511 206814	11/12/15 15:45 11/13/15 14:56	DEE DSH	TAL CAN TAL CAN

Client Sample ID: DS-08-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	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-08-1675 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared 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 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

Lab Sample ID: 240-57769-15

Lab Sample ID: 240-57769-15

Matrix: Solid

Matrix: Solid

Percent Solids: 99.1

Matrix: Solid

Percent Solids: 99.2

_	Batch Batch			Dilution	Batch	Prepared			
Prep Type	Туре	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-11-1655 Date Collected: 11/09/15 00:00 Date Received: 11/11/15 10:00

-	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 15:34	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 Project/Site: Closed Loop

TestAmerica Job ID: 240-57769-1

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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



21/ 4101 Shuffel Street, N.W. North Canton, OH 44720 tel 330.497.9396 fax 330.497.0772 www.testamericainc.com

11/17/2015

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TestAmerica Canton 4.61(4.7 Chain of Custody Record TestAmerico 4101 Shuffel Street, N. H. Horth Canton, OH 44720 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: Soda Site Contact: Ergun Date: COC No: Tel/Fax: Company Name: AECOM Lab Contact: Mark Loeb Carrier: of 2 COCs 1375 EUCLID AVE Analysis Turnaround Time Address: Sampler: City/State/Zip: CLEVELAND OH 44115 CALENDAR DAYS WORKING DAYS For Lab Use Only: B 216-622-2400 0 hone: TAT if different from Below Walk-in Client: õ Fax: 311 Lab Sampling: 2 weeks Project Name: Closed Loop 3 1 week MSD Site: 2 days Job / SDG No.: [•] 0 # 1 day etal Sample 4 Li Type Sample Sample # of Z (C=Comp, Sample Identification Date Time G=Grab) Matrix Cont. Sample Specific Notes: DS-11-1675 Kolis 1/4 . C DS-03-1675 DS-13-1675 ~ DS -09-1675 DS-10-1655 1 DS -12 - 1655 ~ 105-08-1655 DS-14-1675 DS-12-1675 v DS-07-1655 DS-04-1675 DS - 09-1655 M. Preservation Used: 1= Ice, 2= HCI; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 11 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 Months Special Instructions/QC Requirements & Comments: glass. We expect high lead and cadmium, possibly mercury. samples contain Custody Seals Intact: Yes Custody Seal No .: Cooler Temp. (°C): Obs'd: Therm ID No .: Relinguished by Company: Date/Time: Berl Received by: Company: Date/Time: AECOM TA 11-11-15 1000 Relinguished by: Company: Date/Time: Received by: Company: Date/Time: Relinguished by: Company: Date/Time: Received in Laboratory by: Company: Date/Time:

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Horth Canton, OH 44720 Phone: 330,497,9396 Fax: 330 497 077	?								1										THE LEADER IN ENVIRON	MENTAL TESTI
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Client AFCOM	Site Name		Cooler 1	inpacked by:	7
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Peacint After hours: Dron of	S FAS Stetson Chent Drop C	Storage Locati			-
Test America Cooler #	Form Box Chant Co	der Box Other			-
Packing material-used:	Bubble Wrap Foam Plastic	Bag None Other	·		
1. Cooler temperature upon	receipt				
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IR GUN# 8 (CF -0.5	5 °C) Observed Cooler Temp.	°C Corrected Cool	er Temp	_°C	
2. Were custody seals on th	e-outside of the cooler(s)?If	Yes Quantity(Ves No		
-Were custody seals on t	the outside of the cooler(s) signed &	& dated?	Yes No NA		
-Were custody seals on t	he bottle(s) or bottle kits (LLHg/M	leHg)?	Yes ඟ		
3. Shippers' packing slip att	ached to the cooler(s)?		Ves No		
4. Did custody papers accor	npany the sample(s)?		Ves/ No		
5. Were the custody papers	relinquished & signed in the appro	priate place?	Ves No		
6. Was/were the person(s) v	who collected the samples clearly id	lentified on the COC?	Yes 🔊		
7. Did all bottles arrive in g	ood condition (Unbroken)?		(Yes No		
8. Could all bottle labels be	reconciled with the COC?		res No		
9. Were correct bottle(s) use	ed for the test(s) indicated?		Yes No		
10. Sufficient quantity recei	ived to perform indicated analyses?)	Ver No		
11. Were sample(s) at the con	rrect pH upon receipt?		Yes No 🕅	pH Strip Lot# <u>HC554612</u>	
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 i	in the cooler(s)? Trip Blank Lot #_		Yes N		
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Contacted PM	Date by	via Verb	al Voice Mail C	Other	
Concerning			<u>.</u>		
14. CHAIN OF CUSTODY	& SAMPLE DISCREPANCIES		Samp.	les processed by:	
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15. SAMPLE CONDITION	1				
Sample(s)	were received	after the recommended	holding time had	expired.	
Sample(s)		were rec	eived in a broken	container.	
Sample(s)	were r	eceived with bubble >6	nm in diameter.	Notify PM)	
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Ref: SOP NC-SC-0005, Sample Receiving X: \X-Drive Document Control\SOPs\Work Instructions\Word Version Work Instructions\WI-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.

Brent Benham Closed Loop Refining and Recovery, Inc. Page 2

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.

 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.

 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: <u>http://www.epa.ohio.gov/dmwm/</u>

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,

MA et

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 2018



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 <u>Time:</u> 11:00 AM-1:00 PM <u>County:</u> Franklin <u>Facility:</u> Closed Loop Refining and Recovery <u>Location:</u> 1655 and 1675 Watkins Rd., Columbus OH, 43207 <u>Personnel:</u> Robert Cruz (Plant Manager, on phone), Matt Strangle (Manager, on phone), Michelle Bruffy (Accounts Receivable), Angie (floor employee) <u>OhioEPA:</u> 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.

1.	Prior	to processing,.	11122					
	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	\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		No		N/A	
		 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	
	Are u	sed, 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 (E).	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	\boxtimes	N/A	
	L	Drocossing						

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	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	
	ii.	With no activities that use temperatures high enough to volatilize lead from CRTs? [3745-51-39(B)(2)]	Yes	\boxtimes	No		N/A	
NOT or fu mon	E: CRT proce rther breaking itors."	essing activities defined in 3745-50-10(A)(25)(b) and (c) include "in or separating broken CRTs" and "sorting or otherwise managing	ntentioi glass n	nally emov	break red fro	king i om C	ntact CRT	CRTs
3.	Is glass from manufacture [3745-51-39	n used, broken CRTs destined for recycling at a CRT glass er or a lead smelter after processing accumulated speculatively? (C)]	Yes		No		N/A	
4.	If glass from o/o comply	used CRTs is used in a manner constituting disposal, does the with 3745-266-20 to 3745-266-23? [3745-5139(D)]	Yes		No		N/A	
EXP	ORTS OF USI	ED, INTACT CRTs						
NOT CFR	E: Used, intac 261.39(a)(5) a	of CRTs exported for recycling are not wastes if they meet the not and if they are not accumulated speculatively. [3745-51-40]	ice and	l con	sent d	cond	itions	of 40
NOT 5 be	E: Violations i	regarding exporting used, intact CETs foreign destinations should ral counterpart provisions are not delegable to states	be ref	erred	to U.	S. E	PAR	əgion

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 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 SUMMARY SHEET

Safety Equipment Used: GENERAL REQUIREMENTS 1. Have all wastes generated at the facility been adequately evaluated? [3745-52-11] Yes No N/A 2. Has the generator obtained a U.S. EPA I.D. number? [3745-52-12] Yes No N/A 3. Has the generator transported or caused to be transported hazardous waste to other than a facility authorized to manage the hazardous waste? (DRC 3734.02 (F)) Processed CRTs not meeting the conditional exclusion for used CRTs were transported to Closed Loop Glass Solutions Yes No 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? [CRC 3734.02 (F)] Yes No N/A 5. Does the generator accumulate hazardous waste? Yes No N/A 6. Has the generator accumulate or treat hazardous waste? Yes No N/A 7. Is the generator accumulate hazardous waste in excess of (180/270) days without a permit or an extension from the Director? [3745-52-34(, ORC [2]) Yes No N/A 7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34(, ONC [2]] Yes No N/A 7. </th <th>CESQG SQG: Be LQG: ≥ NOTE: 1</th> <th>: ≤100K etween 1,000 K <i>To conv</i></th> <th>$x_{g.}$ (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 g. (~300 gallons) of waste in a calendar month or ≥1 Kg. of acutely haze ert from gallons to pounds: Amount in gallons x Specific Gravity x 8.345</th> <th>g. of ac ar mor ardous = Amo</th> <th>utely oth. wast</th> <th>haza e in a <i>in po</i></th> <th>ardou I cale</th> <th>is was endar <u>s</u>.</th> <th>ste. month.</th>	CESQG SQG: Be LQG: ≥ NOTE: 1	: ≤100K etween 1,000 K <i>To conv</i>	$x_{g.}$ (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 g. (~300 gallons) of waste in a calendar month or ≥1 Kg. of acutely haze ert from gallons to pounds: Amount in gallons x Specific Gravity x 8.345	g. of ac ar mor ardous = Amo	utely oth. wast	haza e in a <i>in po</i>	ardou I cale	is was endar <u>s</u> .	ste. month.
GENERAL REQUIREMENTS 1. Have all wastes generated at the facility been adequately evaluated? Yes No N/A 2. Has the generator obtained a U.S. EPA I.D. number? [3745-52-12] Yes No N/A 3. Has the generator transported or caused to be transported hazardous waste? [ORC 3734.02 (F)] Processed CRTs not meeting the conditional exclusion for used CRTs were transported to Closed Loop Glass Solutions Yes No N/A Image: Conditional exclusion for used CRTs were transported to dispose of hazardous waste? 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 (F) & (F)] Yes No N/A Image: Conditional exclusion of used CRTs were transported to Closed Loop Glass Solutions 5. Does the generator accumulate hazardous waste? Yes No N/A Image: Conditional exclusion of used CRC 374.02 (F) & (F)] 6. Has the generator accumulate nor treat hazardous waste; it is not subject to 52-34 standards. All other requirements might still apply. g. mainfiest, marking, LDR, etc. No N/A Image: Conditional exclusion of the inspection. NOTE: If the seq enerator accumulating more than 6.000 kg on site? [3745-52-34, (D)] Yes No N/A Image: Conditional exclusion////////////////////////////////////	Safety E	quipme	ent Used:						
1. Have all wastes generated at the facility been adequately evaluated? Yes No N/A 2. Has the generator obtained a U.S. EPA I.D. number? [3745-52-12] Yes No N/A 3. Has the generator transported or caused to be transported hazardous waste? (ORC 3734.02 (F)) Processed CRTs not meeting the conditional acclusion for used CRTs were transported to Closed Loop Glass Solutions Yes No 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)) Yes No N/A 5. Does the generator accumulate hazardous waste? Yes No N/A 7. Has the generator accumulated hazardous wastes in excess of (180/270) days without a permit or an extension from the Director? (3745-52-34(D)) days. [3745-52-34 (E)] Yes No N/A 7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34(D)] down matify and the facility was near the 6,000 kg limit but not at the time of the inspection. Yes No N/A 7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34(D)] Yes No N/A 8. Doce the generator treat hazardous waste in a:	GENER	AL REC	QUIREMENTS						
2. Has the generator obtained a U.S. EPA I.D. number? [3745-52-12] Yes No N/A □ 3. Has the generator transported or caused to be transported hazardous waste? [ORC 3734.02 (F)] Processed CRTs not meeting the conditional exclusion for used CRTs were transported to Closed Loop Glass Solutions Yes No 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? Yes No N/A □ 5. Does the generator accumulate hazardous waste? Yes No N/A □ NOTE: If the SQG does not accumulate or treat hazardous waste? Yes No N/A □ NOTE: If the SQG does not accumulate or treat hazardous waste? Yes No N/A □ NOTE: If the SQG does not accumulate on treat hazardous waste? Yes No N/A □ NOTE: If the SQG does not accumulate on treat hazardous waste? Yes No N/A □ NOTE: If the sub generator accumulated hazardous waste? If the sub generator accumulate hazardous waste? Yes No N/A □ NOTE: If the generator accumulating more	1.	Have [3745	all wastes generated at the facility been adequately evaluated? -52-11]	Yes		No		N/A	
3. Has the generator transported or caused to be transported hazardous waster? Yes No N/A □ 4. Has the generator transported or caused CRTs not meeting the conditional exclusion for used CRTs were transported to Closed Loop Glass Solutions Yes No 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? Yes No N/A □ 5. Does the generator accumulate hazardous waste? Yes No N/A □ NOTE: If the SQG does not accumulate hazardous waste? Yes No N/A □ NOTE: If the sting apply, e.g. manifest, marking, LDR, etc. No XIA □ 6. Has the generator accumulate that the facility was near the 6,000 kg on site? [3745-52-34, ORC §3734-02(E)&(F)] Yes No N/A □ 7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34, ORC §374-52-34 Yes No N/A □ 8. Does the generator accumulating more than 6,000 kg on site? [3745-52-34(DR)] Yes No N/A □ 7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34(DR)]	2.	Has t	he generator obtained a U.S. EPA I.D. number? [3745-52-12]	Yes	\boxtimes	No		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)] Yes No N/A □ 5. Does the generator accumulate hazardous waste? Yes No N/A □ 7. If the SeqG does not accumulate does and extension from the Director? [3745-52-34; ORC (2)] Yes No N/A □ 7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34; ORC (2)] Yes No N/A □ 7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34; ORC] Yes No N/A □ NOTE: 6.000 kg = approximately 27, 55-galon drums. If the facility is accumulating weste for greater than 180/270 days without an extension/permit or is accumulating greater than 6,000 kg on-site, it is classified as a storage facility and TSD standards apply. Complete applicable TSD checklists. No N/A □ 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 □ d. Container that meets 3745-66-101? Yes No N/	3.	Has t waste [ORC exclu Solut	he generator transported or caused to be transported hazardous to other than a facility authorized to manage the hazardous waste? 3734.02 (F)] Processed CRTs not meeting the conditional usion for used CRTs were transported to Closed Loop Glass tions	Yes		No		N/A	
5. Does the generator accumulate hazardous waste? Yes No N/A □ NOTE: If the SQG does not accumulate or treat hazardous waste, it is not subject to 52-34 standards. All other requirements might still apply, e.g. manifest, marking, LDR, etc. 6. Has the generator accumulate hazardous wastes in excess of (180/270) days without a permit or an extension from the Director? [3745-52-34; ORC §3734-02(E)&(F)] Yes No ⊠ N/A □ 8. Does the generator that the facility was near the 6,000k g on-site, it is classified as a storage facility and TSD standards apply. Complete applicable TSD checklists. No ⊆ N/A □ 8. Does the generator treat hazardous waste in a: a. Container that meets 3745-66-70 to 3745-69-45? Yes No N/A □ b. Tank that meets 3745-69-40 to 3745-526-100? Yes No N/A ⊠ NOTE: Complete appropriate checklist for each unit. N/A □ N/A □ 8. Does the generator treat hazardous waste in a: 0 No N/A □ 9. Tank that meet 3745-69-40 to 3745-69-45? Yes No N/A ⊠ NOTE: Complete appropriate checklist for each unit. NO N/A	4.	Has t or at a waste	he generator disposed of hazardous waste on-site without a permit another facility other than a facility authorized to dispose of hazardous ? [ORC 3734.02 (E) & (F)]	Yes		No		N/A	
NOTE: If the SQG does not accumulate or treat hazardous waste, it is not subject to 52-34 standards. All other requirements might still apply, e.g. manifest, marking, LDR, etc. Yes No NIA 6. Has the generator accumulated hazardous wastes in excess of (180/270) days without a permit or an extension from the Director? [3745-52-34; ORC §3734-02(E)&(F)] Yes No NIA NIA 7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34(D)] Yes No NIA Shipping manifest indicate that the facility was near the 6,000kg limit but not at the time of the inspection. NOTE: 6,000 kg = approximately 27, 55-gallon drums. If the facility is accumulating waste for greater than 180/270 days without an extension/permit or is accumulating greater than 6,000 kg on-site, it is classified as a storage facility and TSD standards apply. Complete applicable TSD checklists. No N/A N/A 8. Does the generator treat hazardous waste in a: a. Container that meets 3745-66-70 to 3745-66-77? Yes No N/A N/A b. Tank that meets 3745-66-101? Yes No N/A N/A c. Drip pads that meet 3745-69-40 to 3745-69-45? Yes No N/A N/A d. Containment building that meets 3745-256-100 to 3745-256-102? Yes No N/A <td< td=""><td>5.</td><td>Does</td><td>the generator accumulate hazardous waste?</td><td>Yes</td><td></td><td>No</td><td></td><td>N/A</td><td></td></td<>	5.	Does	the generator accumulate hazardous waste?	Yes		No		N/A	
6. Has the generator accumulated hazardous wastes in excess of (180/270) days without a permit or an extension from the Director? [3745-52-34; ORC §3734-02(E)&(F)] Yes No N/A □ NOTE: SQG's shipping waste to a facility greater than 200 miles away can accumulate on-site for 270 days. [3745-52-34 (E)] 7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34(D)] Yes No N/A □ NOTE: 6,000 kg = approximately 27, 55-gallon drums. If the facility is accumulating waste for greater than 180/270 days without an extension/permit or is accumulating greater than 6,000 kg on-site, it is classified as a storage facility and TSD standards apply. 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 3745-69-40 to 3745-69-45? Yes No N/A ☑ NOTE: Complete appropriate checklist for each unit. NOTE No N/A ☑ b. Tank that meets 3745-69-40 to 3745-256-100? Yes No N/A ☑ MOTE: If waste is treated to meet LDRs, use LDR checklist. Mo N/A ☑ NOTE: If waste is treated to meet LDRs, use LDR checklist. Yes No N/A	NOTE: requiren	If the Some of the second second second second second second second second second second second second second s	QG does not accumulate or treat hazardous waste, it is not subject to 52 ight still apply, e.g. manifest, marking, LDR, etc.	2-34 st	anda	rds. /	All of	her	
NOTE: SQG's shipping waste to a facility greater than 200 miles away can accumulate on-site for 270 days. [3745-52-34 (E)] Is the generator accumulating more than 6,000 kg on site? [3745-52-34(D)] Shipping manifest indicate that the facility was near the 6,000kg limit but not at the time of the inspection. Yes No N/A Image: Support of the inspection of the inspection. NOTE: 6,000 kg = approximately 27, 55-gallon drums. If the facility is accumulating waste for greater than 180/270 days without an extension/permit or is accumulating greater than 6,000 kg on-site, it is classified as a storage facility and TSD standards apply. Complete applicable TSD checklists. 8. Does the generator treat hazardous waste in a: Image: Support of the inspection of the inspection. b. Tank that meets 3745-66-70 to 3745-66-77? Yes No N/A c. Drip pads that meet 3745-69-40 to 3745-69-45? Yes No N/A Image: N/A d. Containment building that meets 3745-256-100 to 3745-256-102? Yes No N/A Image: N/A NOTE: Complete appropriate checklist for each unit. NO N/A Image: N/A Image: N/A Image: N/A Image: N/A Image: N/A Image: N/A Image: N/A Image: N/A Image: N/A Image: N/A Image: N/A Image: N/A Image: N/A	6.	Has t days §3734	he generator accumulated hazardous wastes <u>in excess of</u> (180/270) without a permit or an extension from the Director? [3745-52-34; ORC 4-02(E)&(F)]	Yes		No		N/A	
7. Is the generator accumulating more than 6,000 kg on site? [3745-52-34(D)] Shipping manifest indicate that the facility was near the 6,000kg limit but not at the time of the inspection. Yes No N/A □ NOTE: 6,000 kg = approximately 27, 55-gallon drums. If the facility is accumulating waste for greater than 180/270 days without an extension/permit or is accumulating greater than 6,000 kg on-site, it is classified as a storage facility and TSD standards apply. 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 ☑ 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: Complete appropriate checklist for each unit. NOTE: If waste is treated to meet LDRs, use LDR checklist. Yes No N/A ☑ 9. Are all hazardous wastes either reclaimed under a contractual agreement are defined in OAC rule 3745-52-20(E) or shipped off-site accommanied by 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
NOTE: 6,000 kg = approximately 27, 55-gallon drums. If the facility is accumulating waste for greater than 180/270 days without an extension/permit or is accumulating greater than 6,000 kg on-site, it is classified as a storage facility and TSD standards apply. 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 b. Tank that meets 3745-66-101? Yes No c. Drip pads that meet 3745-69-40 to 3745-69-45? Yes No d. Containment building that meets 3745-256-100 to 3745-256-102? Yes No NOTE: Complete appropriate checklist for each unit. NOTE: If waste is treated to meet LDRs, use LDR checklist. MANIFEST REQUIREMENTS Yes 9. Are all hazardous wastes either reclaimed under a contractual agreement are defined in 0.04 cm us 3745-52-20(E) or shipped offisite accompanied by	7.	Is the Shipp but n	generator accumulating more than 6,000 kg on site? [3745-52-34(D)] bing manifest indicate that the facility was near the 6,000kg limit ot at the time of the inspection.	Yes		No		N/A	
8. Does the generator treat hazardous waste in a: a. Container that meets 3745-66-70 to 3745-66-77? Yes No N/A Image: N/A b. Tank that meets 3745-66-101? Yes No N/A Image: N/A Image: N/A c. Drip pads that meet 3745-69-40 to 3745-69-45? Yes No N/A Image: N/A d. Containment building that meets 3745-256-100 to 3745-256-102? Yes No N/A Image: N/A NOTE: Complete appropriate checklist for each unit. NOTE: If waste is treated to meet LDRs, use LDR checklist. Ves Ves No N/A Image: N/A 9. Are all hazardous wastes either reclaimed under a contractual agreement as defined in OAC rule 3745-52-20(E) or shipped offsite accompanied by Yes No N/A Image: N/A	NOTE: without a standard	6,000 k an exter is apply	g = 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.	aste foi fied as	r grea a sto	ater th brage	an 1 facil	80/27 ity and	0 days d TSD
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 ⊠ c. Drip pads that meet 3745-69-40 to 3745-69-45? Yes No N/A ⊠ d. Containment building that meets 3745-69-40 to 3745-69-45? Yes No N/A ⊠ MOTE: Containment building that meets 3745-256-100 to 3745-256-102? Yes No N/A ⊠ NOTE: Complete appropriate checklist for each unit. NOTE: If waste is treated to meet LDRs, use LDR checklist. No N/A ⊠ 9. Are all hazardous wastes either reclaimed under a contractual agreement as defined in OAC rule 3745-52-20(E) or shipped off-site accompanied by Yes No N/A □	8.	Does	the generator treat hazardous waste in a:						
b. Tank that meets 3745-66-101? Yes No 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: Complete appropriate checklist for each unit. No N/A ⊠ NOTE: If waste is treated to meet LDRs, use LDR checklist. Ves Ves Ves Ves 9. Are all hazardous wastes either reclaimed under a contractual agreement as defined in OAC rule 3745-52-20(E) or shipped off-site accompanied by Yes No N/A □		a.	Container that meets 3745-66-70 to 3745-66-77?	Yes	\boxtimes	No		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: Complete appropriate checklist for each unit. No N/A ⊠ NOTE: If waste is treated to meet LDRs, use LDR checklist. Ves Ves Ves Ves Ves 9. Are all hazardous wastes either reclaimed under a contractual agreement as defined in QAC rule 3745-52-20(E) or shipped off-site accompanied by Yes No N/A □		b.	Tank that meets 3745-66-101?	Yes		No		N/A	
d. Containment building that meets 3745-256-100 to 3745-256-102? Yes No N/A ⊠ NOTE: Complete appropriate checklist for each unit. NOTE: If waste is treated to meet LDRs, use LDR checklist. MANIFEST REQUIREMENTS 9. Are all hazardous wastes either reclaimed under a contractual agreement as defined in OAC rule 3745-52-20(E) or shipped off-site accompanied by Yes No N/A □		C.	Drip pads that meet 3745-69-40 to 3745-69-45?	Yes		No		N/A	
NOTE: Complete appropriate checklist for each unit. NOTE: If waste is treated to meet LDRs, use LDR checklist. MANIFEST REQUIREMENTS 9. Are all hazardous wastes either reclaimed under a contractual agreement as defined in OAC rule 3745-52-20(E) or shipped off-site accompanied by		d.	Containment building that meets 3745-256-100 to 3745-256-102?	Yes		No		N/A	
NOTE: If waste is treated to meet LDRs, use LDR checklist. MANIFEST REQUIREMENTS 9. Are all hazardous wastes either reclaimed under a contractual agreement as defined in OAC rule 3745-52-20(E) or shipped off-site accompanied by Yes No N/A	NOTE:	Comple	te appropriate checklist for each unit.						
MANIFEST REQUIREMENTS 9. Are all hazardous wastes either reclaimed under a contractual agreement as defined in OAC rule 3745-52-20(E), or shipped off-site accompanied by Yes No N/A	NOTE:	If waste	is treated to meet LDRs, use LDR checklist.						
9. Are all hazardous wastes either reclaimed under a contractual agreement Yes No N/A	MANIFE	ST RE	QUIREMENTS			2			
as defined in Orto rule or 40-02-20(E), or anipped off-alle accompanied by	9.	Are a as de	Il hazardous wastes either reclaimed under a contractual agreement fined in OAC rule 3745-52-20(E), or shipped off-site accompanied by	Yes		No		N/A	

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	a ma	nifest (U.S. EPA Form 8700-22)? [3745-52-20(A)(1)]						
10.	Are v	wastes 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	
	b.	Is the transport vehicle owned and operated by the reclaimer?	Yes		No		N/A	\boxtimes
	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	
NOTE: genera under a	If waste tor is in agreeme	es are reclaimed under a contractual agreement and an answer to quest violation of 3745-52-20 (A) (B) & (D), 3745-52-22 and 3745-52-23. Ever ent, LDRs still apply. Complete LDR checklist.	ions 10 n if the)(a) t wast	hroug e is b	h 10 eing	(c) is reclai	no, the med
11.	Have [374	e items 1 through 20 of each manifest been completed? 5-52-20(A)(1)] & [3745-52-27(A)]	Yes		No		N/A	
VOTE: situatio	U.S. El ons, item	PA Form 8700-22(A) (the continuation form) may be needed in addition t s (21) through (35) must also be complete. [3745-52-20(A)(1)]	to Forn	1 870	0-22.	In t	hese	
12.	Does hand	each manifest designate at least one facility which is permitted to le the waste? [3745-52-20(B)]	Yes		No		N/A	
VOTE: emerge	The ge ency whi	nerator may designate on the manifest one alternative facility to handle i ich prevents the delivery of waste to the primary designated facility. [374	the wa 5-52-2	ste in 0(C)]	the e	even	t of an	
13.	If the the d facilit 20(D	transporter was unable to deliver a shipment of hazardous waste to esignated facility did the generator designate an alternative TSD ty or give the transporter instructions to return the waste? [3745-52-)]	Yes		No		N/A	
4.	Have [3745	the manifests been signed by the generator and initial transporter? 5-52-23 (A) (1) and (2)]	Yes		No		N/A	
VOTE:	Remine ent for tra	d the generator that the certification statement they signed indicates: 1) t ansportation and 2) they have made a good faith effort to minimize their y	hey ha	ve pi	roperl	y pre	epared	the
5.	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		No		N/A	
6.	If the within subm gene	generator did not receive a return copy of each completed manifest n 60 days of being accepted by the transporter did the generator nit to Ohio EPA, a copy of the manifest with some indication that the rator has not received confirmation of delivery? [3745-52-42(B)]	Yes		No		N/A	
7.	Are s [3745	signed copies of all manifests being retained for at least three years? 5-52-40]	Yes		No		N/A	
VOTE: acility accumu alenda	A gene can acce ulate the ar month	rator who sends a shipment of hazardous waste to a TSD facility with the ept and manage the waste and later receives that shipment back as a re waste on-site for <90 days or <180 days depending on the amount of he [3745-52-34(M)]	e unde jected azardo	rstar load us w	ding i or res aste c	that idue on-si	the TS may te in ti	SD hat
VOTE: storage and tra transfe	Waste e or treat nsporter r facility	generated at one location and transported along a publicly accessible ro tment 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	ad for onsider ne dest nal infor	temp ed "c inatic matic	orary on-site on faci on se	con: " an ility h e the	solida d mar nas to e defin	ted ifesting act as ition of

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"on-site	e" in OA	C rule 3745-50-10.					
PREPA	REDNE	ESS AND PREVENTION					
18.	ls an [374	emergency coordinator available at all times (on-site or on-call)? 5-52-34(D)(5)(a)]	Yes		No	N/A	
19.	Has	the following been posted by the telephone: [3745-52-34(D)(5)(b)]					
	a.	Name and telephone number of emergency coordinator?	Yes	\boxtimes	No	N/A	
	b.	Location of fire and spill control equipment, and, if present, fire alarm(s)?	Yes	\boxtimes	No	N/A	
	C.	Telephone number of local fire department?	Yes		No	N/A	
20.	Are e [3745	employees familiar with waste handling and emergency procedures? 5-52-34(D)(5)(c)]	Yes		No	N/A	
21.	Has 1 34(D	the facility properly responded to all fires and spills? [3745-52-)(5)(d)]	Yes		No	N/A	\boxtimes
22.	Is the unpla 311	anned sudden or nonsudden release of hazardous waste? [3745-65-	Yes		No	N/A	
23.	Does	the generator have the following equipment at the facility if it is red due to actual hazards associated with the waste:	1				
	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.	Is em	hergency 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.	Do po comr is not	ersonnel have immediate access to an internal alarm or emergency nunication device when handling hazardous waste (<i>unless the device</i> <i>t required under OAC 3745-65-32</i>)? [3745-65-34(A)]	Yes		No	N/A	
26.	If the a dev exter 32)?	re is only one employee on the premises is there immediate access to vice (ex. phone, hand-held two-way radio) capable of summoning nal emergency assistance (<i>unless not required under OAC 3745-65-</i> [3745-65-34(B)]	Yes		No	N/A	
27.	Is ad or sp	equate aisle space provided for unobstructed movement of emergency ill control equipment? [3745-65-35]	Yes		No	N/A	
28.	Has t possi	he generator attempted to familiarize emergency authorities with ble hazards and facility layout? [3745-65-37(A)]	Yes		No	N/A	\boxtimes
29.	When has t	e authorities have declined to enter into arrangements or agreements, he generator documented such a refusal? [3745-65-37(B)]	Yes		No	N/A	
SATEL	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	

11	b.	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		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	\boxtimes
	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 listed	generator accumulating hazardous waste(s) in excess of the amounts I 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	
33.	[3748 Is the	5-52-34(D)(4)] accumulation date on each container? [3745-52-34(D)(4)]	Yes		No		N/A	<u> </u>
USE A		IAGEMENT OF CONTAINERS	Vee	15-70	NI-		NI/A	_
22	[3745	5-52-34(D)(4)]						
			Yes	Ц	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.					57	N/A	
	C.	In good condition? [3745-66-71] Gaylords of hazardous waste in the Breaker Room were partially crushed.	Yes		No	X		
		In good condition? [3745-66-71] Gaylords of hazardous waste in the Breaker Room were partially crushed. Compatible with wastes stored in them? [3745-66-72]	Yes Yes		No		N/A	
	d.	In good condition? [3745-66-71] Gaylords of hazardous waste in the Breaker Room were partially crushed. Compatible with wastes stored in them? [3745-66-72] Handled in a manner which prevents rupture/leakage? [3745-66- 73(B)]	Yes Yes Yes		No No No		N/A N/A	
NOTE	d. : Record	In good condition? [3745-66-71] Gaylords of hazardous waste in the Breaker Room were partially crushed. Compatible with wastes stored in them? [3745-66-72] Handled in a manner which prevents rupture/leakage? [3745-66- 73(B)]	Yes Yes Yes		No No No		N/A N/A	
NOTE 35.	d. <i>Record</i> Is the perio	In good condition? [3745-66-71] Gaylords of hazardous waste in the Breaker Room were partially crushed. Compatible with wastes stored in them? [3745-66-72] Handled in a manner which prevents rupture/leakage? [3745-66- 73(B)] <i>location on process summary sheets and photograph the area.</i> container accumulation area(s) inspected at least once during the d from Sunday to Saturday? [3745-66-74]	Yes Yes Yes Yes		No No No		N/A N/A N/A	
NOTE 35.	d. : Record Is the perio a.	In good condition? [3745-66-71] Gaylords of hazardous waste in the Breaker Room were partially crushed. Compatible with wastes stored in them? [3745-66-72] Handled in a manner which prevents rupture/leakage? [3745-66-73(B)] <i>location on process summary sheets and photograph the area.</i> container accumulation area(s) inspected at least once during the d from Sunday to Saturday? [3745-66-74] Are inspections recorded in a log or summary? [3745-66-74]	Yes Yes Yes Yes Yes		No No No No		N/A N/A N/A N/A	
NOTE 35. 36.	d. <i>Record</i> Is the perio a. Are c mear	In good condition? [3745-66-71] Gaylords of hazardous waste in the Breaker Room were partially crushed. Compatible with wastes stored in them? [3745-66-72] Handled in a manner which prevents rupture/leakage? [3745-66-73(B)] <i>location on process summary sheets and photograph the area.</i> container accumulation area(s) inspected at least once during the d from Sunday to Saturday? [3745-66-74] Are inspections recorded in a log or summary? [3745-66-74] ontainers of incompatible wastes stored separately from each other by as of a dike, berm, wall or other device? [3745-66-77(C)]	Yes Yes Yes Yes Yes		No No No No No		N/A N/A N/A N/A N/A	
NOTE 35. 36. 37.	d. <i>Record</i> Is the perio a. Are c mear If the mate 17(B)	In good condition? [3745-66-71] Gaylords of hazardous waste in the Breaker Room were partially crushed. Compatible with wastes stored in them? [3745-66-72] Handled in a manner which prevents rupture/leakage? [3745-66-73(B)] <i>location on process summary sheets and photograph the area.</i> container accumulation area(s) inspected at least once during the d from Sunday to Saturday? [3745-66-74] Are inspections recorded in a log or summary? [3745-66-74] ontainers of incompatible wastes stored separately from each other by is of a dike, berm, wall or other device? [3745-66-77(C)] 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 Yes Yes Yes Yes Yes		No No No No No		N/A N/A N/A N/A N/A	

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NOTE: mixture undesi	OAC 3745-65-17(B) requires that the generator treat, store, or dispose of ignitation of commingling of incompatible wastes, or incompatible wastes and materials strable conditions or threaten human health or the environment.	ble or o that	react it doe	ive wa es not	aste, crea	and t ate	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	
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		No		N/A	

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 L treatment standard prior to disposal? Generator knowledge or testing m be used. [3745-270-07(A)(1)] If not,	DR Yes		No		N/A	
	a. Did the generator send the waste to a permitted HW TREATMEN facility? [3745-270-07(A)(1)]	T Yes	\boxtimes	No		N/A	
treatm detern 3745 3	nent standard in 3745-270-40. However, if a specific treatment method is given nination is required [3745-270-07(A)(1)(b)]. If soil, generator can choose to h 270-49 (alternative treatment levels for soils).	en in 3745- ave soil tre	270- ated	40 for to LD	the R le	HW, r vels g	no viven i
5.	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	X
4.	Does the generator keep the documentation required in #2, above, on-si for at least three years from the last date the HW/soil was sent on-site/of site for treatment/disposal? [3745-270-07(A)(8)]	e Yes		No		N/A	
5.	Does the generator generate a listed HW that exhibits a characteristic? I yes,	Yes		No	\boxtimes	N/A	
ē ī	a. Did the generator determine if the listed HW exhibits a characteris that is not treated under the LDR treatment standard for the listed HW? [3745-270-09(A)]	tic Yes	\boxtimes	No		N/A	
	EXAMPLE: F006 that exhibits the characteristic for silver or K062 that is corro	sive, D002	2. Re	view	LDR	treati	ment
FOR I standa	ard in 3745-270-40 to determine what constituents the listed HW is treated fo						
FOR E standa 6.	ard in 3745-270-40 to determine what constituents the listed HW is treated fo 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	
FOR E standa 6. NOTE univer contai	ard in 3745-270-40 to determine what constituents the listed HW is treated fo Did the generator determine if its characteristic HW contains underlying hazardous constituents that need to be treated? [3745-270-09(A)] This is done by evaluating which underlying hazardous constituents (UHC) resal treatment standards given in 3745-270-48. This requirement does not applied the source of this standards.	Yes are in the I bly to high	⊠ ⊣W a total	No t leve organ	□ Is ab ic ca	N/A pove tl arbon	□ he (i.e.,
FOR E standa 6. NOTE univer contai NOTE	ard in 3745-270-40 to determine what constituents the listed HW is treated fo Did the generator determine if its characteristic HW contains underlying hazardous constituents that need to be treated? [3745-270-09(A)] This is done by evaluating which underlying hazardous constituents (UHC) resal treatment standards given in 3745-270-48. This requirement does not applied ins >10% TOC) D001 wastes or listed HWs.	Yes are in the l	⊠ ⊣W a total	No It leve organ	□ Is at ic ca	N/A pove tl arbon	□ ne (i.e.,

NOTE: I B.	stand	dard?							
8.	f "Yes"	see qu	estion #16.						
	Did t first s	he gene shipmer	erator send a one-time LDR notification form to the TSD with the nt to that facility? [3745-270-07(A)(2)]	Yes		No		N/A	
	а.	If the waste each	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	\boxtimes	No		N/A	
		i	Applicable HW codes?	Yes	\boxtimes	No		N/A	
		ii	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.	Did t HW d	he gene change	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	
10.	Does [3748	the ge 5-270-0	nerator have a copy of the LDR notification form/notice on file? 7(A)(2)]	Yes	\boxtimes	No		N/A	
	a.	Is the [3745	e form/notice kept on file for three years after last HW shipped? 5-270-07(A)(8)]	Yes	\boxtimes	No		N/A	
NOTIFIC	OITAC	FORM	Λ	1					
11.	Does	the LD	R Notification form contain the following information:					-	
	a.	Mani 07(A)	fest number of the first waste shipment to the TSD? [3745-270-)(2)]	Yes	\boxtimes	No		N/A	
	b.	Appli HW i	cable waste codes (includes characteristic codes for a listed f applicable)? [3745-270-07(A)(2)]	Yes	\boxtimes	No		N/A	
1.12	C.	A sta be tre 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 des [3745	signation whether the HW is a wastewater or non-wastewater? 5-270-07(A)(2)]	Yes	\boxtimes	No		N/A	
NOTE: . wastewa method	A wast ater or i 9060a	ewater 10n-wa: for TOC	contains <1% by wt. total suspended solids(TSS) and <1% by wt stewater, the HW can be tested using for example, Standard Met C.	hods (lf yo SM)	ou do 160.2	ubt t for	he HV TSS, 3	V is a SW-84
	e.	Desig [3745	nation of the waste subcategory when applicable? -270-07(A)(2)]	Yes	\boxtimes	No		N/A	
NOTE: have sul	Subcat bcatego	egories ories	are found on the LDR treatment standards table under the appli	cable v	vaste	e code	e. No	ot all H	HWs
	f.	A listi chara	ng of the underlying hazardous constituents for which a acteristic waste must be treated? [3745-270-07(A)(2)]	Yes		No		N/A	
NOTE:	Not req ents.	uired if	the waste is high TOC D001 or the TSD tests its treatment resid	ues for	all u	Inderl	ying	hazar	rdous
constitue	g.	If the	HW is E001 E005 or E039, did the generator note on the LDP	Yes		No		N/A	\boxtimes
constitue		form and r	what solvents or constituents, respectively, the waste contains nust be treated for? [3745-270-07(A)(2)]						
NOTE:	Not req	form and r uired if	what solvents or constituents, respectively, the waste contains nust be treated for? [3745-270-07(A)(2)] the TSD tests its treatment residues for all underlying hazardous	s consti	ituen	ts.		-	
NOTE: 1	Not req	form and r uired if	what solvents or constituents, respectively, the waste contains nust be treated for? [3745-270-07(A)(2)] the TSD tests its treatment residues for all underlying hazardous ON	s consti	ituen	ts.			
NOTE: PROHIB	Not req BITED I Is the	form and r nuired if DILUTIC HW tre	what solvents or constituents, respectively, the waste contains nust be treated for? [3745-270-07(A)(2)] the TSD tests its treatment residues for all underlying hazardous DN eated by burning?	s consti Yes	ituen	ts. No		N/A	

13.	Is the	e HW a	a metal-bearing HW?	Yes	\boxtimes	No		N/A	
NOTE: metals.	General A list o	lly, me f the re	tal-bearing HWs contain heavy metals above TCLP levels or were estricted metal-bearing HWs are given in the Appendix to 3745-27) isted 70-03.	due	to the	pre	sence	of
14.	a.	Meta and [374	al-bearing HWs cannot be incinerated, combusted or, blended burned for fuel unless <u>one</u> 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	
		iv.	Has a reasonable heating value (e.g., > 5000 Btu)?	Yes		No		N/A	
		٧.	Co-generated with a HW that must be combusted?	Yes		No		N/A	\boxtimes
	b.	If all 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 g treated by dilution?	Yes		No		N/A	
15.	Wast	Was the HW treated by wastewater treatment?					\boxtimes	N/A	
	a.	ls a l spec	LDR treatment method, other than DEACT or a numerical value, ified for the waste? [3745-270-03(B) and 3745-270-40(A)(3)]	Yes		No		N/A	
NOTE:	If "Yes",	HW is	s improperly being treated by dilution.	1					
	b.	Does	s the waste carry the D001 code <u>and</u> contain ≥10% TOC?	Yes		No		N/A	
	C.	Does sepa	s the wastewater treatment process include a process to rate/recover the organic phase of the waste?	Yes		No		N/A	
NOTE: is in viol	If the ar lation of	nswers [3745-	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	enerato
NOTE:	A list of	separa	ation/recovery processes are given in 3745-270-42 under RORG.						
GENER	ATOR	REAT	MENT						
16.	Does	the ge	Yes		No	\boxtimes	N/A		
	Did the generator treat his hazardous waste/soil on-site in a tank, container, drip pad or containment building to meet the LDR treatment standard?					No		N/A	\boxtimes
	If "Yes	s"co	mplete the rest of the checklist. If "No"stopyou are done.	1					
1	a.	Does desc LDR	the generator have a written waste analysis plan (WAP) that ribes 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 the H	he generator use a detailed chemical and physical analysis of IW/soil in order to develop the WAP? [3745-270-07(A)(5)(a)]	Yes		No		N/A	\boxtimes
NOTE:	This is a	labora	atory analysis but it does not have to be kept by the generator.						11.1
	C.	Does to the	the WAP contain all information necessary to treat the HW/soil e LDR treatment standard? [3745-270-07(A)(5)(a)]	Yes		No		N/A	
	d.	Does to de [3745	the WAP include the testing frequency of the treated HW/soil monstrate that the LDR treatment standard is being met? 5-270-07(A)(5)(a)]	Yes		No		N/A	

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	e.	Does	s the g	enerator keep the WAP on-site? [3745-270-07(A)(5)(b)]	Yes		No	N/A	\boxtimes
	f.	Is the	e WAP	available for the inspector's review during the [3745-270-07(A)(5)(b)]	Yes		No	N/A	\boxtimes
NOTIF	ICATIO	N FOR	M FOR	GENERATOR TREATMENT	-			 	
17.	a.	Contains all information in #11 a-g above and					No	N/A	\boxtimes
	b.	If the certif "I cer am fa know comp to 37 are s the p	treate ication tify un amiliar /ledge blies w 45-27(ignifica ossibil	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.	If the longe	-						
		i.	Prep	pare a one-time notification? [3745-270-09 (D)]	Yes		No	N/A	\boxtimes
		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	\boxtimes
			4.	Treatability group when generated?	Yes		No	N/A	
			5.	Underlying hazardous constituents present when generated?	Yes		No	N/A	
	1. 1. 1. 1.	iv.	Cont 3745	ain the certification statement as required by 5-270-07(B)(4)?	Yes		No	N/A	





0111 North Connel State 010 Harvent Attacements (117-2774 Philosofte 1045 Local, etc. Act Local, etc. Act

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 Fail 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.

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 end-users 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 I



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

EXHIBIT

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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

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 ewaste), 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.

Fable 1: 1655 Watkins Road - F	t. Total E-Waste	Weight Based on Wa	ste Type Container Averages
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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 ton	is)

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	128,187,373 lbs. (64,093 tons)		

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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.

1655 and 1675 Watkins Road, Columbus, Ohio

Table 3: Summary of Contractor Cost Estimates: E-waste Removal, Recycling, and/or Disposal

Contractor	Lastes	Estimated Fee Total ⁴	Material & Frucking Unit Rates	Schedule Duration	Continents
Environmental Management Specialists	L	\$290,000	N/A	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 measures 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	R	\$51,274,949	\$0.40/lb	7-8 Months	This contractor is not recommended since their proposal is not considered competitive.
Kuusakoski	L, T, R	\$22,554,108	Device S0.14 CRT Tube S0.125 Glass S0.08 S700/load non-haz \$1,125/load haz Labor/Handling S0.014	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 buildings. 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 \$24,054,000.
Hazardous Wuste Experts	L, T, R	\$17,955,396	Device \$0.24 to \$0.28/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 intact device at a R2 certified recycling facility in Mexico. This contractor would be shipping CRT devices, tubes, and intact 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 prepated 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 crushed glass at the Site would be transported and landfilled at a Sublifie C hazardous waste landfill (Envirosafe) in Oregon, Olio using a centent micro-encapsulation process to prevent leaching. Clean scrap metal and plastic would be transported to local recyclers.
URT Solutions	T, R	\$15,034,087	Device \$0.14/1b Device \$710/1bad Glass \$0.11/1b Glass trucking included in price/1b	6+9 Months	URT is an E-Stewards certified recycler. All CRT monitors, tubes, 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 funnet glass. Processed leaded glass would be transported to Carnacho in Spain for recycling in the ceramic file industry. Clean scrap netal 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
Novolec	L, T, R	\$12,476,611	Device \$0.16 to \$0.18/lb Glass \$0.09/lb Estimates 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 CICT 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 Subtitle D landfill), (2) Envirosafe Landfill in Oregon, OH (hazardous transport, pretreatment { i.e., encapsulation}) and disposal within an onsite Envirosafe hazardous Subtitle C landfill], and (3) Max Environmental Landfill in Yukon, PA (hazardous transport, pretreatment and disposal within an onsite Envirosafe Max Environmental non-hazardous Subtitle 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 staff for managing the daily machaging one provide the staff.

L = Loading, T = Transportation, R = Recycling/Disposal

1 Estimated fees are based in weights of graterial and weights for disparal and date of bid real-time transportation fees. Estimated fees do not include the 5% margin of sizes in material volume calculation

Atwell, LLC

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.

1635 and 1675 Watkins Road, Columbus, Ohio

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.

Table 4: Summary of Contractor Cost Estimates: Site Remediation (Lead Contaminated Dust)

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.

² The Environmental Management Specialists proposal in Appendix F reflects a bid for \$97,820. This bid was adjusted upwards for purposes of this cost summary to account for hazardous waste disposal costs, as other bids accounted for these costs. Atwell, LLC

1655 and 1675 Watkins Road, Columbus, Ohio

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 4

Based on these recommendations, Atwell anticipates the overall project costs to be as follows:

7.0 DISCLAIMER

At well 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. At well shall not be responsible for conditions or consequences arising from relevant information that was concealed or not fully disclosed. At well'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:

T-K

Thomas Leigh

Project Manager

Michael J. Koenig Team Leader

³ Atwell costs accred to date in the research, development of removal remodation 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 I PA's oversight over RCRA closure of the site, and other contingencies

APPENDIX A

Atwell Qualifications, Michael Koenig Curriculum Vitae, Atwell Project to Date Costs, and Atwell Scope of Work/Cost Estimate



STATEMENT OF QUALIFICATIONS

CONSULTING. ENGINEERING. CONSTRUCTION.

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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.

REAL ESTATE & LAND DEVELOPMENT

Residential - Commercial - Community

OIL & GAS

Exploration & Production · Pipelines & Facilities · Logistics & Storage

POWER & ENERGY

Power Generation - Power Delivery

MINING & METALS

Greenfield & Restarts · Processing Facilities · 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



866.850.4200 www.atwell-group.com

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



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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 the 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.

CAPABILITIES

- 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





PPPP

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

Asset Management

- Site & Property Management
- Utility Location & Management
- Real Estate Portfolios
- Infrastructure & Energy Systems

Project Management Services

- GIS Consulting & Support
- Presentation Materials for Agency Reviews & Permits
- GIS Data Integration
- GIS Application Development
- Data Conversion & Migration

- Site Selection
- Developable Land Analysis
- Land Use Analysis/Planning
- Custom Asset Management Systems
- Land Acquisition & Right-of-Way Process Management
- Data Management & Mapping Solution (PIVIT ^{1*})





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





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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





EDUCATION Bachelor of Science Geology Kent State University 1996

WORK EXPERIENCE EDP Consultants Environmental Geologist 1997-2004

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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

Michael J. Koenig | Team Leader, Environmental Services

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.



- 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

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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 ewaste 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 close-out 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.
- <u>Task 4 -</u> <u>Environmental Consulting Services for RCRA Closure and Building Remediation:</u> 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

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Atwell will provide the environmental services described in this proposal on a Time & Material (T&M) basis. Sub-consultant charges, fees, commissions, mateials, 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.

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

ATWELL

Garrison Southfield Park, LLC | Remediation of E-Waste Accumulation-Former Closed Loop, Inc. Facility Columbus, Ohio

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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

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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

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Figures



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APPENDIX D

Preferred Removal Contractor Proposals and Qualifications: HWE, Novotec, URT

3960 Groves Rd. Columbus, OH 43232

614-236-2222 www.novotecrecycling.

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.

3960 Groves Rd. Columbus, OH 43232

Definitions

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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.

3960 Groves Rd. Columbus: OH 43232

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.

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Garrison's Obligations

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

- 1) 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.

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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.

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

Regards. CE recycling

Novo

recycling

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.

MEMBER

Signature	Title:

_____ Oate:___

Print Name:_____

		See Notes Belo	w regarding We	eights and Pricing		
Material	1655	1675	Price / #	1655	1675	
Whole Units	3,490,451	1,469,879	(\$0.16)	(\$558,472)	(\$235,181)	(\$793,653
Unprocessed CRT	6,576,765	2,163,603	(\$0.16)	(\$1,052,282)	(\$346,176)	(\$1,398,459
Projector Lamps and TV	185,087		(\$0.18)	(\$33,316)	\$0	(\$33,316
Mixed Funnel/Panel Glass in Gaylords		113,750,757	(\$0.09)	\$0	(\$10,237,568)	(\$10,237,568)
Steel with glass	1,944	324,648	\$0.00	\$0	\$0	\$0
Plastic	19,440	15,120	\$0.10	\$1,944	\$1,512	\$3,456
Panel with metal	14,406	175,273	(\$0.09)	(\$1,297)	(\$15,775)	(\$17,071)
	10,288,093	117,899,280		(\$1,643,423)	(\$10,833,188)	(\$12,476,611)
Totals		128,187,373 Av	(\$0.097) erage Cost per	IB		(\$12,476,611)

Attachment A

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:

1) 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 esteward 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

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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

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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 all 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 overthe-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 Protocot (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:

- 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"
- 3. Television up to 14"
- 4. Television over 14" but up to 21"
- 5. 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 Balcan 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 stretchwrapped 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	1 80	suber of Containers/Liebs	Tetal Wit of Each Tune (Sur)		Testimete to be
Totals			I road the or card type linst	and made	LOCHI MAL GA FREU JADIS (DUUR)
CRT Whole (PG) CRT Crushed (PG) Complete Units (P) Projector Lamps (PG) Plastic (PG)		7,728 28,233 6,790 193 192			4,370 56,875 2,480 93 17
Panel with Metal (P/SS)		672 79		326,592 189,679	163
Key	Grand (Gtat	43,887		128,187,373	64,094
PG	Co	mplete Units In Gaylonis on I			
P P/SS	Co Pa	Complet exhits Plastic Wrapped on Pallets Pallets and Super Sacks			



Description	Rate	Unit		Total	
CRT Monitors and Tube TVs		L		Line and the second sec	
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	Load	\$1,123,950.00	
			Sub Total	\$5,645,180.34	
Leaded Glass					
Disposal: Encapsulation & Landfill	\$110.00	56,875	Топ	\$6,256,250.00	
Transportation: Oregon, OH	\$55.00	56,875	Ton	\$3,128,125.00	
0		- States	Sub Total	\$9,384,375.00	
Scrap Metal			Alton -		
Recycle: Scrap Metal	\$0.00	258	Ton	TBI	
Transportation: Local Dealers	\$0.00	258	Ton	TBI	
Diantina			Sub Total	TBI	
Plastics					
Recycle: Plastic	\$0.00	17	Ton	TBI	
Transportation: wheeling, IL	\$1,850.00	1	Load	\$1,850.00	
Iamne			Sub Total	\$1,850.00	
Recycling Lamos w/Matal Housings	CO. CO.	105 0071			
Transportation: East Windsor, CT	\$3.00	185,087	LD	\$666,313.20	
Hanaponation Last Windson, G1	\$2,550.00	- 8	Load	\$20,400.00	
Labor and Materials			Sub Iotal	\$686,713.20	
Supervisor	\$120.00	1 440	Hour	6472 000 00	
Project Manager	\$120.00	1,440	Hour	\$172,800.00	
Operator - Forklift	\$120.00	1,440	Hour	\$172,800.00	
Operator - Forklift	\$85.00	1,440	Hour	\$122,400.00	
Operator - Loader	\$85.00	1,440	Hour	\$122,400.00	
Laborer	\$75.00	1,440	Hour	\$122,400.00	
Laborer	\$75.00	1,440	Hour	\$108,000.00	
Level C PPE (6 Persons)	\$540.00	180	Day	\$97,200,00	
Reclaimed Gaylord Boxes	\$25.00	5 000	Boy	\$125,000,00	
Recycled Wooden Pallets	\$15.00	200	Pallet	\$125,000.00	
HEPA Vacuum (2 Units per Day)	\$25.00	180	Day	\$4,500.00	
Stretch Wrap	\$20.00	1 700	Boll	\$34,000.00	
Utility Vehicle	\$225.00	180	Dav	\$40,500.00	
Forklifts and Fuel (2 Units)	\$2,850,00	36	Week	\$102 600.00	
Loader and Fuel	\$5 335 00	36	Week	\$192,000.00	
Meal Per Diem (6 Persons x 3 Meals)	\$450.00	180	Dav	\$81 000 00	
Lodging	\$4,250.00	9	Month	\$38,250.00	
			Sub Total	\$1,646,910.00	
Facility Remediation					
Supervisor and (3) Technicians	\$57,360.00	1	Lump Sum	\$57,360.00	
Equipment	\$30,360.00	1	Lump Sum	\$30,360.00	
Consumables	\$5,160.00	1	Lump Sum	\$5,160.00	
Transportation and Disposal of Lead Debris	\$445.00	30	55-gal Drum	\$13,350.00	
			Sub Total	\$106,230.00	
Surcharges	A ATTAC AND A A A A A A A A A A A A A A A A A A				
Environmental Insurance, Taxes, FSC	3% of	Total Invoice		\$524,137.76	
Estimated Total		1		\$17,995,396,30	



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- 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

- <u>Convenience</u>. 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.
- <u>Sustainability</u>. 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.
- <u>Peace of Mind</u>. 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
 - 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
 - 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
 - o Nike
 - o Goodwill
 - Wilbur-Ellis
 - Department of Defense
 - o 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)



Wisconsin . Oregon Texas . New Hampshire

Atwell Group Quote

Customer	Atwell Group		
Contact Name	Michael Koenig		
Phone	(440) 394-0409		
Email	mkoenig@atwell-group.com		

Created Date Expiration Date

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August 25, 2016 30 Days

Item Category	Material Specifications	U/M	Pricing
	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
	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. **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 Tal: (877) 278-0799







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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



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



circuit board containing items are recovered.



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

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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

While 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.



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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 Codmium)
 - · Mercury Oxide
 - Silver Oxide
 - Alkaline
 - Lithium Metal & Hydride
- Nickel Metal Hydride
 - Lead Acid

OUR PROCESSES

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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

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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

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.

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PROCESS REQUIREMENTS

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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:

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- · 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^e 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^o 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
 - seeking confirmation of its conformance by parties having an interest in the organization, such as customers (not allowed under e-Stewards[®] requirements), or
 - 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: A	twell LL	C	Contact:	Mike Koening	
Address: 7100 E Pleasant Valley Rd. Suite 220		Phone:	440.349.2000		
Ir	ndepend	lence Ohio 44131	Email:	mkoening@atwell-group.com	
Project Nam	e:	Lead Abatement	Bid Date:	6.22.16	
Project Addr	ess:	1655-1675 Watkins Rd Columbus, Ohio	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	4	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	\$	900.00
3.0	Labor and Equipment	22	Days	\$	3,920.00	s	86,240.00
4.0	Non Haz C&D waste Disposal (5 ton Min)	5	Ton	ŝ	40.00	S	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	\$	780.00
7.0	Vac Box Rental (2)	40	Davs	\$	55.00	Ś	2,200.00
8.0	Roll off box rental (1)	20	Davs	Ś	17.00	Ś	340.00
9.0	Haz Waste Transportation	TBD	Load	Ś	920.00		
10.0	Non Haz Waste Transportation	TBD	Load	\$	450.00		
		Estir	nated Total	Ś			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, specifications and conditions are satisfactory and hereby accepted and EMS is authorized to proceed.

Buy	er	1

Signature:

Buyer Signoture

Print Name

Date of Acceptance:

Cleveland, Ohio 44130 Estimator: Josh Baker Phone: (440) 816-1107 Email: ibaker@emsonsite.com

Environmental Management Specialists

RETURN ACCEPTANCE TO:

6909 Engle Road, C-31

STATEMENT OF QUALIFICATIONS

EMS

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Teleba

Elesonsite

INTRODUCTION

Founded in 2000, Environmental Management Specialists, Inc. (EMS) is a professional environmental services company with strategically-located service centers providing coverage across Ohio, western Pennsylvania, West Virginia, Kenlucky, Indiana, Winois, southern Wisconsin, southern Michigan, and beyond.



Environmental Management Specialists, Inc.

10 KEY DIFFERENTIATORS:

- 1. SAFETY is at our core. Our comprehensive salely program is deeply-ingrained in the EMS culture and our core values.
- 2. RESPONSIBLE. Our EMR is 0.50 and we've never had a lost time accident in the entire history of the company.
- J. CAPABLE. Our employees are extensivelytrained and certified (i.e. HAZWOPER, CSE, SaleLand, APL e-RAILSAFE, RWI...I.
- 4. QUALIFIED. EMS is pre-gualified by several contractor screening consortiums, including ISNelworld, PEC Premier and Avella.
- 5. EXTENSIVE EXPERIENCE. EMS is your one-stopshop for a wide variety of environmental services.
- RESPONSIVE. Coll us anytime at: (877) 816-6. 9111. We olfer 24/7 accessibility through our "One Call" dispatch program.
- 7. DEDICATED. We provide a single point-ofconlact for repeat customers through our "Operations Conclerge" program.
- PROMISES KEPT. The EMS "Value Guarantee" gives our customers the ability to short pay any T&M Invoice or contest any change order to the Division VP, COO, or CEO if we did not deliver on the expected value.
- 9. WASTE EXPERTS. EMS is permitted to transport both non-hazardous and hazardous waste. We properly containerize, document, and dispose of waste the right way, every time.
- 10. OSRO CERTIFIED. EMS is a United States Coast Guard-certified Oil Spill Removal Organization (OSRO #473).

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ONE HOLE RESPONDE NUMBER OF BRIDE DAY

CLEVELAND

SVILLE



Environmental Management Specialists, Inc.



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REMEDIATION

Sheet Pilina

response OSRO for Facility Response Plans (FRPs)

OUR CORE SERVICES:

Hog-and-haul site remediation

Gas and vapor banler installation

Fueling station cleanup and UST removal

Wetland, stream and channel restoration

Mull-laceled brownfield remediation

- 24/7/365 dispatch for emergency service needs
- HAZWOPER Training

TANK & UTILITY SERVICES

- Tank cleaning (API tanks, frac tanks, pils, sumps, OWS, vessels...]
- Product transfer and temporary storage
- Tank decommissioning and demolition
- Confined Space Entry (CSE) rescue learns
- Line Jetting
- Air knilling and hydro-excavation
- CSE training (mobile training vessel)

WASTE SERVICES

- Integrated waste management services
- Waste transport and disposal
- Waste characterization and containerization
- Drum waste "milk runs"
- Vacuum truck/tanker services
- Roll-off truck services
- Vacuum and roll-oil box rental
- RCRA and DOT training

THE HISTORY OF EMS

EMS started in Ohio in November 2009 as a singleemployee waste broker ciding environmental consulting firms and contractors with management of hazardous waste. EMS founder Jon Ransom began his career in the environmental Industry as a soles representative with Ashland Chemical in 1991. Subsequent positions with environmental service companies in North Carolina added to his knowledge and experience. Family lies brought him back to Ohio in 2000.

Starling out of Jon's basement. EMS overcame many early challenges typical of startups as the company developed an extensive network of transportation and disposal vendors to broker. In 2006, EMS recruited a core group of remediation projects and began self-performing remediation projects from start to finish. Through 2009, EMS experienced sheady growth expanding to 12 employees and one small warehouse. Throughout this time frame, EMS developed a solid company culture, a strong balance sheed, and a quality reputation in the industry, thereby establishing the foundation for future growth.

EMS hit its stride in the second halt of 2009 and quickly accelerated both its pace of improvement and growth. At the center of this growth initialive were several Best of the Best (BOB) professionals who joined EMS and formed the nucleus of the EMS Leadership Team. From here, the Leadership Team launched an intense drive to grow EMS through continuous improvement and the development of people and processes. From 2009 to 2011, EMS became the #1 ranked remediation contractor in Ohio, and rated among the best remediation contractors in the region. At the same time, EMS began an initialive to diversity its capabilities to include emergency response, tank and utility services, and waste services.

In kale 2011, remediation funding in Ohio came to an abrupt halt along with the majority of the remediation work across the state. With close to 80 percent of its business tied to remediation. EMS significantly increased the tempo of its push into services work. EMS also expanded its remediation teach into neighboring states and added strategic remediation capabilities, including gas and vapor barrier instalkation and wetland and stream restoration services. This diversification initiative led directly to the recruitment and development of BO8 professionals at all levels of the company.

Environmental Management Specialists, Inc. 3 In 2013, EMS committed to developing a comprehensive Strategic Plan. This plan, which is updated annually, serves as a guiding document to molniain a sustainable competitive advantage. By investing in training, equipment, and facilities, EMS has solidified its reputation as a high-quality provider at environmental, industrial, and energy services across an expanding operating area. Transformative events included: designation as an Oil Spill Removal Organization (OSRO) by the U.S. Coast Guard; approval by multiple contractor screen consortiums; and execution of master service agreements with numerous Fortune 500 companies in the oil and gas, utility, transportation, and manufacturing industries.

Today, EMS has grown to more than 150 employees, with operallan centers in Cleveland, Chicago, Clincinnati, Calumbus, Indianapolis, Steubenville, Taledo, and Zanesville. Far beyond its early days as a waste broker, EMS now provides fullservice emergency spill response, ollifield services, environmental services, waste transportation, site remediation, and tank management services.



MISSION STATEMENT

EMS is a quality-driven, value-added environmental contractor with a deep commitment to providing what our customers need, when they need it, with a guarantee at safety, preparedness, and communication at the center of every relationship.

We have an intense drive to succeed, with each incremental improvement bringing us closer to our potential. We compare ourselves not to any competitor but rather to the progress of our stepby-step pursuit of excellence. Our reputation as the best-of-the-best is our most valued asset, and we are determined to maintain and build on that reputation.

We maintain a consistent focus on sustainable, profitable growth, with the understanding that building a great company is achieved by recruiting and relating great people who thrive on learnwork. We have a fundamental belief in doing right by our employees, as well as our customers, and we take great care to cultivate a meaningful and enjoyable workplace for the environmental Industry's best of the best where they are challenged, appreciated, supported and empowered to maximize the value delivered to our customers.

CORE VALUES

At EMS, our core values are more than words – more than what we wish others would think of us. Our core values are what we expect from ourselves and hence what others should expect and demand of us. They shape every strategic decision we make as a company, and they are a guide to daily decisions made by each and every person at EMS.

Solution-atiented Anlicipate client needs Follow-through Enthuslastic dedication Trust through integrily and compassion





WHO IS EMS?

Awards | Recognition



Inc. Magazine's annual exclusive list of America's fastest-growing private companies — the Inc. 500 [5000 EMS is proud to announce our inclusion on the 2016 Inc. 5000 List of America's Fastest-Growing Companies. Even more impressive, this is our 6th

appearance on the Inc. 5000 list since 2009. This year, we rank at #3320 overall and #24 among all environmental services companies on the list.

We're grateful to our 150 dedicated employees; our many valued clients who trust us with their environmental projects every day; and for the vision of EMS's leadership, who continue to guide our tremendous growth and the continuous improvement that drives it.



RECOGNITION

EMS founder and President Jon Ransom received the Emst & Young Entrapreneur Of The Year® 2011 Northeast Ohio Award in the Specialty Products and Services category.

About Ernst & Young Entrepreneur Of The Year®

Ernst & Young Entrepreneur Of The Year® is the world's most presilgious business award for entrepreneurs. The unique award recognizes the contribution of people who inspire others with their vision, leadership and achievement and celebrates those who are building and leading successfut, growing and dynamic businesses, recognizing them through regional, national and global awards programs in more than 140 cities in more than S0 countries.

Environmental Management Specialists, Inc.

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-time accident in the entire history of the company
- Top quartile 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
- Quarterly all-employee safety meetings
- Weekly safely performance reporting to corporate leadership team
- Short-Service Employee Program
- Regular, documented jobsite and facility safety audits
 Enhanced incident reporting protocol, including nearmiss reporting
- Full root-cause investigation of all reported incidents and near-misses, including documentation of corrective
- Safety performance included in all employee performance evaluations

HAZWOPER TRAINING:

All EMS personnel performing duties involving hazardous waste and emergency response receive extensive iroining, including 40-hour Initial HAZWOPER, annual eight-hour HAZWOPER refresher, RCRA, DOT, confined space entry, respiratory protection, first aid/CPR and assorted industryspecific and customer-specific Iroining programs. Our training Includes both classrom and hands-on activities, and covers all of the topics outlined in OSHA regulations. ADVANCED RAIL CAR SPECIALIST TRAINING: Several EMS personnel are certified by the

Emergency Response Training Center (ERTC) in Pueblo, Calorado as Advanced Rail Car Specialist

(ARCS). ARCS Iraining is a comprehensive four-day haz-mail emergency training course covering all facets of haz-mail response.

TANK CAR SPECIALIST (TCS) TRAINING:

Several EMS personnel are Tank Car Specialists - Advanced (TCS-A) trained and certified. TCS incling covers the technical skills and knowledge necessary for effectively managing a haz-mail/ WMD incident in a rail transportation emergency. Participants respond to railcar emergencies and incidents while functioning willhin a designated emergency response team. Situations involve scenario-based emergencies related to rail transport of a variety of

FRA ROADWAY WORKER TRAINING (RWT):

EMS complex with all requirements of the Federal Raitoad Administration (FRA), Roadway Warker Protection, 49 Cade of Regulations (CFR), Part 214, including, without imitations, the training and qualification requirements, and with the FRAs On-Track Safety Program.

API WORKSAFE TRAINING:

commodilies.

A large percentage of EMS field personnel are API WorkSafe certified by the American Petroleum Institute.



Environmental Management Specialists, Inc. 5

API TANK ENTRY SUPERVISOR (TES) TRAINING:

Several EMS personnel are certified. The API-TES certification program qualifies participants as having the minimum knowledge, experience, and skills needed to safely perform dulies required by tank entry supervisors.

SAFELAND TRAINING:

Correction A large percentage of EMS field personnel receive SafeLand training and certification. SafeLandUSA is an organization of independent all and gas operating companies with the purpose of developing standardized safety orientation with minimum requirements for the U.S. onshore E&P Industry.

CONFINED SPACE ENTRY (CSE) TRAINING:

Confined spaces, no matter how common but wer karry in construction and but wer karry continuous occupancy. To fully understand the health and safety risks of entering and working in confined spaces, workers are required to take confined space entry training in complance with OSHA requirements.

CSE RESCUE TRAINING:

EMS ensures that our confined space rescue team members will be proficient in the basic skills needed to safety and efficiently perform entry rescues in the workplace, including assessment of confined space hazards; almospheric monitoring; confined space rescue equipment use and imiliations; knots; vertical and horizontal hauling/lowering systems; and personal protective equipment.

WHAT OUR CLIENTS HAVE TO SAY

"It is very important that our contractors follow strict regulatory guidelines and provide professional and quick service, which we get every time from EMS. I feel at ease knowing the EMS team is a phone call away to help ensure the safety of all involved."

- Environmental Manager, The Ohlo State University





Environmental Management Specialists, Inc


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 industryspecific training, to qualifications with government agencies, safety consortiums and regulatory boards. As our customers confinue to increase the safety and certification qualifications required of their contractor, EMS is committed 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 credenliads:

OIL SPILL REMOVAL ORGANIZATION (OSRO) CERTIFICATION

EMS maintains a Class V OSRO Classification throughout its operating area. In response to the regulatory requirements established by the Oil Pollution Act of 1990 (OPA90), the OSRO classification process was developed to facilitate the preparation of vessel and facility response plan.

U.S. COAST GUARD OSRO #473 B.O.A. HSCG84-13-A-G00005

The OSRO Classification process provides standard guidelines by which the Coast Guard and plan developers can evaluate an OSRO's potential to respond to and recover oil splits of various sizes. Classifications are based upon minimum equipment amounts and response time standards outlined in the Coast Guard's OSRO Classification Guidelines.

ISNETWORLD, AVEITA, CCS, AND PEC PREMIER CERTIFICATION



Premier. These contractor screening consortiums connect corporations with sate, reliable contractors in capital-intensive industries. They collect ongoing conformance information from contractors/suppliers, verify its accuracy, and report the results to owners and clients.

SMALL BUSINESS ENTERPRISE (SBE) CERTIFICATION STATE S

E-RAILSAFE CERTIFICATION



operations and facilities. As part of these efforts, designated railroad contractors are required to comply with the program, which includes:

- Personnel screening:
- Compliance awareness and testing; and,
- Workplace credentialing.

TRANSPORTATION WORKER IDENTIFICATION CREDENTIALING (TWIC)

Several EMS field personnel are credentialed through the TWIC program. This program



is a Transportation Security Administration and U.S. Coast Guard security threat assessment initiative that provides tamperresistant blometic credentias to

matilime workers requiring un-escarted access to secure areas regulated under the Matilime Transportation Security Act of 2002.

UNDERGROUND STORAGE TANK REMOVAL CERTIFICATION

EMS personnet maintain underground storage tank removal certifications in multiple states.



Environmental Management Specialists, Inc.

THE EMS DIFFERENCE



By developing and maintaining strong personal relationships with our customers, we are able to tully understand their needs and execute the work accordingly. To succeed in a highly competitive market, it is cultical that we provide high-quality services in a cost-effective manner. The expectations of our customers determine the minimum performance standards by which we measure our success. Whether we are solving a customer problem or providing routine services, we always strive to pravide the most value for the dollar and bring all work to completion to the customer's tull satisfaction.



24-HOUR DISPATCH EMS mointains a "one call" dispatch operation with on-call EMS personnel available 24 hours a day, 7 days a week, 365 days a year.

ONE CALL (877) 816-9111

STRATEGIC PLANNING

EMS conducts a formal strategic planning process, which is updated annually, in order to leverage our strengths and maintain alignment throughout our various growth initiatives. Wide participation across all business groups leads to a comprehensive planning process and results in a broad commitment to achieving our common goals.

INSURANCE

EMS maintains substantial insurance coverage, including general liability, pollution liability, professional liability and automobile liability insurance. Our insurance certificate can be provided for detailed coverage information.

Environmental Management Specialists, Inc.

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Patch EMS maintains aggregate bonding

capacity in excess of \$20 million.

EXPERIENCE AND EXPERIISE

The extensive training, experience,

and expertise of our personnel enables us to recognize and respond to a wide variety of challenges faced by our customers. EMS has a proven record of service excellence, as demonstrated by a commitment to exceeding the expectations of our customers.

PROFESSIONAUSM

All EMS personnel are skilled in their area of experite and also receive extensive ongoing training to maintain those skills. From the appearance and attitude of our personnel to the quality of our documentation and record-keeping, our professionalism is always on display.

RESPONSIVENESS

EMS is dedicated to providing the highest level of service and is locused first and foremost on the needs of our customers. Instead of taking the easy route and ending up with negative longterm consequences, we step to the plate and deal with difficult issues in an honest and uptront manner. We are committed to being fair and reasonable. We take our reputation

INTEGRITY

our reputation.

Throughout our organization, we maintain a constant focus on clear, accurate, and consistent communication - both within EMS and especially with our customers. EMS conducts a quarterly meeting with all employees which locuses on training, enhanced internal communication strategies, and teamwork. These meetings are designed to encourage and educate our employees, and are an essential part of our effort to maintain a culture of effective communication throughout our organization.

very seriously, and we recognize that

everything we do has an impact on

What our clients have to say...

"I have had the opportunity to work with many environmental contractors throughout the Midwest for the past 25 years on brownfield remediation, petroleum, and RCRA cleanup projects. I have found that EMS differentiates itself by providing innovative solutions to complex remediation projects by working with us in a callaborative nature. We have found EMS to be efficient, cost-effective, and willing to address unforeseen issues in a limely manner."

- Principal, Regional environmental consulling firm

"I have worked with EMS for more than five years. I have used them to do disposal of waste, underground storage tank (USI) removals, remediation activities and emergency responses. They are professional, client-oriented, knowledgeable of regulatory requirements, and cost-conscious. I am completely satisfied with their performance, and I have recommended them to other consultants and clients." – Project Manager, Regional environmental consulting firm "In all cases, EMS has provided professional, courteous service at competitive prices. Their personnel are highly-malivated and display an aftention to detail that is rarely experienced with other contractors."

- Project Manager, Regional environmental consulting firm

"Working with EMS provides peace of mind that communications on operalions are expedient, accurate, and concise, which is crucial for EHS Professionals. The work performed by EMS is professional, complete, and done right the first time. I would recommend that any company in need of waste management, remediation, or industrial cleaning feam up with EMS for these services." – EHS Specialist, Fortune 500 oil & gas producer

"EMS equipment, crew, and general work ethic ore a cut above any contractor we have had complete work here. We will absolutely be using your company again for future work." Plant Manager, Steel manutacturing facility

Environmental Management Specialists, Inc.

PERSONNEL

Like any company, EMS is a collection of individuals. These individuals ore the reason EMS has developed an extensive list of capabilities and a quality reputation in the environmental industry.

We take great pride in the diversity of expertise, depth of experience, and quality of character in our personnel.

Please refer to the following professional biographies of our key personnel for additional details about the people who make EMS who we are today



- Environmental Coordinator, Fortune 500 Company, Manufacturing Facility

time."

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RANSOM President and Chief Executive

han Konson: has more than 20 years of experience new autory sile emediation, unknown waste identification and characterization, soil treatment, wriste leave pertand disposal, and lab packing projects He is a worked in sales, project nunugement, cost estimaling, site supervision, place Laccounting, and leadership team functions.

EDUCATION Bachelor of Science, Muskingum College, 1991 Summa Cum Laude

TRAINING AND CERTIFICATIONS Advanced Project Management Advanced RCRA Hazardous Waste Management DOI HazMat Transportation OSHA 40-hour HAZWOPER **OSHA Annual 8-hour Refreshers** Advanced First Aid/CPR (American Red Cross) Applied Strategic Planning Leadership Development







1im Acti has more than 20 years of experience providing services for the oil and gas industry. emergency response, sile remediation, demolition, construction and earth-moving projects. He has served as a field technician, site supervisor, protect scientist, project manager, division manager and now Chiel Operating Olficer.

EDUCATION

Bachelor of Science, Environmental Science, Trinily College, 2000

TRAINING AND CERTIFICATIONS **OSHA 40-hour HAZWOPER OSHA Annual B-hour Retreshers** Advanced First Ald/CPR (American Red Cruss) RCRA Hazardous Wasle Management DOT Hazardous Material Confined Space Entry - Supervisor Confined Space Entry Rescue - Team Member Current Medical Surveillance Documentation **Fit-Tested for Respirator Use** 80-hour Project Manager (Earth Tech, Inc.) Salety, Compliance Management and Function Specific (unpacker) Applied Borehole Geophysics (NGWA sanctioned) Remediation and Monitoring Well Rehabilitation 80-hour Environmental Law and Liability (U.S. Navy) Seabee Combat Warlare Specialist (U.S. Navy) Surface Wartare Specialist (U.S. Navy) Damage Control Repair Locker Leader (U.S. Navy)

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Dennis Vice President, Environmental Services

Bill Dennis has more than 15 years of experimence of large-scale site characterization and remerication projects, brownfield redevelopment, lookly demolillons, hazardous material management oil and gas industry services, and construction management. He has served in roles recording to hydrogeologist to senior project manager on multiple large-scale remediation and redevelopment projects subject to joint lederal and state regulation.

EDUCATION

Master of Science, Geology & Geophysics, University of Missouri-Rolla, 1999, Chancellor's Fellow Bachelor of Science, Geology, Youngstown State University, 1996, Summa Cum Laude

TRAINING AND CERTIFICATIONS **OSHA 40-hour HA2WOPER OSHA Annual 8-hour Refreshers** SaleLandUSA/PEC Basic Ortentation Unconventional Business Unit Safety (Hess) Contractor Salety (Range Resources) Contractor Salety (Rice Energy) Smith System DriverDirect On Road Defensive Driving IATA Dangerous Good Regulations DOJ General Awareness Salety Fit-Tested for Respirator Use Advanced First Ald/CPR (American Red Cross)



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Levi Cordle has more than 15 years of experience in oil and gas field services, emergency response, industrial services, and remediation projects. He has served in roles ranging from field technician, heavy equipment operator, site supervisor, on-scene coordinator, project manager, estimator, DOT/ PUCO compliance officer, and health and safety officer.

EDUCATION Associates of Business, Ohio Univers

TRAINING AND CERTIFICATIONS OSHA 40-hour HAZWOPER **OSHA Annual 8-hour Refreshers** OSHA Annual 8-hour Refreshers - Supervisor RCRA Hazardous Waste Management

DOT Hazardous Material Confined Space Entry Rescue - Team Member Current Medical Surveillance Documentation Fil-Tested for Respirator Use Advanced First Ald/CPR (American Red Cross) Excavation/Tranching Competent Person Haavy Equipment, Operations/Rescue DOT/PUCO Hazardous Waste Transportation/Trainer Tanket Roll-over, Transfer and Recovery Rail Car Competent Person Coast Guard, Shoreline Assessment/Clean-up Boom Deployment, Fast Water Weapons of Mass Destruction Awareness SafeLandUSA/PEC Basic Otientation Contractor Salely/Down Une Awareness (AEP) Contractor Salety (Range Resources, Rice Energy, Chesapeake, Antero, Williams, Gulfport, Marathon, Eclipso)





CLARK Operations Manager, **Environmental Services**

Frank Clark has more than 25 years of experience in the environmental services industry, including transportation and disposal, UST installation and removal, hazardous waste excavation/insitu treatment, TSCA remediation/excavation. remediation SVE (Soll Vapor Extraction), and ground water treatment systems. He has served in a number of roles including field technician, hazmat responder, sile foreman, site superintendent, project manager, hazardous/non-hazardous transportation manager, and operation manager.

EDUCATION

Associates degree, Business Manuaement, Lincoln Technical Institute, 1986-1987

TRAINING AND CERTIFICATIONS **OSHA 4D-hour HAZWOPER OSHA 30-hour Safety** Confined Space Enlry Confined Space Entry - Supervisor OSHA Hazardous Waste - Supervisor Drug & Alcohol Awareness - Supervisor Worksale (API) Tank Enliy (API) - Supervisor Aerial Work Platforms - Scissor & Boom Lift Sale Operation RCRA Hazardous Waste Management DOT Hazardous Molerial Advanced Tank Car Specialist (CSX - 24-hour) E-RAILSAFE Cerlification **Roadworker Salely** Transportation Worker Identification Credentials (IWIC)



JOSH DEARING Operations Manager, Environmental Services

Josh Dearing has more than 18 years of experience in the environmental services industry as a field technician, haz-mat responder, site superintendent, and operations manager, Josh has experlise in responding to emergency responses, including train derailments, pipeline releases, hazardous/non-hazardous chemical spills, UST installations and removals, and cleaning/ demolillon of ASTs.



ynan of dogreg work. Business, Eureka College,

TRAINING AND CERTIFICATIONS WHA AD HOKA HAZWOPER Advanced First Aid/CPR (American Red Cross) **RCRA Hazardous Waste Management** DOI Hazardous Malerial Confined Space Entry - Supervisor Confined Space Entry Rescue - Team Member Advanced Tank Car Specialist (CSX - 24-hour) E-RAILSAFE Certification Tank Entry - Supervisor (American Petroleum Institute) UST Installation/Retrofitting (NCCER Pipeline) Fall Protection Trenching & Excavation - (Association of Reciprocal Salety Council) Transportation Worker Identification Credenliab (TWIC)



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JOHN EHRNFELT, PE Vice President, Remedication Services

John Ehmielt has worked on a wide variety of environmental, remediallon, and avi protech including industriatsile cleanups, brownteld redevelopments, soil and groundwater treatment waste management, stormwater management landfil construction, and demoilion. He has performed site assessments, remedial design, project management and estimating for several large remediallon projects. John also has strong regulatory program experience, including working with the Ohio Voluntary Action Program, RCRA, and CERCLA.

EDUCATION

Bachelor of Science, Civil and Environmental Engineering, Cleveland State University, 2006 Professional Engineer (P.E.)

TRAINING AND CERTIFICATIONS OSHA 40-hour HAZWOPER OSHA Annual 8-hour Refreshers Professional Engineer (P.E.), State of Ohio Advanced First Ald/CPR [American Red Cross] Excavalion/Trenching Competent Person



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Jim Hawkins has more than 20 years of experience in the environmental services industry as an equipment operator, foreman, and field superintendent. Jim has developed expertise in haz-mat response (petroleum, volatiles, metak, PCBs); on-site project infrastructure excavation, transportation and disposal of contaminated solls; dredging and dewatering PCB solls, water, and sludge; landfill closure, drainage and sediment; levee and earth dam construction, stabilization/ solidification and erosion control; manutactured gas plant remediation; wetlands construction/ restoration; excavation, transportation and disposal of contaminated solls and confined space entry.

EDUCATION

Three Rivers High School, Three Rivers, MI Equipment Operator "A" school, U.S.

TRAINING AND CERTIFICATIONS OSHA 40-hour HAZWOPER OSHA 10-hour Safety Confined Space Entry Confined Space Entry Confined Space Entry Rescue Tearnwork Communication – I, II Navy Leadership Advanced First Aid/CPR (American Red Cross) Excavation/Trenching Competent Person

MSHA Transportation Worker Identification Credential (TWIC)

CHRIS CURTIS Program Manage

Chits Curlls has over 29 years of diverindustry experience specific to remediate the raikoad, and emergency response project has served in roles as a project manager, project superintendent, and regional manager.

EDUCATION

Bachelor of Science, Construction Technology, Purdue University

TRAINING AND CERTIFICATIONS

OSHA 40-hour HAZWOPER OSHA Annual 8-hour Refreshers OSHA Annual 8-hour Refreshers – Supervisor RCRA Trenching and Excavating OSHA Confined Space OSHA Site Safety Officer Advanced First Ald/CPR [American Red Cross] CSX Roadway Worker Protection E-RAILSAFE Certification





SCOTT WILSON Program Manager

Scott Wilson has over 29 years of diverse operational and project management experience in the amergency response, sile remediation, stream and sediment remediation and restoration and earthmoving industry. Scott has served as a field technician, sile supervisor, project engineer, operations manager, division manager and divisional sentor vice president.

EDUCATION Bachelor of Science, Environmental Madison University, 2002 TRAINING AND CERTIFICATIONS OSHA 40-Hour Health and Safety Trai

OSHA 8-Hour Annual HAZWOPER Retrest OSHA 40-Hour Health and Safety Training – 8-Hour Incident Command E-RAILSAFE Certification CSXT Annual Contractor Training CSXT Redi Center 24-Hour Advanced Tank Car Specialist Training Transportation Technology Center (TTCI) 40-Hour Advanced Tank Car Specialist CSXT Roadway Worker Protection Training OSHA Confined Space Entry Supervisor RCRA Annual Review Training



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Jim Gress has more than 25 years of experience in the hazardous waste industry with sile characterization and remediation; waste characterization, transportation and disposal; salety program development; worker training; data management; and corporate-level regulatory policy and program development. He has worked in project management, sile supervision, training, data management, technical writing and public relations.

EDUCATION

Masters, Applied Communication Theory and Methodology, Cleveland State University, 2000 Bachelors of Arts, Communication, Cleveland State University, 1994









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KARA ALLISON, APR Vice President, Sales & Marketing

Kara Alison directs corporate development strategies and communications for ENS. Kara's note experience as a nationally-recognized environmental consultant, a media relations coordinator for the Ohio Environmental Protection Agency, and a former newsponer reporter. An expert in business and project development, state and faderal environmental policy sues, reputation management, community outreach, media strategy, and crisis communications, Kara builds credibility with clients, legisiolors, government officials, municipatiles, community groups, and reporters by helping them understand the various environmental issues associated with projects.

EDUCATION

Bachelor of Arts, Journalism, Politics & Government, Humanilles & Classics, Ohio Wesleyan University, 1995

TRAINING AND CERTIFICATIONS

Accredited in Fubic Relations (APR) NIMS PIS and ICS-100 (FEMA) Public Relations Society of America (PRSA) PRSA. Central Ohio Chopter PRSSA Professional Advisor, Mariella College MSECA Board at Directors Manufacturing Alliance of Communilles Ohio Economic Development Association, Brownfields Subcommittee Ohio Women in Gavernment Commercial Real Estate Women, Greater Cincinnati Registered Lobbyist, State of Ohio Colonel. The Honorable Order of Kentucky Colonels



Bruce Markey has more than 25 years of environmental experience in business development and developing client relationships in the public and private sector. Bruce has managed aver 35 brownfield projects under the VAP, CORF and JobsOhio programs in Ohio involving site remediation, demoiltion, industrial cleaning, waste management, landfill capping, environmental construction, and vapor intrusion. Bruce is a certified applicator and inspector for various vapor barrier systems. Bruce Ucensed Professionat Geologist,

EDUCATION Bachelor of Science, Geology, 1979

TRAINING AND CERTIFICATIONS Licensed Protessional Geologist – Indiana (IN 1157) Certified Uquid Boot Inspector OSHA 40-hour HAZWOPER OSHA Annual 8-hour Refreshers OSHA Annual 8-hour Refreshers – Supervisor Confined Space Entry LPS Behavior-based Satety Training Current Medical Surveillance Documentation Fit-Tested for Respirator Use Advanced First Aid/CPR (American Red Cross)

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ENVIRONMENTAL SERVICES DIVISION

VACUUM TRUCK SERVICES

EMS owns and operates a fleet of well and dry vacuum trucks to remove liquids, sludges and/or solids from a wide variety of sites. Our super sucker vacuum trucks can transport waste directly to appropriate disposal facililles or transfer waste to vacuum boxes. frac tanks, or other containers for temporary storage on-site or off-site at an EMS service center.

EMS vacuum trucks also provide various onsite services Including vacuum enhanced recovery (dual phase extraction), product transfers, dewatering and support for various industrial service, emergency response, and storage tank management needs.

TANK AND PIT CLEANING

EMS has thoroughly trained technicians and owns the equipment required to enter and clean various-sized tanks and pits to remove all kinds of liquids, sludges, solids, and debris. All EMS employees are confined space entry trained and have experience cleaning even the most difficult-to-clean spaces while safely managing a wide variety of hazardous conditions.

OILFIELD SERVICES

from tank cleaning to emergency response, and super sucker vacuum trucks, EMS provides a wide range of services to the oil and gas industry, including:

- Emergency response (Irac-outs, splits, 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 Irucking

PRESSURE WASHING

EMS performs a variety of pressure washing services. Our partable fleet consists of units that range from 3,000 psi to 10,000 psi and includes both cold and hot pressure washing capabilities, which can be coupled with the use of environmentally triendly degreasers to clean oils, lubricants, greases and tals. We also provide field equipment designed to provide selfcontained water to clean areas that have imited water availability



Environmental Management Specialists, Inc.

EMERGENCY RESPONSE

EMS has highly-trained people and state-of-theart equipment ready and prepared to respond to a broad range of environmental emergencies, Including releases at transportation facilities, industrial facilities, utilities, and energy facilities. We also manage releases on roadways, railways, pipelines and waterways including lakes, rivers and tributaries.

Our extensive land and water resource capabilities Include:

- Abandoned wasles
- Damaged goods
- Derailments
- Leaking containers
- Leaking transformers
- Natural disasters
- Pipeline releases
- Roadside spills
- Waterway releases

At EMS, we manage spills from start-to-finish with various processes, including:

- Etablishment of secondary containment for leaking containers
- Containment booms and sorbent media, booms, and pads
- Recovering and transferring of product
- Protection of sensitive greas
- Prevention of spilled product migration
- Installation and maintenance of siphon dams
- Waste characterization
- Transportation and disposal of contaminated soils, materials, and wastes
- Site restoration to pre-spill conditions
- Thorough post-cleanup documentation

WASTE TRANSPORTATION

EMS is licensed to haut both hazardous waste and non-hazardous waste throughout our operating area. Our diverse fleet includes roll-off trucks. Itt gate box trucks, vacuum trucks, and tractor trollers. EMS employs a full-time DOT compliance officer and conducts regular safety and DOI compliance training with drivers and operators on all aspects of truck driving and operation.

PRODUCT TRANSFER

During routine maintenance projects or emergency response incidents, EMS has trained personnel and state-of-the-art equipment to transfer hazardous, nonhazardous, or lood grade products from rail cars, storage tanks, or tankers. With the use of hydraulic or air driven pumps, EMS can transfer any amount of product at a transfer rate of up to 300 gallons per minute.

LINE JETTING AND INSPECTION

EMS owns specially equipment and employs trained technicians to provide full-service line jetting services to remove obstructions, residues and/or contamination from sewer lines. EMS also provides Ine video inspection to evaluate the condition of a sewer the and to confirm successful cleaning after work completion.

FRAC TANKS, ROLL-OFF BOXES, AND VACUUM BOXES

EMS provides all types and sizes of bulk storage necessary to lacilitate our work at project sites including frac tanks, toll-off boxes and vacuum boxes. Whether the need involves temporary luel storage, contaminated water storage. sludge/sediment storage, or contaminated soil containerization. EMS can provide sufficient quantities of all appropriate containers.

HYDRO-EXCAVATION

EMS provides hydro-excavation on certain sites as an alternative to conventional excavation methods. Unlke traditional mechanical excavation, there is little chance of damage or disruption

to critical underground utilities

when pressure washing and high-power vacuuming are utilized to excavate. Hydroexcavation allows EMS to penetrate various soll

conditions, depths. widths ond



angles, while preserving natural surroundings. Hydroexcavalion equipment is directed at the desired excavation point while the soil slurry is vacuumed into a vacuum truck to be contained and/or transported off-site.

AIR KNIFING

Similar to hydro-excavation (without the water), air knifing utilizes high velocity air to penetrate, expand, and break up soil. The soil is then removed from the area using a powerful vacuum. Air knifing (aka potholing or daylighting) includes all of the advantages of hydro-excavation. In addition, air knifing results in dry soil waste, which typically reduces disposal costs compared to the sumy produced through hydro-excavation. Typical air knife applications include:

- Surgical excavation around known or suspected utilities
- Pre-drilling location clearance
- Underground utility location vertication
- Underground piping and conduit repairs
- Rehabilitation/desilting of small diameter injection wells

EQUIPMENT DECOMMISSIONING AND FACILITY DECONTAMINATION

EMS provides all facets of equipment decommissioning and factility decontamination from small-scale product line removal to large-scale facility closure activities.

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WASTE CHARACTERIZATION AND REMOVAL

EMS provides all aspects of waste management, including lob packing, waste identification, characterization, containerization, transportation, and treatment and disposal. EMS offers recycing, treatment, and disposal atternatives for all types of hazardous and non-hazardous waste in bulk as well as drum quantifies. EMS strives to provide customers with same-day, competitive price qualations as well as fast-track waste approval and shipment. Customers rely on EMS to handle all kinds of RCRA hazardous waste.

EMS customers have the assurance that their waste materials are managed in still accordance with all laws and regulations. The EMS system of environmental care starts at the generator's site with waste characterization and continues through the iccelpt and processing of the materials of the disposal facility. EMS personnel are experts at determining the most economical and environmentally-sound destination for each waste stream, and also assist customers with cost-saving attentives related to waste generating processes, treatment options, and material packaging.

CONFINED SPACE RESCUE TEAMS

When it comes to worker rescue, there are two types: non-entry and industrial entry teams. In most cases, non-entry rescue is preferred. But for many confined space rescue situations – which are often complex

and dangerous – entry rescue teams are the only option.

Unlike non-entry rescue, which offen can be performed by the entry attendant with minimal training, emergency service teams have more indepth training and use specialized equipment to save the worker tropped in the confined space.

EMS has thoroughly-trained entry rescue teams and the specialty equipment required to support our clients in the event of a confined space rescue.

TRAINING SERVICES

Our EMS trainers are industry experts straight from the field with extensive hands-on experience in a wide variety of EHS disciplines. This experience enables our uniquely-qualified trainers to put safety procedures into context and use real-world scenarios to explain the "how to" in the classroom. EMS training is about more than checking boxes. We focus on helping trainees learn and truly understand what fo do, how to do it, and why it needs to be done. Doing so leaves





a lasting impact and leads to salety 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
- ICAO/IATA Hazardous Materials
- IMO/IMDG Dangerous Goods
- Lockout Tag Out
- PEC SafeLand
- Personal Protective Equipment
- RCRA Hazardous Waste
- Respiratory Protection (with Fit Testing)
- First Aid/CPR/AED (can be offered as part of 40-hour, 24-hour, and CSR)



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ENVIRONMENTAL CASE STUDIES

Former Automotive Stamping Plant - Waste and Industrial Services - Hilliord, OH EMS provided characterization and removal of various hazardous and non-hazardous waste containers in addition to bulk waste removal and confined space Industrial cleaning. EMS removed approximately 250,000 gallons of oil and water from two oil water separators and five press plts. and pressure washed all surfaces ullizing 5.000-psi hot pressure wash units. EMS safety protocols required the implementation of lockout/ tagoul procedures, confined space procedures, and continuous air monitoring throughout the work.

Railroad Locomotive Terminal - Emergency Response - Indianapolis, IN EMS responded to a large gasaline spill at a locomotive terminal in Indianapolis. The cause of the spill was a leaking petroleum pipeline that ran through the terminal. Approximately 100,000 gallons of gasalne was discharged to a drainage ditch located on the properly which in lum discharged to a retention basin. EMS mobilized 3 supervisors, 6 operators and 5 lechnicians to the project site from 4 different EMS locations along with 5 service trucks, 3 vacuum trucks, and assorted PPE, pads,



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pillows and booms. EMS crews worked around the clock (12-hour shifts) and through the weekend for five days vacuuming gasoline from the retention pond and the drainage dich. After the bulk liquid was removed from the affected areas, EMS transitioned to air knling, hand digging, and heavy equipment operation to remediate the impacted soil, as well as 500,000 gallons of water and product, was removed and transported for offsite disposal.

Storm Damage (37 Transformer Spill Sites) - Emergency **Response - Southern Ohlo** As a result of a severe windstorm, EMS responded to multiple locallons where transformers had released PCB and non-PCB ofk. Several EMS crews with proper personal protective equipment (PPE) worked for seven days following the storm to complete site cleanup, waste management and thorough sile documentation for a lotal of 37 spill siles. The high volume of work, rapid response time regultements. and remote location of many of the siles presented unique challenges. EMS overcame these challenges while also addressing all commitments associated with daily EMS operations. Nothing less than extraordinary effort by our supervisors and crews enabled EMS to succeed in this emergency response. All 37 siles were granied NFA INo Further Action1 status and were closed out in accordance with applicable regulatory requirements.

Train Derailment – Emergency Response – Northern Ohio EMS responded to a train derailment with the release of 13.000 gallons of flammable liquid. EMS mobilized a multidisciplinary crew to complete Installation and

provide 24-hour product recovery services. EMS simultaneously assisted in delineating the extent of the spill through precision test pitting, including air knife excavation near a major liber oplic line, EMS also conducted extensive confined space entry work, examining on-site subterranean structures for spill-related waste. After establishing the limits of the spill, EMS assisted in the design al remediation technologies to miligate off-sile migration and consequently completed the installation of opproximately 500 linear feet of sheet piling to prevent product from impacting a nearby marsh. Following the inillal response. EMS was relained la provide daily product recovery support and waste transportation services while assisting with addillonal exploratory excavation, temporary water treatment system Installation, and site maintenance. In total, EMS mobilized two incident commanders, two project managers, six supervisors, 11 operators, 15 technicians, seven vacuum Irucks, three roll-off trucks, two air lancers with compressors. and 12 service trucks, in addition to multiple pieces of heavy equipment, 10 carbon vessels and four fully-equipped project trailers.

Tank Cleaning at Major Terminal Storage Facility – Industrial Services – Cincinnati, OH

EMS provided tank and line cleaning services for tanks containing canola oil as part of a product change-over. The process involved the use of a 10,000-psi waler blaster, scattolding, and all appropriate protocol for confined space entry. EMS crews cleaned and unloaded the line from the tank manifold to the rack, removed remaining product from the tank into a vac fruck for transportation



and disposal, and powerwashed the walk and flaors of the tank to clean II for new product storage. As a result of our attention-to-detail and strong safety practices, EMS continues to gain repeat work at this terminal.

Hydrostatic Testing Projects – Environmental Services and Emergency Response – Northern Kentucky

EMS was awarded a contract by a major utility to provide environmental services and emergency response support for hydrostatic testing projects in Northern Kentucky, Responsibilities included providing emergency response splil support, including vac truck services and spill containment/response measures: storage of pipeline cleaning solutions and rinse water; analysis, permitting and field coordination to allow for disposal of hydrostatic lest water to the local sanifary sewer system; analysis, treatment and disposal of cleaning solutions and tinse water at an approved facility: overall environmental project management; and site salely. Additional roles taken on during these projects included providing erosion and sediment controls for disturbed areas in accordance with the SWPPP plan: providing roll att containers

and disposal of pipeline pigging materials; providing PCB characterization of natural gas condensales and scrap piping; providing cleaning and disposal services for hydrostatic lesting frac tanks; and providing asbestos abatement of coal for coatings and gaskets encountered on the pipelines and ancillary equipment during the course of the project.

Tank and Plt Cleaning for Shale Gas Drill and Completion Pads – Industrial Services – Eastern Ohio and Western Pennsylvania

EMS was contracted to provide frac lank cleaning, plt cleaning and vacuum truck services for mulliple drill pads across Eastern Ohio and Western Pennsylvania. During rig skids or moves, EMS crews utlized hot pressure washer units and vacuum trucks to clean sludge and mud from frac tanks and plls, often under extreme weather conditions. Responsiveness, a strong work ethic, quality equipment and detailed record-keeping have been recognized by this producer as key EMS differentiators.

Residential Property – Emergency Response, Alr Knifing and Vapor/Fluid Recovery – Carroliton, OH EMS responded to a gasoline refease from a petroleum facility onto a residential property. This project included air knifing, excavalion. backfill, well installation, vacuum enhanced recovery (duat phase extraction). SVE system installation (soil vapor extraction) including design and construction, line (et camera video inspection and sile restoration. EMS's multi-stage approach resulted in the sale and permanent atimination of hazardous conditions on the property.

Solidification Services for Shale Gas Drill Pads - Industrial Services - Eastern Ohio EMS was contracted to provide 24hour on-site solicilication services for multiple drill pads. Operator/ supervisors were assigned to shale gas dill pads, where they employed the use of excavators to mix drill cutlings and related process fluids with power ash to solidify the waste in preparation for disposal. Operators were responsible for continuously solidifying and loading out waste to enable the drilling operations to flow seamlessly. Additionally, operators assisted with other rig dulles as requested.

...and more projects of varying size and complexity.

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REMEDIATION SERVICES DIVISION



SITE REMEDIATION

EMS provides a diverse range of remediation services / including:

- Mulli-faceled remediation
- Hog-and-haul sile remediation
- MGP site remediation
- Hazardous soil and groundwater treatment
- In-situ remediation system installation
- Gas and vapor barrier installation
- Sheet pling
- Impoundment pond and lagoon remediation
- Fueling station cleanup and UST removal
- Wetland, stream and channel restoration

EMS supplies top-quality field crews and equipment on each and every project site. Our equipment operators and hazardous material technicians have extensive and diverse project experience, and are well-respected in the environmental industry. We own a large assortment of equipment and also have ongoing contracts with several equipment suppliers throughout our operaling area to support our project needs.

TRANSPORTATION AND DISPOSAL OF CONTAMINATED SOIL AND WATER

EMS has completed hundreds of projects involving excavation of contaminated soil for off-site disposal. We've utilized dozens of disposal facilities for hazardous waste soil, non-hazardous soil, and soils meeting regulatory guidelines for beneficial reuse. EMS maintains ongoing relationships with numerous

Environmental Management Specialists, Inc. 25

disposal and recycling companies and is familiar with their capabilities and approval requirements to ensure a smooth and elicient working relationship from the initial approval process through final documentation receipt.

EMS also has extensive experience with management of contaminated water. When contaminated water is encountered on a sile, EMS has a wide variety of equipment to pump, filter, and containerize the water for characterization treatment, discharge, or off-sile disposal.

Backfil supply and placement is a key element of any sile remediation project involving the removal of contaminated soil. EMS personnel have broad civil construction experience and are knowledgeable about industry standards, means and methods required to achieve proper geotechnical placement, and compaction of backfill. With our extensive regional supplier and vendor relationships. EMS is able to provide specified backfill at a cost-effective price for any project.

MGP SITE CLEANUP

EMS is an experienced manufactured gas plant (MGP) site remediation contractor with experise managing the unique challenges and specific regulatory issues that apply to these sites. We are familiar with various cleanup and disposal alternatives associated with MGP sites, and EMS personnel are accustomed to the special subsurface conditions typical to MGP sites.

HAZARDOUS SOIL AND GROUNDWATER TREATMENT

As part of our pledge to be "more than a contractor," EMS strives to provide innovative approaches to meeting cleanup goals by the most economical means and methods possible. EMS has specialized expertise with several in-situ remediation lechnologies with an emphasis on safety, cost reduction, performance, and ease of use.

In-situ treatment of contaminated soil and groundwater can be achieved by various means and methods. Injection is a vlable and effective process on many sites, especially for groundwater. The soil treatment method preferred by EMS involves in-situ mixing with excavation equipment and specially mixing ditactments. Because the contamination is treated directly within the impacted area ("insitu") prior to generation of a waste, this method is especially beneficial when addressing contamination levels in excess of hazardous waste standards.

When comparing in-silu mixing and treatment of soil to more traditional "hog and haut" methods of hazardous waste remediation, in-situ treatment





achieves three simultaneous key objectives:

- 1. It significantly reduces overall project costs.
- 2. It is last-acting.
- 3. It prevents the generation of hazardous waste.

EMS utilizes various in-silu remediation technologies when addressing soil and groundwater contamination, including the following:

- In-situ chemical oxidation (ISCO)
- Metals stabilization/fixation
- Enhanced aerobic blodegradation
- Enhanced reductive dechlorination

IN-SITU REMEDIATION SYSTEM INSTALLATION

EMS has extensive experience with the construction and installation of in-situ remediation systems, including soil vapor extraction (SVE), air sparge, and pump & treat systems. EMS will procure the system companents, construct the system, and install associated trenches, piping and wells per the system specifications.

GAS AND VAPOR BARRIER INSTALLATION

Impermeable membranes are an ideal use on brownfields and other contaminated sites as an engineering control for pollulion containment. As a certified installer of various types of gas and vapor barrier systems. EMS can provide instaliation and design assistance to complete these complex projects.

EMS installs a variety of seamless cold spray applied, water-based, and VOC-free membranes and venting systems which provide a barrier against vapor intrusion into structures on brownfields or other environmentally impaired sites. EMS also installs various 2-part odorless, VOC-free vapor intrusion coaling systems that consist

> Environmental Management Specialists, Inc. 26

of chemically resistant materials to protect existing floor stabs and structures from the threat of contaminant vopor intrusion.

SHEET PILING

EMS provides installation of sheet pling in various configurations and site conditions. Using a vibratory drive head attached to a 35-metric-tan excavator, EMS has installed thousands of feel of steel sheeting, as well as HDPE sheeting, to prevent migration of confaminants of concern (COCs). EMS provides this service as a component of our site remediation capabilities, as well as a containment measure during large emergency response incidents.

IMPOUNDMENT POND AND LAGOON REMEDIATION

EMS is experienced with various means and methods for dewatering and solidifying sediment and sludge. EMS has a variety of equipment with which to effectively manage small to large-scale dewatering and solidification projects.

STORAGE TANK REMOVAL

EMS provides comprehensive tank removal, decommissioning, and demolition services across our operating area.

Wilh several certified personnel on staff, EMS provides lum-key removal services for various sizes at aboveground storage tanks (ASTs) and underground storage tanks (USTs), including the following:

- Permitting and inspection
- Product removal and tank cleaning
- Tank decommissioning and demolition
- Tank system removal
- UST closure-In-place
- Contaminated soil removal

Site restoration

WETLAND, STREAM, AND CHANNEL RESTORATION

EMS specializes in working collaboratively with consultants to implement design-build plans that improve the condition of wellands, streams, channels, and other natural systems. The EMS team is qualified to restore degraded streams and wellands to systems with enhanced fish and wildlife



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habilat, increased stability, diverse riparian corridors, and improved water quality. We are well-versed in deploying a broad range of construction techniques and measures in ecologically-sensitive systems, while working within the regulatory parameters for these specialized restoration projects.

BROWNFIELD DEMOLITION

Because a large percentage of brownfield cleanup projects involve a combination of demotifion and site remediation, EMS has expanded our capabilities to include demotifion services. By triing guaßlied and experienced personnel and investing in specialized demotifion equipment. EMS is able to provide turn-key demotifion services along with our core remediation capabilities.

Not only is EMS able to reduce costs for our customers by self-performing both demolilon and remediation work, but we are also better able to manage quality control and provide an exceptional level of project reporting and documentation.

On large siles with complex demolition needs, EMS often teams with strategic partners in the demolition industry. Combining resources and expertise on largescale brownfield projects has proven to be the salest, most economical, and most efficient approach to many of our projects.

We have a tremendous safely record, expertise in various disciplines, a proven track record and extensive project management experience on complex, high-profile redevelopment siles. Our project execution and documentation in this arena are second to none.

LANDFILL REMEDIATION

EMS specializes in landfill capping, repairs, closures and cell expansions, including:

- Geo-composite liner (GCL), HDPE liner, and cap construction
- Leachale collection piping
- Limited new cell expansion

SITE RESTORATION

Many of our equipment operators and sile supervisors have extensive civil construction experience. As such, EMS is able to provide a seamless transition from remediation to restoralion of the project sile. Sile restoration services provided by EMS include:

- Clearing and mulching
- Earthwork and grading (GPS accuracy and lasergrade quality)
- Excavallon
- Backfilling
- Paving
- Revegetation Stream and wetland restoration
- Stream and wetland restoration
- Geo-composite Ining (GCL)
- Lease and access road construction
- Water and sewer ine construction



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REMEDIATION CASE STUDIES



Former Manufactured Gas" Plant (MGP) Facility - Site Remediation - Marion, OH The objective of this project was to remove all sols impacted as a result of historic gas manufacturing activities on this 1.06-acre sile. while protecting utilities in the work area and the health and salely of site workers and residents in the surrounding neighborhood. EMS removed a total of 19,000 lons of contaminated soil, placed 10,000 cubic yards of backfill, and placed lopsoil and seed across the site. This project was completed on time and under budget despite exceptionally wel weather and related challenges associated wilh backlill placement and compaction.

Former Automotive Manufacturer - Gas Vapor Banler - Columbus, OH Due to the site history and compliance standards required under the Ohio Voluntary Action Program (VAP), approximately 240,000 square leet of 60-mil gas vapor barrier was installed as part of a passive vent system designed In miligate potential residual vapors and meet residential indoor air standards. In total, EMS installed more than 16,000 linear test at 2-Inch diameter vent pipe and more than 240,000 square feel of 60-mil LlauidBool@ liner

Former Dry Cleaner – Sile Remediation – Lyndhurst, OH On an especially expedited

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tennasis Halls Wallacis Levels with the environmental consultant to characterize and classify contaminated soil in several Identified areas across the site into five distinct disposal categories. EMS excavated and disposed of 6.800 tons of non-hazardous soil. 700 tans of hazardous waste soil for treatment or direct landlill, and 388,000 pounds of hazardous waste sail for incineration. Due to the close proximity to neighboring properties, EMS utilized vapor suppressing loam during certain phases of the project.

In conjunction with soil removal activities. EMS placed more than 7,700 lors of engineered fill across the site with construction-grade compaction. EMS also removed 200 tons of subsurface concrete structures and 10,000 gallons of contaminated groundwater. In addillon, EMS conducted air knling in the right-of-way in order to remove contaminated soil while protecting underground utilities in the area. This \$1 million Clean Ohio Revitalization Fund project was completed by EMS on schedule (23 working days from start to finish), under budget, and to the complete satisfaction of the environmental consultant and property developer.

Commercial Property Development – Site Remediation and In-situ Soli Treatment – Cleveland, OH In accordance with a Rule 13 permit and the Ohio EPA Voluniary

Action Program, EAS mobilized to this former manufacturing lacitly and removed 38,000 lans of soil contaminated with petroleum and heavy metals. Of that total, 3,000 fons of soil contained lead in excess of hazardous waste standards. EAS stabilized the lead-contaminated soil in place (In-silu), which in turn delivered significant savings compared to costs that would have been associated with off-sile disposal as hazardous waste.

Former Landfill - Wetland Construction - Steubenville, OH EMS was contracted to construct two bioremedial wellands lot the treatment of leachate seeps from a former landfill. A total of 3.50 acres of area was cleared to provide for the installation of two separate wetland features. Erosion and water fillration controls were installed to maintain water quality, as both welland areas were constructed in conjunction with existing streams. Excavation ol 3.000 cubic yards of unusable solls and overburden was required prior to initial grading of the areas. EMS Imported, placed, and compacted a total of 4.500 cubic yards of soll to build the required berms and basin areas. Following the grading process, the basin then was fined with a welded 40-mil geomembrane liner and covered with native soils excavated from other areas on site. The wellands were then planted with native welland plant material for the filtration of the seep water prior to discharge through an engineered

drainage system. All adjacent areas were restored with native grass species

Former Automotive

Manutacturer - Sile Remediation and Tank Removal ~ Baltimore, MD EMS was contracted to remove eight USTs, five all/water separators and 200 lons of petroleumcontaminated sail from the project site. The projected Iwo-week project was completed in six days. EMS delivered a 25 percent savings to the customer compared to blds received from local contractors from the Ballimore area. EMS remobilized during a subsequent phase of the project to excavate and remove 2.000 tons of leadcontaminated hazardous waste soll. EMS completed this soll removal on schedule and under budget,

Superfund Sile - Sile Remediation and Landill Cap - Zanesville, OH EMS conducted in-silu stabilization of 10,000 tons of lead-contaminated soil at the sile. Aller being treated to below regulatory standards, the soil was then excavated and transported to a non-hazardous waste landfill. We then imported thousands of lons of clay and graded the site to specifications developed by the environmental consulting firm in preparation for installation of a landfill cap. EMS then installed the landfill cap and liner, as well as all associated engineering controls. One notable obstacle on this project was the unusually large



amount of rainfall encountered at the job site during construction. EMS worked through these challenges and the project was completed to the consultant's complete satisfaction.

Former Industrial Property - Remediation System Installation and In-situ Soll Treatment - Canion, OH EMS successfully installed air sparge, soil vapor extraction (SVE), and groundwater hydraulic barrier in-situ remediation systems according to the specifications; removed perchloroethylene (PCE)-contaminated soil to the point of compliance; backfilled all excavations with constructiongrade compaction; and restored all surface features across this challenging former industrial site.

This project included removal of 7.320 ions of soll with nonhazardous PCE concentrations and 1,430 lons of C&D debis, as well as treatment and removal of 2,360 tons of soil with iniliat PCE concentrations above the hazardous waste standard. As part of a chemical oxidation treatment deslaned for the sile, chemicals were mixed insilu with the contaminated soil with initial PCE concentrations above the hazardous waste standard. Mbing look place in lifts using an excavator and mixing attachments. Mixing operations were conducted in various levels of personal protective equipment (PPE) from Level D PPE to Level 8 PPE. Vapor suppressing loam was utilized as needed based on air monitoring in order to prevent any impact on neighboring properties.

Former Industrial Facility – Sile Remediation and Demolilion – Cleveland, OH EMS was contracted to provide remaval and disposal of all building foundations, stabs, basements, vaulis and retaining walk, contaminated soil, and existing utility lines at this former Industrial sile. EMS removed a total of more than 4,000 cubic yards of subsurface concrete and 49,000 tons of contaminated soit. The onlire sile was backfilled with varlous fill motedab and graded per the specifications.

Former Industrial Facility -Site Remediation and Tank Removal - Cleveland, OH Before demoillon of the existing five-story building, EMS mobilized to identify, containerize, transport, and dispose of a wide variety of hazardous wastes inside the former industrial facility. Immediately following demolition, EMS mobilized to remove 90,000 gallons of petroleum-contaminaled water from three 20,000-gallon USTs and one 42,000-gallon UST. EMS Ihen excavaled, crushed and removed the four USTs from the site under the direction of our in-house certified lank installer. Prior to removal of soil, lab analysis indicated elevated levels of PCBs in the soll at two areas of the property. This discovery resulted in 2,500 lons of low-level PC8-contaminated soil being hauled to a non-hazardous disposal facility and 400 tons of high-level PCB-contaminated soll being hauled to a TSCA disposal lacility. After receipt of analytical results, EMS immediately submitted waste profiles for rush approval and was able to remobilize to the site the next day to begin removing both hazardous and nonhazardous soil. The fast lumaround minimized the costs associated with slandby lime and kept lhe sile redevelopment project on schedule. From other areas on the site, an additional 1,300 tons of petroleum-contaminated soil was hauled for bloremediation.

... and more projects of varying size and complexity.

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Some of our Clients we are so honored to serve...





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CLEVELAND

HEADQUARTERS & SERVICE CENTER 6909 ENGLE ROAD, SUITE C-31 CLEVELAND, OH 44130 440.816.1107

CHICAGO

1949 NORTH WOODLAWN AVENUE GRIFFITH, IN 46319 219.314.0367

CINCINNATI

1231 4TH AVENUE DAYTON, KY 41074 513.729.9238

COLUMBUS

4601 HOMER OHIO LANE GROVEPORT, OH 43125 614.567.6273

INDIANAPOLIS 2852 RAND ROAD INDIANAPOLIS, IN 46241 317.550.2495

TOLEDO

27800 LEMOYNE ROAD MILLBURY, OH 43447 419.386.2331

WHEELING | PITTSBURGH 229 BUTTE STREET STEUBENVILLE, OH 43952 740.278.3000

ZANESVILLE

2055 GRIEF ROAD ZANESVILLE, OH 43702 740,204,2210



Safety. Customer. Efficiency. Sustainability.

DATE: 9/12/2016

COMPANY: Atwell, LLC ATTENTION: Mike Koenig LOCATION: 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

np Sum \$55,800.00
+
no Sum \$27,500.00
np Sum \$4 800.00
GAL Drum \$15,000,00

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

- 1.1 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
- 2.1 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

- 3.1 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 1%% 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 tiabilities, 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

- 9.1 To the fullest extant 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' fees 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

15.1 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 confidentially, 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

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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.
- 16.2 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

X X X X X X X X X

- 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)
 - o Household hazardous waste from donation centers and city collection programs

o \$1.3 M in Department of Defense contracts scheduled for 2017

Key customers

- o Nike
- o 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)



April 14, 2017

5500 Old Brecksville Road • Independence, Ohio 44131 (216) 642-6040 • fax (216) 642-6041

We are an equal opportunity employer

Mr. Tom Leigh Atwell, LLC. 7100 East Pleasant Valley Road Suite 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.

Sinterely,

C

James Bower Project Manager

Precision Environmental Co.

SERVICES

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- Ashestos Abatement
 Environmental
- Remediation
- Selective Demolition
- Concrete Sawing & Drilling
- Floor Preparation
- HVAC Duct Cleaning
- ✓ Firestopping



Industrial Plant Experience

Honesty. Respect. Integrity. Innovation. Safety. Quality Workmanship. Loyalty. Commitment.

5500 Oid 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. 710JP of deactivated Righ voltage cable from the west pempus substation.



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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 bollers and associated insulation from vessels, fan ducts, heat exchangers, hoppers and other components. In addition, over 15,000 linear feat of plpe 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

2222

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

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 PRENCIPAL OFFICE: 5500 Old Brecksville Road

Independence, Ohio 44131

- [X] Corporation
- [] Partnezahip
- [] 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 added 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 laft margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA tend.

This document has important legal consequences. Consultation with an etiomey is encouraged with respect to its completion or modification.

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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

§ 1.2.1 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

§1.3.3 President's name: Anthony DiGeronimo

§ 1.3.4 Vice-president's name(s)

John E. Savage, Jr. Joseph DiGeronimo

§1.3.5 Scoretary's name: James Reeves

§1.1.6 Treasurer's name: Anthony DiGeronimo

§ 1.4 If your organization is a partnership, answer the following: § 1.41 Date of organization:

§ 1.A.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:

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§ 1.5.2 Name of owner;

§ 1.8 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.

§ 1. ECPERIENCE

§ 3.1 List the categories of work that your organization normally performs with its own forces.

Please see attached list

§ 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?

§ 3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

No

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(2533788901)

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

§ 4.2 Bank References:

PNC Bank 23000 Millcreek Boulevard Highland Hills, Ohio 44122 Contact: Andrew Rutherford (216) 222-7146

§ 4.3 Surety:

§4.3.1 Name of bonding company: Great American Insurance

§ 4.3.2 Name and address of agent: Jackson, Dieken & Associates

27893 Clemens Road, Suite 1

Contact: Maggie Loeser (440)250-6873

Westlake, Ohio 44145

5. FINANCING

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§ 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:

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- § 5.1.3 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

56. SIGNATURE

§ 6.1 Dated at this 13th day of April , 2017 Name of Organization: Precision Environmental Company By: Y Savage, Jr. - Vice President Title: John E. \$ 6.2

being duly swom deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and swom before me this 13th day of April 20 17

Notery Public:

I

My Commission Expires:

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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 Jarnes 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>driscche</u> Received by Cathy Fox – <u>cfox@pred</u>	el@precision-env.com Cision-env.com
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
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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 New Jersey

Asbestos Contractor

#01212

Exp: 09-02-17

State of Colorado

State of Illinois Asbestos Contractor #500-0743 Exp: 05-15-17 State of Indiana Asbestos Contractor #193606025 Exp: 02-16-18

> State of W.V. Contractor # WV034878 Exp: 02-09-18

State of Georgia Asbestos #70NF011866 Exp: 01-06-18

State of Virginia

Asbestos 3306001217 11/30/2017 State of Maryland Asbestos Contractor #M36-00-432 Exp: 8/3/2017

State of W.V. Asbestos #AC002482 Exp: 02-28-18

State of Kentucky

Asbestos

C17-516-1

Exp: 1-18-18

Asbestos #20961 Exp: 03-31-17 State of Tennessee

Asbestos A-F-4421-49755 4/30/2017 State of NY Asbestos Handling #29861 Exp: 04-30-17

State of S Carolina Contractor #CO-00435 Exp: 02-22-17

State of Virginia Contractor 2705161344

2/05161344 10/31/2018



January 6, 2020

Garrison Southfield Park LLC c/o Mr. Karl Heisler King & Spalding LLP 353 N. Clark Street, 12th 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 approximately¹ 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 I**, 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**.

¹ 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

E

Elias Rogatz Environmental Consultant

Lot Contall

Karl Primdahl Senior Project Manager

Mike Koenig Senior Project Manager

<u>Attachment I</u>

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.



Property Photographs 1655-1675 Watkins Road Columbus, Ohio Taken by: E. Rogatz Date: 7.16.19 Project No: 137530



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.



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.

	1 0
Property Photographs	Taken by: E. Rogatz Date: 7 16 19
1655-1675 Watkins Road	Project No: 137530
columbus, onio	.,



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 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: 137530 <u>Attachment II</u>

Bills of Lading

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STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL Carrier:	_E)
BOL # DOD (Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	Seal # 25994501 Trailer # 1031
Columbus, OH 43207	Pick Up Date/Time: 06127191215
sold To: Navotech	Booking/PO #
3960 Groves Road Columbus, OH 43232	

Phone:

Contact:

Special Instructions:

No. of Pkgs.	Kind of	Description of Product	Shipping	
	Package		Weight Lbs.	
26	GAYLORD CONTAINERS	CET- used cathole ray to bes	22,031 1,959 23,981	NET TARE 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 consignee 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: SANTOS	TIME OUT:
Signature : Ran Triendatte	Signature: D.J.Y	DATE:06 27 / 19
*As an authorized agent of Garrison Southfield Park LLC		

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL Carrier:	_E)
BOL # 2002 shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207	Seal # 25994502 Trailer # 1042 1536065 Pick Up Date/Time: 677119 1420
Sold To:	Booking/PO #



Phone:

Contact:

Special Instructions:

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs	
26	GAYLORD CONTAINERS	CRT-Used cathode Ray tubes, projection	17,932 1,950 19,882	NET TARE GROSS
		ienses		

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: Signature*: 6/2/15

Signature:



STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL Carrier:	E) control	
BOL # <u>COPS</u> shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207	-Seal # 2 S 9 9 4 S 9 1 Trailer # 5 9 1 / 1 9 Ø Pick Up Date/Time: 6 2 8 1 1 9 1 0 Ø Ø	
Sold To: Novotec 3960 Groves Road Columbus, Ott 43232	Booking/PO #	

Phone: Contact:

Special Instructions:

No. of Pkgs.	Kind of	Description of Product	Shipping	
	Package		Weight Lbs.	
26	GAYLORD	apt isod cathola	19,315	NET
have bed	CONTAINERS	CET - Oseq contribute	4281	TARE
		Kay Tiles	21,265	GROS
				1.
			A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A	
- 5 - 1				
1974				

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: Roger	Signature:	DATE:
*As an authorized agent of Garrison Southfield Park LLC	-junder selt	\sim
		1

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE) Carrier:			
BOL # DOOD 4 Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207	Seal # 5 2 25994592 Trailer # 4317.5 Pick Up Date/Time: 6 28 19 1130		
Sold To: Novotech 3960 Groves Road	Booking/PO #		

Columbus, 047 43232

Phone:

Contact:

Special Instructions:

No. of Pkgs.	Kind of	Description of Product	Shipping	
26	GAYLORD CONTAINERS	CRT-Used cathole Ray tubes / Projection lenses	Weight Lbs. 21,65¢ 1,95¢ 23,6¢¢	NET TARE GROSS

11

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 consignee 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 Rugo	Signature:	DATE:
*As an authorized agent of Garrison/Southfield Park LLC		X
	a sa string	100 ml

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL Carrier:	E)
BOL # 0005 Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207	Seal # 25994593 Trailer # 42631 Pick Up Date/Time:
	6128119 1330
Sold To:	Booking/PO #
Noustech 3960 Groves Rd Columbus, OH 43232	

Phone: Contact:

Special Instructions:

No. of Pkgs.	Kind of	Description of Product	Shipping	8 - S. I.
1.7.2.4.1.	Package		Weight Lbs.	
24	GAYLORD CONTAINERS	cet-Used cathode Ray tubes / Projection lenses	17,700 1,800 19,570	NET TARE 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 consignee 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*: *As an authorized agent of Garrison Southfield Park LLC	Signature:	DATE:

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABI Carrier:	_E)
BOL # 0006 shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	-Seal # 25994594 Trailer # 51119φ
Columbus, OH 43207	Pick Up Date/Time: 6/28/19 1420
Sold To:	Booking/PO #
3960 Groves Road Columbus, OH 43232 Phone:	

Special Instructions:

No. of Pkgs.	Kind of	Description of Product	Shipping	
4	Package		Weight Lbs.	
26	GAYLORD CONTAINERS	CRT-Used cathode Ray tobe / projection	18,501 1,950 20,451	NET TARE GROSS
		lens		

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 consignee 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*: El Rogad	Signature:	DATE:
*As an authorized agent of Garrison Southfield Park LLC	Hise X	Mone Vara V
	11000-	- loto da 2

「秋気はから」うたうほど

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL Carrier:	E) ••••
BOL # OXPO7	Seal # 7500000
Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	Trailer # 43175
Columbus, OH 43207	Pick Up Date/Time:
	6/28/19/600
Sold To:	Booking/PO #
Novotech	
396 p Groves, Road	
Columbus, 0H, 43232	
Phone:	

Contact:

Special Instructions:

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs.	
26	GAYLORD CONTAINERS	CRT- cathode my tober- used / projection lens	15,400 1950 17,350	NET TARE GROSS
		4		

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*: E. Roger	Signature:	DATE:
As an authorized agent of Garrison Southfield Park LLC	1100 -010-0	
		and a second second second second second second second second second second second second second second second

STRAIGHT BILL OF LADING, (ORIGINAL NON-NEGOTIABL Carrier:	.E)
BOL# COOPS	Seal #
shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	25994521 Trailer # 431775
Columbus, OH 43207	Pick Up Date/Time: 713119 0945
Sold To:	Booking/PO #
Phone: Columbus 43232	

Special Instructions:

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs.	
2.5	GAYLORD CONTAINERS	CRT- Used cathode Ray tubes / projection herds	19,149 1875 21,024	NET TARE 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*: $\bigcirc \cap \square = \bigcirc$	Signature:	DATE:
. Che V La manager	North Contraction	
As an authorized agent of Garrison Southfield Park LLC	. Collection and the set	

BOL # 0009 Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207	Seal # 2599 4522 Trailer # 51119 Ø Pick Up Date/Time: 7 3119 12 ØØ
Sold To: Novotech 3960 Groves Rd Columbus, OH 43232	Booking/PO #

Phone:

Contact:

Special Instructions:

No. of Pkgs.	Kind of	Description of Product	Shipping	
	Package		Weight Lbs.	
23	GAYLORD CONTAINERS	CRT-coded cathode 3	4,521 1,725 36246	NET TARE
		Ray tobes	50,010	GROSS
3				

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*: The Hogg of Hogg o	Signature:	DATE:
	and the second and the	

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL Carrier:	.E) "
BOL # CD CD I CD Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207	Seal # 5994523 Trailer #51119 0 Pick Up Date/Time: +13119 1530
Sold To: Novotec 3960 Groves Rd Columbus, 43232, Ott	Booking/PO #

Phone: Contact:

Special Instructions:

No. of Pkgs.	Kind of	Description of Product	Shipping	
	Package		Weight Lbs.	
26	GAYLORD CONTAINERS	CRT-Leed cathode 1 Ray tubes 1 projection lenser	1,454 1,454 21,407	NET TARE 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 consignee 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*: S.C. Rugd	Signature:	DATE:
*As an authorized agent of Garrison Southfield Park LLC	Atra	July 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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT062719-1

 B.O.L.
 0001

 Invoice #
 22793



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT062719-2

 B.O.L.
 0002

 Invoice #
 22794



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT062819-5

 B.O.L.
 0003

 Invoice #
 22798



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT062819-1

 B.O.L.
 0004

 Invoice #
 22795



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT062819-2

 B.O.L.
 0005

 Invoice #
 22796



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT062819-3

 B.O.L.
 0006

 Invoice #
 22797



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT062819-4

 B.O.L.
 0007

 Invoice #
 22799



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT070319-1

 B.O.L.
 0008

 Invoice #
 22849



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT070319-2

 B.O.L.
 0009

 Invoice #
 22863



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT070319-3

 B.O.L.
 0010

 Invoice #
 22844

<u>Attachment IV</u>

Ohio EPA Interpretive Letter



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

December 5, 2018

Garrison Southfield Park LLC Re: Closed Loop Refining and Recovery, Inc. c/o Mr. Karl Heisler **General Correspondence** Katten Muchin Rosenman LLP 525 West Monroe Street Chicago, IL 60661

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

Sarah Miles, Legal ec: Melissa Storch, DERR/CDO Elizabeth Ewing, Ohio AGO

> 50 West Town Street • Suite 700 • P.O. Box 1049 • Columbus, OH 43216-1049 epa.ohio.gov • (614) 644-3020 • (614) 644-3184 (fax)

<u>Attachment V</u>

Ohio EPA Disbursement Approvals

From:	Melissa.Storch@epa.ohio.gov
То:	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
	<u>13753e-55754.pdf</u>
	<u>13753E-BACK UP.pdf</u>

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



 Ohio Environmental Protection Agency
 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 <u>karl.heisler@kattenlaw.com / www.kattenlaw.com</u>

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Did You Know: Children of parents who talk to their teens about drugs are up to 50% less likely to use. Start the conversation: <u>StartTalking.Ohio.Gov</u>

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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 <u>Invoice</u>

July 31, 2019 Invoice No: 55754

Please reference this invoice no. on your remittance.

Project Manager Karl Primdahl

	Total Di	ue This Invoice (see breakdown belo	w): \$12,586.	91				
Project	13753000	13753O00 1655 & 1675 Watkins Rd Columbus, OH						
Professional Serv	vices for the Period	: July 01, 2019 to July 31, 2019						
Billing Group: Professional servic (Former Closed Lo	3 ces rendered and pro oop site), Columbus	Projection Lens Remediation oject costs incurred to conduct Project Lens Reme s, Ohio. Reference AKT Peerless' revised Work Pl	diation for the property located at an dated March 21, 2019 for deta	t 1655-1675 Watkins Road, ils.				
Phase Professional Pers	70 sonnel	Projection Lens Remediation						
		Hours	Amount					
Project Manageme	ent	18.00	2,250.00					
Site Investigation	& Field activity	54.50	6,680.00					
Report Activity/Pr	roduction	15.00	1,500.00					
		87.50	10,430.00					
	Totals	87.50	10,430.00					
	Total Labor	r		10,430.00				
Reimbursable Ex	kpenses							
Travel Expen	ises		984.79					
Mileage			792.36					
Meals			225.96					
Field Supplie	28		153.80					
	Total Reim	bursables	2,156.91	2,156.91				
			Total Phase	\$12,586.91				
			Fotal Billing Group	\$12,586.91				

Invoice Amount \$12,586.91

AKTPeerless Environmental Services, LLC. ACCEPTS:



Project	13753000	1655 & 1675 Watkins Rd Columbus, OH			Invoice	55754
Outstanding 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	13753000	1655 & 1675 Watkins Rd	1655 & 1675 Watkins Rd Columbus, OH			55754	
Billing	Backup					07, 2019	
AKTPeerless	Environmental Service	s, LLC. Invoic	e 55754 Date	ed 7/31/2019	10:4	4:16 AM	
Project	13753000	1655 & 1675 Wat	kins Rd Colu				
Billing Group	: 3	Projection Lens Remediatio					
Phase	70	Projection Lens Remediatio	n — — — —				
Professional 1	Personnel						
			Hours		Amount		
Project N	Ianagement						
PRIMDAHL KS01	Primdahl, Karl	7/1/2019	2.00	125.00	250.00		
	Project Lens Remedia	tion - Project Management asso	ciated with th	ne scheduling			
PRIMDAHL KS01	Primdahl, Karl	7/2/2019	2.25	125.00	281.25		
	Project Lens Remedia	tion - Project Management asso	ciated with th	ne scheduling			
PRIMDAHL KS01	Primdahl, Karl	7/3/2019	2.00	125.00	250.00		
	Project Management a	ssociated with scheduling and F	Remediation	activities			
PRIMDAHL KS01	Primdahl, Karl	7/8/2019	2.00	125.00	250.00		
	Project Management	5/10/2010	1 50	125.00	105 50		
KS01	Primdahl, Karl	//10/2019	1.50	125.00	187.50		
	Project Management a	ind communication with staff / S	Scheduling				
KS01	Primdahl, Karl	//17/2019	1.25	125.00	156.25		
1.001	Communication with I discrepencies	Mike K. regarding the schedule,	report, weig	ht			
PRIMDAHL KS01	Primdahl, Karl	7/18/2019	2.50	125.00	312.50		
	Review and Edit Sum	mary Letter					
PRIMDAHL KS01	Primdahl, Karl	7/19/2019	.75	125.00	93.75		
	Report Review						
PRIMDAHL KS01	Primdahl, Karl	7/25/2019	2.50	125.00	312.50		
	Preparation and review invoice	v of summary report, review, re	vision and su	bmittal of			
PRIMDAHL KS01	Primdahl, Karl	7/30/2019	1.25	125.00	156.25		
	Summary report & sch	nedule					
Site Inve	stigation & Field activi	ty					
KOENIGMO 01	Koenig, Mike	7/1/2019	5.25	160.00	840.00		
	Status of field work with site team, coordination of additional containers and associated costs for AKT, EMS, and Novotec, establish plan to finish and extra days needed on-site						
KOENIGMO 01	Koenig, Mike	7/2/2019	1.75	160.00	280.00		
	field work status with team, container count, scheduling for finish and final truck loads						
KOENIGMO 01	Koenig, Mike	7/3/2019	13.50	160.00	2,160.00		
	On-site - Final day of containers, and arrang facility, and demob fo	process, loading out 3 trucks, di ing trucking for last additoinal l r AKT and EMS	scovery of ac oad to Novot	dditoinal 26 ec, close up			

AKTPeerless Environmental Services, LLC.



Project	137530	3753O00 1655 & 1675 Watkins Rd Columbus, OH				Invoice	55754		
ROGATZEO 01	Rogatz, H	Elias	7/1/2019	12.50	100.00	1,250.00			
	Projection OH site.	n Lens Remediati Process projection	emediation - Mobilization from Cleveland, OH to Columbus, projection lens material for shipment.						
ROGATZEO 01	Rogatz, E	Elias	7/2/2019	9.00	100.00	900.00			
	Projection Closed L	n Lens Remediati oop facility	ion - Process and ship pro	ojection lens ma	terial from				
ROGATZEO 01	Rogatz, F	Elias	7/3/2019	12.50	100.00	1,250.00			
	Projection OH. Proc	n Lens Remediati ess projection ler	ion - Mobilization from C as material for shipment.	Columbus, OH t	o Cleveland,				
Report A	Activity/Pro	oduction							
ROGATZEO 01	Rogatz, E	Elias	7/9/2019	4.00	100.00	400.00			
	Project L inventory	ens Remediation tracking	- Establish inventory dat	abase for shipm	ent and staged				
ROGATZEO 01	Rogatz, E	elias	7/10/2019	3.50	100.00	350.00			
	Project L inventory	ens Remediation tracking	- Establish inventory dat	abase for shipm	ent and staged				
ROGATZEO 01	Rogatz, E	Elias	7/15/2019	1.50	100.00	150.00			
	Projection	n Lens Remediati	ion - Compile resources f s and shipping document	for client report	delivery				
ROGATZEO 01	Rogatz, E	Elias	7/16/2019	4.00	100.00	400.00			
	Projection activities	n Lens Remediati for the first phase	on - Draft letter to client e of the project.	summarizing th	e field event				
ROGATZEO 01	Rogatz, H	Elias	7/19/2019	2.00	100.00	200.00			
	Projection documen	n Lens Remediati t for client delive	ion - Finialize report lang ry.	guage and assem	ble final PDF				
		Totals		87.50		10,430.00			
		Total Labor					1	0,430.00	
Reimbursabl	le Expense	S							
Travel Expen	ses								
00000	0011604	6/24/2019	Rogatz, Elias / holiday	inn		567.85			
00000	0011604	7/1/2019	Rogatz, Elias / holiday	' inn		301.46			
63410)	7/9/2019	Karl Primdahl / Invoic	e: 070419, 7/4/2	2019	115.48			
Mileage									
00000	0011604	6/24/2019	Rogatz, Elias / site visi	it		92.00			
00000	0011604	6/25/2019	Rogatz, Elias / hotel to	site		11.50			
00000	0011604	6/26/2019	Rogatz, Elias / hotel to	site		11.50			
00000	0011604	6/27/2019	Rogatz, Elias / hotel to	site		11.50			
00000	0011586	6/27/2019	Koenig, Mike / site vis	sit		189.18			
00000	0011604	6/28/2019	Rogatz, Elias / back to	cleveland		92.00			
00000	0011604	7/1/2019	Rogatz, Elias / site visi	it		92.00			
00000	0011604	7/2/2019	Rogatz, Elias / hotel to	site		11.50			
00000	0011604	7/3/2019	Rogatz, Elias / back to	cleveland		92.00			
00000 Meals	0011586	7/3/2019	Koenig, Mike / site vis	sit		189.18			
00000	0011604	6/24/2019	Rogatz, Elias / meal			31.38			
00000	0011604	6/25/2019	Rogatz, Elias / meal			25.89			
00000	0011604	6/26/2019	Rogatz, Elias / meal			38.03			
00000	0011604	6/27/2019	Rogatz, Elias / meal			26.08			
00000	0011586	6/27/2019	Koenig, Mike / lunch			10.15			
00000	0011604	7/1/2019	Rogatz, Elias / meal			34.82			
		-							

AKTPeerless Environmental Services, LLC.


Projec	t 13753C	000	1655 & 1675 Watkins Rd Columbus, OH		Invoice	55754	
	000000011604	7/2/2019	Rogatz, Elias / meal	34.82			
	63410	7/9/2019	Karl Primdahl / Invoice: 070419, 7/4/2019	10.96			
	63410	7/9/2019	Karl Primdahl / Invoice: 070419, 7/4/2019	13.83			
Field S	Supplies						
	000000011604	6/22/2019	Rogatz, Elias / packing tape etc	34.76			
	000000011604	6/24/2019	Rogatz, Elias / water	14.93			
	000000011604	6/30/2019	Rogatz, Elias / supplies for field event	104.11			
		Total Reimb	ırsables	2,156.91	2,	156.91	
				Total Phase	\$12,	586.91	
				Total Billing Group	\$12,	586.91	
				Project Total	\$12,	586.91	
				Total this Report	\$12,	586.91	



Project	13753000	1655 & 1675 Watkins Rd	l Columbus, C	ЭH	Invoice	55650
Billing	Backup				Tuesday July	23 2019
AKTPeerless	Environmental Service	ces, LLC. Invoic	e 55650 Date	d 7/23/2019	4:3	9:34 PM
Project	13753000	1655 & 1675 Wate	cins Rd Colur	nbus, OH		
Billing Group	:3	Project Lens Remediation				
Phase	70	Project Lens Remediation				
Professional l	Personnel					
Drojaat M	Ionogomont		Hours		Amount	
KOENIGMO 01	Koenig, Mike	6/10/2019	.75	160.00	120.00	
	Projection Lens Rem project	nediation - coord with client and in	nternal to sch	edule start of		
KOENIGMO	Koenig, Mike	6/11/2019	4.25	160.00	680.00	
01	Projection Lens Rem and coord with clien mobilization efforts	nediation - Internal prep and mater t, Bolon, and EMS regarding start	rials for start t of work, sch	of work, calls eduling, and		
KOENIGMO	Koenig, Mike	6/12/2019	.50	160.00	80.00	
01	Projection Lens Rem	nediation - project bill of lading ar	nd load sheet	prep		
KOENIGMO 01	Koenig, Mike	6/17/2019	5.50	160.00	880.00	
	scheduling and prep equipment and suppl	with EMS, preparing BOLs and s ies, confirm Shipper entity and si	hipping logs, gning as ager	assembling at of garrison		
KOENIGMO 01	Koenig, Mike	6/18/2019	3.25	160.00	520.00	
	project kick off meet	ing at site with EMS				
KOENIGMO 01	Koenig, Mike	6/19/2019	2.75	160.00	440.00	
	scheduling and prep equipment and suppl review of EMS revis RE schedule	with EMS, preparing BOLs and s ies, confirm Shipper entity and si ed quote for project duration and	hipping logs, gning as ager coord with E	assembling at of garrison, MS and Karl		
KOENIGMO 01	Koenig, Mike	6/21/2019	1.75	160.00	280.00	
	scheduling and prep equipment and suppl with Bolon and Kuus	with EMS, preparing BOLs and s ies, call with Ohio EPA RE their s	hipping logs, visit, and true	assembling cking pick up		
PRIMDAHL KS01	Primdahl, Karl	6/10/2019	1.50	125.00	187.50	
	Project Prep					
PRIMDAHL KS01	Primdahl, Karl	6/12/2019	1.50	125.00	187.50	
	Project Prep					
PRIMDAHL KS01	Primdahl, Karl	6/24/2019	17.00	125.00	2,125.00	
	Project Lens Remedi	atiion - Moblization and Remedia	ation Oversig	ht		
PRIMDAHL KS01	Primdahl, Karl	6/25/2019	1.50	125.00	187.50	

Projection Lens Remediation - Project Management



Project	13753O00	1655 & 1675 Watkins	Rd Columbus, 0	ЭН		Invoice	55650	
PRIMDAHL KS01	Primdahl, Karl	6/26/2019	1.50	125.00	187.50			
	Project Management							
PRIMDAHL KS01	Primdahl, Karl	6/27/2019	16.00	125.00	2,000.00			
	Projection Lens Remed	liation - Moblization and Ov	versight of Field	Activities				
PRIMDAHL KS01	Primdahl, Karl	6/28/2019	1.25	125.00	156.25			
	Projection Len Remedi Project Kick off and ov	ation - 4 hours moblization versight, project managemen	on 6/23/19, 13 h at including mob	ours on-site lization time				
Administ	tration Activity							
GELLETLYJ F01	Gelletly, Jennifer	6/19/2019	.50	55.00	27.50			
<i></i>	New BG							
Site Inve	stigation & Field activity	y 		1 40 00	• • • • • • •			
KOENIGMO 01	Koenig, Mike	6/24/2019	12.75	160.00	2,040.00			
KOENIGNO	Day I - Projection lens	remediation - on-site	2.50	1 (0,00	100.00			
01	Koenig, Mike	6/25/2019	2.50	160.00	400.00			
	Day 2 - Projection lens	remediation - remote mana	gement and statu	IS				
KOENIGMO 01	Koenig, Mike	6/26/2019	1.50	160.00	240.00			
	Day 3 - Projection lens	remediation - remote status	and managemen	nt				
KOENIGMO 01	Koenig, Mike	6/27/2019	10.75	160.00	1,720.00			
	Day 4 - Projection lens	remediation - on-site						
KOENIGMO 01	Koenig, Mike	6/28/2019	1.50	160.00	240.00			
	Day 5 - Projection lens	remediation - remote status	and management	nt				
PRIMDAHL KS01	Primdahl, Karl	6/17/2019	2.00	125.00	250.00			
	Projection Lens Remed	liation - Prep for mobilization	on and site meeti	ng				
PRIMDAHL KS01	Primdahl, Karl	6/18/2019	13.00	125.00	1,625.00			
	Project Lens Remediati contractore	on - On-site pre-remediatio	n and safety mee	eting with				
PRIMDAHL KS01	Primdahl, Karl	6/20/2019	3.00	125.00	375.00			
	Order and Pick up H&S	supplies	2.00	125.00	275.00			
KS01	Primdani, Kari	6/21/2019	3.00	125.00	375.00			
DOCATZEO	Projection Lens Remed	liation - Prep for projt start i	лр 2 25	100.00	225.00			
01	Rogatz, Elias	6/17/2019	3.25	100.00	325.00			
	transport documents, di necessary supplies and	iscuss mobilization and site equipment	walk activities, o	order				
ROGATZEO 01	Rogatz, Elias	6/18/2019	9.25	100.00	925.00			
	Projection Lens Remed dicuss mobilization nee site.	liation - Site visit and site weeds and equipment requirem	alk with EMS pe ents. Travel time	ersonnel to e to and from				
ROGATZEO 01	Rogatz, Elias	6/19/2019	1.50	100.00	150.00			
	Projection Lens Remed	liation - Prepare field forms	for field activity	, discuss				

Projection Lens Remediation - Prepare field forms for field activity, discuss quote changes and project scheduling to determine mobilization activities.



VISA

PayPal

Project	13753C	000	1655 & 1675 Watkins F	Rd Columbus, C	DH	In	voice 55650)
ROGATZEO	Rogatz, E	lias	6/20/2019	1.50	100.00	150.00		
01								
Projection Lens Remeatation - Finialize mobilization tasks, equipment, and H+S supplies for field activity. Finish field form drafts for shipping documents								
ROGATZEO	Rogatz F	lias	6/21/2019	3 50	100.00	350.00		
01	Rogatz, E	1145	0/21/2019	5.50	100.00	550.00		
	Projection	n Lens Remediati	on - Finialize field mobili	ization schedule	and required			
	supplies.	Print and process	all necessary field docum	ients for first pl	nase of the			
POCATZEO	project.	lion	6/24/2010	11.50	100.00	1 150 00		
01	Rogatz, E	anas	0/24/2019	11.50	100.00	1,130.00		
	Projection	n Lens Remediati	on - Mobilization to Colu	mbus, OH from	n Cleveland,			
	OH. Begi	n projection lens	field remediation activitie	es by setting up	field space to			
DOCATZEO	begin pro	cessesing materia	al.	0.00	100.00	000.00		
ROGATZEO 01	Rogatz, E	lias	6/25/2019	9.00	100.00	900.00		
01	Projection	n Lens Remediati	on - Process projection le	ns material for	staging and			
	shipment	out of Closed Lo	op facility.					
ROGATZEO	Rogatz, E	lias	6/26/2019	9.00	100.00	900.00		
01	Б							
	Projection	n Lens Remediati	on - Process projection le	ns material for	staging and			
ROGATZEO	Rogatz. F	lias	6/27/2019	9.50	100.00	950.00		
01	110 guill, 12		0,21,2017	2.00	100100	20000		
	Projection	n Lens Remediati	on - Process projection le	ns material for	staging and			
	shipment	out of Closed Lo	op facility. Ship 2 trucklo	ads of processe	d projection			
ROGATZEO	Rogatz E	hovotech Recyci	ing. 6/28/2019	12.00	100.00	1 200 00		
01	Rogatz, L	ands	0/20/2019	12.00	100.00	1,200.00		
	Projection	n Lens Remediati	on - Process projection le	ns material for	staging and			
	shipment	out of Closed Lo	op facility. Ship 5 trucklo	ads of processe	d projection			
	lenses to l	Novotech Recycl	ing. 190 containers of pro	Jection lenses p	processed by			
Report A	ctivity/Pro	duction	In Columbus, OH to Cleve	cialid, OII				
CARRJS01	Carr. Jeff	rev	6/11/2019	1.00	140.00	140.00		
	Assist Mi	ke K. with Phase	I projection lens remedia	tion preparation	1			
		Totals	I J	180.50		22,463.75		
		Total Labor					22,463.75	
Reimbursabl	e Expense	s						
Mileage	e Expense	5						
00000	0011566	6/18/2019	Koenig Mike/sitevisi	t		136.85		
00000	0011566	6/24/2019	Koenig, Mike / site visi	t		189.18		
Field Supplies	8			-		10/110		
00000	0011547	6/17/2019	Rogatz, Elias / field sup	oplies		28.75		
00000	0011547	6/18/2019	Rogatz, Elias / field sup	oplies		19.55		
00000	0011547	6/19/2019	Rogatz, Elias / field sup	oplies		52.88		
00000	0011547	6/20/2019	Rogatz, Elias / field sup	oplies		40.24		
63214		6/21/2019	Accurate Safety Distrib	utors, Inc. / Inv	oice: 426101,	1,437.81		
00000	0011547	6/21/2010	0/20/2019 Rogatz Elias / field sur	nlies		26.01		
00000	0011347	Total Reimbur	rogaiz, Ellas / Helu Sup	pries		30.81 1 942 07	1 942 07	
		Total Kellibu	sabies			1,742.07	1,942.07	
					Tota	l Phase	\$24,405.82	
						~		
					Total Billing	Group	\$24,405.82	
							** *	
					Projec	ct Total	\$24,405.82	
					Ta4-1 41.**	Doport	\$71 ADE 97	
					i otai this	Report	₽ 24,403.82	
			AKTP	eerless Environr	nental Services, LL	C.		
				ACCE	PTS:			
			V	ISA Margoria	- Paypal			



214 JANES AVE SAGINAW, MI 48607

Karl Heisler Katten Muchin Rosenman LLP 525 West Monroe Street Chicago, IL 60661

Project Manager Mike Koenig

<u>Invoice</u>

July 23, 2019 Invoice No:

55650

Please reference this invoice no. on your remittance.

Total Due This Invoice (see breakdown below):

P: 989-754-9896

F: 989-754-3804

\$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/Prod	uction	1.00	140.00	
		180.50	22,463.75	
	Totals	180.50	22,463.75	
	Total Labo	r	22,463.7	5

AKTPeerless Environmental Services, LLC. ACCEPTS:



Project	1375	3000	1655 & 1675 W	atkins Rd Columbus, C	ΟH	Invoice	55650
Reimbu	ırsable Exper	Ises					
Mi	leage						
	C	Koenig, Mike		site visit	136.85		
		Koenig, Mike		site visit	189.18		
Fie	eld Supplies						
		Rogatz, Elias		field supplies	28.75		
		Rogatz, Elias		field supplies	19.55		
		Rogatz, Elias		field supplies	52.88		
		Rogatz, Elias		field supplies	40.24		
	6/20/2019	Accurate Safety	y Distributors, Inc.	field supplies	1,437.81		
		Rogatz, Elias		field supplies	36.81		
		Total Reimbur	rsables		1,942.07		1,942.07
					Total Phase	\$2	24,405.82
					Total Billing Group	\$2	24,405.82
					Invoice Amount	\$2	24,405.82
Outstar	nding Invoice	s					
	Ν	umber	Date	Balance			
	54	4931	4/30/2019	720.00			
	55	5258	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

AKTPeerless Environmental Services, LLC.



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 (EMS)
Date:	Tuesday, July 23, 2019 1:36:50 PM
Attachments:	<u>Closed Loop Projection Lens Escrow Agreement.PDF</u> 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 _____ CONFIDENTIALITY NOTICE: This electronic mail message and any attached files contain information intended for the exclusive use of the individual or entity to whom it is addressed and may contain information that is proprietary, privileged, confidential and/or exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any viewing, copying, disclosure or distribution of this information may be subject to legal restriction or sanction. Please notify the sender, by electronic mail or telephone, of any unintended recipients and delete the original 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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525 W Monroe Street

Chicago IL 60661-3693

Bill To: Garrison Southfield Park LLC

Katten Muchin Rosenmann LLC

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 #:

Quantity	Description	Unit Price	Extended Price
	Job Site: 1655/1675 Watkins Road Columbus, OH 43207		
	June 24, 2019 - July 3, 2019		
1.00	Quoted Work: Projection Lens Project	49,020.00	49,020.00

Thank You For Your Business!

49,020.00

Environmental Services Project Billing Summary									
EMS	EMS Proj	ect Manager:	Frank Clark		Date:	7/:	17/20)19	
		Prepared By:		Frank Clark		-			
			Project Infor	mation					
EMS Job Name:	Proi	ection Lens P	roiect		EMS J	ob Number:			54483
Income Type:	Industrial Services	ID:	506	Rate	Sheet:		2019 Prefer	ed	
			Customer Info	ormation					
Bill To Company:	Garri	son Southfie	d Park	Purchas	e Order:		Signed Cont	ract	
Client Contact		Karl Heisler					-		
Client Email	karl.he	isler@katten	law.com	Doc. Type:		Partial	Invoice		
Billing Email	koenig	gm@aktpeerl	ess.com	Billing Range:	From:	6/24/19	To:	7/3/	'19
Not	es:								
CC: Mik	e Koening - koeningr	n@aktpeerle	ess.com	Site:	1655/1675 Wa	tkins Rd. Colu	umbus, OH	4320	17
			Attached Docu	mentation					
Service Summa	ary		N	lanifests/Weight	: Tickets				
Spill Summary Re	eport			Subcontractor In	voices				
Site Photos				Other Document	tation:		Yes		
			Summa	iry					
Equipment, Exper	ndables, and Pers	sonnel							
Item Description				Unit of Measure	Quantity	Ra	te		Total
	Quoted Wo	rk							
	Original Contract sign	ied 6/20/19		LS	1	Ş	38,170.00	\$	38,170.00
Change Order Signed 7/1/19						Ş	-		
Labor ar	Labor and equipment to load an additional 127 boxes D			Day	2	ې د به	5,425.00	Ş	10,850.00
						SUDT		ې د	49,020.00
				Equipme	ent, Expendables	, and Personn	Subtotal:	ې د	49,020.00
					Labor and	Laupment		ب خ	40,020.00
						Invoid	e lotal	Ş	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



Environmental Management Specialists, Inc.

DATE: 7/1/19

CHANGE ORDER

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
			columbus, onio 45207

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. 2.	 Invoices will be based on actual quantities at the unit prices quoted above. All Change Order line items listed above are hereby added to the original 						
3. 4.	SALES TAX	N/A					

Cleveland, OH 44130 Fax: 440-816-2504

Park UC 6 Authorized Signature

TOTAL \$1

\$ 17,600.0



Customer:	Garrison	Southfield Park LLC-CO/Katten Muchin Roseman LLP	Contact:	Mr Karl R Heisler
Address:	525 Monroe Street Chicago, Illinois 60661-3693		Phone: Email:	(312) 902-5430
				karl.heisler@kattenlaw.com
Project Name: "Projection Lens Project" Project Address: 1655/1675 Watkins Road		Bid Date:	6/19/2019	
		1655/1675 Watkins Road	Bid Type:	Industrial Services
	Columbus, Ohio 43207			

Scope of Work

- 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.

		Estimated						
Item #	Description	Quantity	Units	1	Unit Cost	Lin	ne Item Cost	
1.0	Mobilization-Demobilization of Equipment	1	LS	Ś	750.00	Ś	750.00	-
2.0	Labor & Equipment	6	Dav	Ś	5 425 00	¢	32 550 00	
3.0	Poly Sheeting	4	Roll	S	100.00	5	400.00	
4.0	Misc. Materials for construction of the CRZ	1	LS	Ś	1 350 00	4	1 350 00	
5.0	Negative/Positive Air Machines	5	Dav	\$	160.00	¢	800.00	
6.0	55 Gallon Steel Drum	2	Each	5	45.00	¢	90.00	
7.0	Gaylord Boxes and Pallets	25	Each	S	85.00	¢	2 125 00	
8.0	Shrink Wrap	3	Roll	\$	35.00	S	105.00	
			Estimated	Total		\$	38,170.00	
Option	Demobilization of Equipment (forklifts and air machines)	0	Each	\$	1,075.00	Ś	-	
Option	Equipment left idle on site	0	Day	\$	1,280.00	\$		1

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.

Payment Terms

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 EM	S is authorized to proceed.	
Buyer: Kart Heister, GI Cornsel For	RETURN ACCEPTANCE TO:	
Gamin Jovinnill Park UC	Environmental Management Specialists 4601 Homer Obio Lane	
Signature:	Groveport, Ohio 43125	
Baye Signature	Estimator: Bruce Markey LPG	
C 101 111	Phone: (614) 610-4559	
Date of Acceptance:	Email: <u>bmarkey@emsonsite.com</u>	

6/19/2019 5:33 PM

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 (Novotec)
Date:	Tuesday, July 23, 2019 10:48:12 AM
Attachments:	Closed Loop Projection Lens Escrow Agreement, PDE 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.

Projection Lens

Involce #	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 heister will atteniaw com / www.k.etteniaw.com

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8

Did You Know: Children of parents who talk to their teens about drugs are up to 50% less likely to use. Start the conversation: <u>Start Talking Ohio, Conv</u>

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Columbus, Ohio 43232

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 WAT		WATO	62719-1	18356
Quantity (lbs.)	Item Code	1	Description		Rate Per Ib.	Amount
22,120	UNP-PRO-LMP-W	Unprocessed - Project	tion CRT Lamp Assy	/ (w/Tubes) -	0.18	35 4,092.20
					Total Payments	\$4,092.20
			Phone # 61	4-236-2222	Balance	\$4,092,20

Sold To:	Booking/PO #
Columbus, OH 43207	Pick Up Date/Time: Φ6127/191215
Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	Trailer # 1031
BOL # OPPAL	Seal# 2099110A1
STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIAB Carrier:	LE) DOCK 11-1 12:50 WOT 062719-1

Sold To: Navotech 3960 Groves Road Columbus, OH 43232 Phone: Contact:

8350

Special Instructions:

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs.	
26	GAYLORD CONTAINERS	CET- used cathole ray tubes	22,031 1959 23,981	NET TARE GROSS
		Rthan 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 consignee 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 horizinder 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 tanffs established by the carrier and are available to shipper upon request. This notice supersides and negates any claimen oral or written contract promised representation or understanding between parties, except to the extent of any written contract agreed 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 stripment to any carrier other than that designated by company, may VOID company is obligations to

make any payments relating to this stripment are VOID as rate quotes.

SHIPPER: Closed Loop Refining and Recovery, Inc	Carrier: Shotta	TIME OUT:
Signature*:	Signature:	DATE: 06 28/19
Kent prisade the	1-12	
"As an authorized agent of Garrison Southfield Park LLC		

NIO	Tac			Do	DEKHZ
NO	Voiec	JENK	INS A DO	Scale C	hecked 🟒
	recycling	REG	CEIVING	1	
Date:	6/27/2019		Rec'd By:	HAM.P.	
B/L:			Truck In:	2:50 Time Star	t 1.00
Lot #: _	WAT062719-1		Truck Out:	Time Finish	1:40
Stack #	Item Code	Weight	Stack #	Item Code	Weight
-	proseron	825			
2	CENS	1215			
2	BUP	1263			
2		620			
2		1250			
7		1125			1
8		600			1
9		815			
0	201102	940			
11	22,120	800			
12		1055			
14		125			
15		1145			
16		1080			
17		1440			
18		885			
19		1150			
20		280			
21		415			
22		575			
13		11.70			
24		400			
6		460			
-					
	aligned and a				
	Second Se				

TOTAL BOL WEIGHT

03 2

TOTAL RECEIVED WEIGHT



F-51 Revision 04, Effective 8/17/18



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 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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number	WAT062719-1		
B.O.L.	0001		
Invoice #	22793		



Columbus, Ohio 43232

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		Lot No.	Appt. No.
Net 30	7/27/2019	6/27/2019	0002	WA	T062719-2	18357
Quantity (lbs.)	Item Code		Description		Rate Per Ib.	. Amount
18,015	UNP-PRO-LMP-W	Unprocessed - Project	tion CRT Lam	np Assy (w/Tubes) -		0.185 3,332.78
					Total	\$3,332.78
					Payments	\$0,00
			Phone #	614-236-2222	Balance	\$3.332.78

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABI Carrier:	LE) WATOGATI9-2		
BOL # DOD 2 Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	_Seal# 25994502 : Trailer# 10942 536065		
Columbus, OH 43207 <i>Vock #2 (3:00)</i>	Pick Up Date/Time: 6127119 1420		
Sold To:	Booking/PO #		

Special Instructions:

Phone: Contact: 3960 broves Rd Columbusi OH

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs.	
26	GAYLORD CONTAINERS	CRT-Used cathode Ray tubes, projection lenses	17,932 1,950 19,882	NET TARE 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 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 fanits established by the carrier and are available to shipper upon request. This notice submissedes 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.

THEREBY declare that the contents of this consignment are fully accurately described above by proper shipping name and are classified, backed, 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 carner other than that designated by company. Hwy 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:	06/27/19
*As an authorized agent of Garrison Southfield Park LLC	ung	2.25 pm
		Deliste

SHIPMENT LOG/INVENTORY

Material:	CRT Projection Lens	Truck #	5310965
Date:	6/27/19	Seal #	25994592
BOL #	OUXP2	Skids:	26
#	Gross Weight (lb)	Tare Weight (lb)	Net Weight (lb)
1	PPP1-821	75	746
2	P121-428	.75	353
3	(D134-527	75	452
4	QQ9Q-1354	75	1279
5	QQ89-517	75	442
6	QQ88-319	75	244
7	CRCP87 - 734	75	659
8	PP86-411	75	336
9	P16P-754	7-5	689
10	Q158-785	75	FIO
11	Q157-1296	75	1211
12	Q156-1375	75	1300
13	PP3P-397-	75	822
14	QQ31-528	75	453
15	PP32-1177	75	1102
16	QQ33-11Q2	75	1027
17	$\Phi \phi 77 - 583$	75	548
18	(D132-648	75	573
19	(DD81-499	75	42.4
20	Q117-296	75	221
21	P137-642	75	567
22	0153-733	75	ସ୍ତ୍ୟ
23	0139 - 679	75	604
24	0131-313	+5	240
25	Q142-49p	75	415
20	φ141-1867_	75	1787
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OTALS:	(19,882)	1,950	(17,932)

Т

No	VOTEC	JENK	INS Dock	Scale Ch	necked
		REC	CEIVING		
Date:	6/27/2019		Rec'd By:	KHAM.P' L	1000
B/L:			Truck In:	3 Time Start	3:05
Lot #:	WAT062719-2		Truck Out:	3:45 Time Finish	3:30
Stack #	Item Code	Weight	Stack #	Item Code	Weight
1	PROSECTOR	420			
2	LENS	600			
3	BOYES	250			
4	10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil 10 mil	560			
6		425			
7		225			
8		570			
9		510			
10	IL DELE	1040			
11	TUIAID	1105			
12		810			
14		1215			
15		1300			
16		715			
17		680			
18		676			
74		255			
21	12 CONTRACTOR CONT	450			
22		1280			
23		455			
24		360			
15		735			
				1-11-11-11-11-11-11-11-11-11-11-11-11-1	
26	RUJECTOR	1740			
	TUBE				
				ungan (wile cange)	

TOTAL BOL WEIGHT

17,932

TOTAL RECEIVED WEIGHT

18,015

F-51 Revision 04, Effective 8/17/18



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 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



Columbus, Ohio 43232

Invoice

Date 6/28/2019	Invoice #	
6/28/2019	22795	

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	1	Lot No.	Appt. No.
Net 30	7/28/2019	6/28/2019	0004	WA	T062819-1	18358
Quantity (lbs.)	Item Code		Description		Rate Per Ib.	Amount
21,910	UNP-FRO-LMP-W	Unprocessed - Projec WAT	tion CRT Lam	p Assy (w/Tubes) -	0.185	4,053.35
					Total Payments	\$4,053.35 \$0,00
			Phone #	614-236-2222	Balance	\$4.053.35

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABI Carrier:	LE) WATO62819-1	
BOL # DOD 4	Seal # Geo JCOGUSGI	
shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	Trailer # 43175	
Columbus, OH 43207 Dock # 3(12:30)	Pick Up Date/Time: 6 28 19 1130	
Sold To:	Booking/PO #	
Namperh	10258	

3960 Groves Road Columbus, OH 43232

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-	1 m - 1 m		
		-	-

Phone:

Special Instructions:

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs.	
26	GAYLORD CONTAINERS	CRT-Used cathode Ray tubes / Projection lenses	21,630 1,950 23,600	NET TARE GROSS
		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 deriver to the consignee at the said destination, if on its route or otherwise to deriver 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 cassified, 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 fading or the fendering 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": GO: Purant	Signature:	DATE:
*As an authorized agent of Garrison Southfield Park LLC	The Xe	labored .

SHIPMENT LOG/INVENTORY

natenan	CRTPTOJECION LENS	Truck #	
ate:	6128/11	Seal #	
OL#	<u> </u>	Skids:	26
#	Gross Weight (lb)	Tare Weight (lb)	Net Weight (Ib)
1	PUP46-898	75	823
2	<u>0970-663</u>	75	588
3	QQ104-1129	75	1054
4	0066-1187	- 75	1112
5	QQ73-463	- 7-5	388
6	: \$P\$65-696	+5	621
7	9955-1620	2.5	1555
8	CXD63-683	75	<u> </u>
9	100p45-836	- 75	761
10	100060-1405	+5	1374
11	02p62-1008	7-5	933
12	PP61-292	25	217
13	ppuq - 1ppq	75	934
14	0044-1191	+5	1116
15	axp42-1174	7.5	1499
16	pay1-1p1q	+5	935
17	QXP38-513	75	438
18	Pap- 892	7-5	817-
19	0939-1289	4.5	1214
20	0070- +34		659
21	0034-1259	75	1184
22	<u> </u>	4.5	112-2
23	<u> 0927 - ++6</u>	+ 75	+01
24	0076-812	+ 75	+4+
25	QU28-359	+ts	104
20	PP25 - 495		<u>420</u>
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30	**************************************		
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NOV	INTEC	JENK	INS		Scale Ch	ecked 🧹
1101	recycling					
		REC	EIVING			
Date:	6/28/2019		Rec'd By:	KHAM	P.	
B/L:			Truck In:	12:30	Time Start:	12:40
Lot #:	WAT062819-1		Truck Out:	12:05	Time Finish:	1:25
		Maight	Stack #	Item Co	nde	Weight
Stack #	Item Code		Stack #	item ex		
7	Falso	300				
3	ESC IE E	760				
4		715				
5		1135				
6		1185				
7		1215				
4		660				
7		925				
10	21910	440				
17	allie	1090				
13		1120				
14		930			1000	
15		925		5		
16		220				
17		1520				
18		160				
79		ICUD				
21		630			-	
77		390				
23		1115				
24		1260				
25		600				
		815				

TOTAL BOL WEIGHT

2 650 TOTAL RECEIVED WEIGHT



F-51 Revision 04, Effective 8/17/18



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 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



3960 Groves Road Columbus, Ohio 43232

Invoice

Date	Invoice #
6/28/2019	22796

10.241	-
Bill	10
DH	10

Garrison Southfield Park LLC 290 Avenue of the Americas, Suite 914 New York, NY 10104

Location	
Closed Loop Refining 1675 Watkins Road Columbus, OH 43207	& Recovery, Inc

Terms	Due Date	Received	BOL	L	ot No.	Appt. No.
Net 30	7/28/2019	6/28/2019	0005	TAW	62819-2 18359	
Quantity (lbs.)	Item Code	1	Description		Rate Per Ib.	Amount
17,965	UNP-PRO-LMP-W	Unprocessed - Project	ction CRT Lam	p Assy (w/Tubes) -	0.18	5 3.323.53
					Total Payments	\$3,323.53
			Phone #	614-236-2222	Balance	\$3.323.53

Corrier: BOL # 0005	WA1002819-0
Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207 Dock #2(2:20)	-seal # 2599 459 3 Trailer # 42631
	Pick Up Date/Time: 62819 1330
Sold To:	Booking/PO #
Noustech 3960 Graves Rd Columbus, OH 43252 Phone:	18359

Contact:

Special Instructions:

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs.]
24	GAYLORD CONTAINERS	CET-Used cathoole Ray tubes / Projection lenses	17,700 1800 19,570	NET TARE GROSS

Carrier acknowledges receipt of packages and required placards. Packages are marked consigned and destined as indicated above, which the carrier agrees to dairy and to deliver to the donsginge at the said destination, it on its route or otherwise to deliver to another carrier on the route to said destination. It is inutually 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 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 ponted 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 subjected and negates any claimed oral or written contract promised representation, or understanding between parties, except to the extern of any written contract signed by both parties to the contract.

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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	ACN SOL	when

No	recycling	JENK	INS		Scale Che	ecked
		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 (Code	Weight
1 B	ROJECTOR LENS	Sos				
2	PoteD.	965				
3		615				
4		1200				
3		560		-		
5		1080				
4		775750		1		
9		625				
16	17,965	500		A CONTRACTOR OFO		
11		1110				
12		1270				
13		1495				
14		360				
15		840				
17		200				
18		920				
19		440				
20		1200				
ZI		590				
22		380				
23		680				
24		470				
				1		
		-				

TOTAL BOL WEIGHT



TOTAL RECEIVED WEIGHT



F-51 Revision 04, Effective 8/17/18



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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



Columbus, Ohio 43232

Invoice

Date	Invoice #
6/28/2019	22797

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	A	Lot No.	Appt. No.
Net 30	7/28/2019	6/28/2019	000	6 W.A	T062819-3	18360
Quantity (lbs.)	Item Code		Description		Rate Per Ib.	Amount
18,615	UNP-PRO-LMP-W	Unprocessed - Proj WAT	ection CRT Lan	np Assy (w/Tubes) -	C	9.185 3,443.78
					Total	\$3,443.78
					Payments	\$0.00
			Phone #	614-236-2222	Balance	\$3.443.78

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE) Carrier:

BOL # ORPOG	Seal # 25994594		
shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	Trailer # 51119ϕ		
Columbus, OH 43207	Pick Up Date/Time:		

Trailer #	511190
Pick IIn I	Date/Time:

6128/19 142D

Booking/PO #

Sold To: Novotech 3960 Groves Road Columbus, OH 43232

18360

10102819-2

Special Instructions:

Phone: Contact:

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs.	
26	GAYLORD CONTAINERS	CRT-Used cathoole Rug tube (projection Jens	18,501 1,950 20,431	NET TARE GROSS
		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 deriver to the consigned at the said destination if on its route or otherwise to deriver to another carrier on the route to said destination. It is multially, 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 tanfis established by the carrier and are available to shipper upon request. This notice subersedes and negates any claimed dravor written contract, promised representation, or 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 labeled and are in all respects in proper condition for transport according to applicable international and national government regulations. Any unauthoritad alteration of use of this put of lading or the tendening of this stipment to any carrier other than that designated by company, may VOID company's notigations to

make any payments relating to this shipment are VOID ellitate quotes.

SHIPPER: Closed Loop Refining and Recovery, Inc.	Carrier:			TIME OUT:	
Signature*: El Rogeg	Signature:	,	*	DATE:	
*As an authorized agent of Garrison Southfield Park LLC					

SHIPMENT LOG/INVENTORY

Material:	CRT Projection Lens	Truck #	511190
Date:	6128119	Seal #	25974594
BOL #	0006	Skids:	26
#	Gross Weight (lb)	Tare Weight (lb)	Net Weight (lb)
1 . Strandon	QQA83-721	75	646
2	(PCP80-601	75	526
3	Q135-377	75	392
4	0122-1038	75	963
5	0118-332	7-5	257
6	0138-1049	75	974
7	0143-594	7-5	519
8	ф182-1182	75	[[Ψ7
9	CDCD92-1328	7-5	253
10	CD181-912	7-5	837
11	Q116-324	75	251
12	Φ Φ 95 - 534	75	459
13	PP94-654	7-5	575
14	PP48-589	75	514
15	0184-1022	75	947
16	Q183-816	75	741
17	POP93-989	75	914
18	QP91-1336	75	1261
19	PP96-641	75	566
20	Q187-678	75	603
	0097787	75	712
22	QQ58-1133	75	1058
23	<u>QIBS-569</u>	75	494
24	Q138-268	75	193
25	epest-1231	75	1156
26	QQ54-750	75	675
27			
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TOTALS:	2 Alexandre	(1,95Q)	(8,501)
	(20,451)		
hecked			

t: 3:35			
1: <u>9-10</u>			
Weight			

TOTAL BOL WEIGHT



TOTAL RECEIVED WEIGHT



F-51 Revision 04, Effective 8/17/18



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 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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

 Lot Number
 WAT062819-3

 B.O.L.
 0006

 Invoice #
 22797



Columbus, Ohio 43232

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 1675 Watkins Road Columbus, OH 43207	

Terms	Due Date	Received	BOL		Lot No.	Appt. No.
Net 30	7/28/2019	6/28/2019	0003	3 W/	AT062819-5	18361
Quantity (lbs.)	Item Code				Rate Per Ib.	Amount
19.320	UNP-PRO-LMP-W	Unprocessed - Project	ction CRT Law	np Assy (w/Tubes) -	0.	185 3,574.20
					Total	\$3,574.20
					Payments	\$0,00
			Phone #	614-236-2222	Balance	\$3.574.20

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABI Carrier:	E) WATO62819-5
BOL# (POPOP3	Seal # 2 < 994 < 91
Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	Trailer # $59/1/9\phi$
Columbus, OH 43207 Dock #2 (10:40)	Pick Up Date/Time: しょし 28119 1099
Sold To:	Booking/PO #
Novotec 3960 Groves Road Columbus, OH 43232	18361

Phone: Contact:

Special Instructions:

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs.]
26	GAYLORD CONTAINERS	CRT-Used cathode Ray Tubes	19.315 1.95 p 21,205	NET TARE GROSS
		KHAMI 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 consignee 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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make any payments relating to this shipment are VOID all rate quotes

SHIPPER: Closed Loop Refining and Recovery, Inc.	Carrier:	TIME OUT:	
Signature": El Roger	Signature:	DATE:	
*As an authorized agent of Garrison Southfield Park LLC	NA SCREED		

SHIPMENT LOG/INVENTORY

Material:	CRT Projection Lens	Truck #	37-591/19D
Date:	10/28/19	Seal #	25994591
BOL #	(DOD3	Skids:	26
#	Gross Weight (lb)	Tare Weight (lb)	Net Weight (lb)
1	P173-942	175	867
2	0172-935	75	860
3	Q171-560	75	485
4	0043-1254	7-5	1179
5	0169-541	75	466
6	<u>P168-953</u>	75	878
7	(P047 - 1.079)	75	995
8	$\cos 2 - 757$	75	682
9	0069-552	25	477
10	0071-467	75	392
11	Q167-621	75	546
12	01067-438	75	363
13	QQ68-314	75	239
14	00953-1272	75	1197
15	pp72-412	7-5	337
16	PP76-518	75	443
17	Q165-1324	17.5	1251
18	0166-1243	75	1168
19	$\varphi_{12}\varphi_{-}q_{35}$	75	860
20	$\varphi \varphi \mp 4 - \pm 34$	75	659
21	0079-612	75	<u>\$37</u>
22	$\phi(+\phi) = +2\phi$	75	645
23	pqs6 - tra	75	644
24	01775-16-81	-+5	1614
25	0140-46+	- <u>+S</u>	<u>392</u>
20	QI + E = 1216	75	114
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OTALS:	a1,265)	(1,950)	(9,315)

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DOCK #2

1.101	recycling					
		RE	CEIVING		0	
Date:	6/28/2019		_ Rec'd By: /	SHAM .		
B/L:			Truck In:	10:40	Time Start:	10:45
_ot #:	WAT062819-5		Truck Out: (2	2:35	Time Finish:	11:30
tack #	Item Code	Weight	Stack #	Item C	ode	Weight
1 1	ROJECTORLENS	1115				
2	BOXED	385	{ }			
3	en en en en en en en en en en en en en e	610				
4		500				
6		LUS				
7		860				
5		655				
9		1260				
10		1175				
11		455				
12		340				
15	10 200	2 60				t
14	19,000	190				
11-		SUE				
17		390				
18		475				
19		975				
20		680				
21		465				
22		880				
24		100				
25		845				
		875				
-						

TOTAL BOL WEIGHT

9 210

TOTAL RECEIVED WEIGHT



F-51 Revision 04, Effective 8/17/18



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 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



Columbus, Ohio 43232

Invoice

Bill To	Location
Garrison Southfield Park LLC	Closed Loop Refining & Recovery, Inc
290 Avenue of the Americas, Suite 914	1675 Watkins Road
New York, NY 10104	Columbus, OH 43207

Terms	Due Date	Received	BOL		Lot No.	Appt. N	10.
Net 30	7/28/2019	6/28/2019	0007	WA	T062819-4	1836	2
Quantity (lbs.)	Item Code		Description	Description		. An	nount
15.570	UNP-PRO-LMP-W	Unprocessed - Proj WAT	ection CRT Lam	ip Assy (w/Tubes) -		0.185	2,880.45
					Total		\$2,880.45
		· · · · · · · · · · · · · · · · · · ·			Payments		\$0.00
			Phone #	614-236-2222	Balance		\$2,880.45

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABI Carrier:	WAT062819-4
BOL # (DCPOP) Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207	-Seal# 25994595 Trailer# 43175
	Pick Up Date/Time: 6/28/19 1600
Sold To: Novotech 396 & Graves, Road Columbus, OH, 43232	Booking/PO #
Phone: Contact:	

Special Instructions:

No. of Pkgs.	Kind of Package	Description of Product	Shipping Weight Lbs.	
26	GAYLORD CONTAINERS	CRT - Cathode my tuber- wed / projection lens	15,400 1950 17,350	NET TARE GROSS
		KLIAM, PI		

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 consginae at the sold destination, it on its route or otherwise to deliver to another carrier on the mute to said destination. It is mutually agreed as to pack carry 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.

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make any payments relating to this stipment are VOID all rate quotes

SHIPPER: Closed Loop Refining and Recovery, Inc	Carrier:	TIME OUT:
Signature*: EQ. Roga	Signature:	DATE:
*As an authorized agent of Garrison Southfield Park LLC	no sul	he !

SHIPMENT LOG/INVENTORY

Material:	CRT Projection Lens	Truck #	43175
Date:	6/28/19	Seal #	25994595
BOL #	OCPOP7	Skids:	26
#	Gross Weight (lb)	Tare Weight (lb)	Net Weight (lb)
1	(D1(D1-321	75	246
2	(1)74 -570	75	495
3	0127-655	-7-5	580
4	10176 - 524	75	449
5	0178-1334	7-5	1264
6	017.5-54.5	75	470
7	0123 - 975	75	854
8	0113 - 571	75	496
9	011 - 1251	75	1176
	(but scal	75	7.89
11	$\phi_{1}\phi_{2} = \phi_{1}$	75	416
12	0100 1102	1<	418
12	0122 - 111 - 3	7<	1/098
10	(0155 - 117)	10	547
14	009-032	7<	547
10	$\psi(0) = 0 + 1$	10	379
10	$\varphi \varphi \rangle = 431$	70	318
17	0.00 - 3.13	13	694
18	0017- <u>+61</u>		U.S.C.
19	4499-551		112
	$\frac{\varphi_{11}}{\varphi_{11}} + \frac{\varphi_{22}}{\varphi_{23}}$		592
21	0107-668	$\frac{T_3}{2c}$	7/10
22	0105-445		571
23	0106-346	+3	321
24	(D134-070	+3	
25	φ129-639		
26	0159-705	+	630
27			
28			
29	* 1	-	
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31		~~~	<u>.</u>
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TOTALS:	(17,350)	(1,950)	(15,400)

10. 17	1.00	gene .		
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JENKINS

DCC K # 1 Scale Checked

	recycling	DE				
-	0/00/00/0	REG	JEIVING			
Date:	6/28/2019		Rec'd By:	KHAM	.P.	
B/L:			Truck In:	4:00	Time Start:	11:35
Lot #: _	WAT062819-4		Truck Out:	4:05	Time Finish:	12:10
Stack #	Item Code	Weight	Stack #	Item (Code	Weight
1	PROJECTOR LENS	640				
2	(BOLED)	600				
3		310				
4		525				
2		600				
6		380				
7		470				
8		715				
9	15,570	330				
10		700				
11		545				
12		385				
13		570				
14		1120				
15		415				
14		415				
17		1165				
18	1	800				
19		505				
20		850				
21		580				
22		470				
23		500				
1290		1265				
25		460				
26		255				
					100 million (100 million)	

TOTAL BOL WEIGHT

5,400

TOTAL RECEIVED WEIGHT



F-51 Revision 04, Effective 8/17/18



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 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

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	

Due Date	Received	BOL	Lot N	10.	Appt. No.
8/2/2019	7/3/2019	0010	WAT070	319-3	18418
Item Code		Description		Rate Per Ib.	Amount
5 UNP-PRO-LMP-W	- WAT	ojection CRT Lamp /	Assy (w/Tubes)	0.185	3,608.43
	Due Date 8/2/2019 Item Code 5 UNP-PRO-LMP-W	Due Date Received 8/2/2019 7/3/2019 Item Code UNP-PRO-LMP-W Unprocessed - ProWAT	Due Date Received BOL 8/2/2019 7/3/2019 0010 Item Code Description UNP-PRO-LMP-W Unprocessed - Projection CRT Lamp / - WAT	Due Date Received BOL Lot N 8/2/2019 7/3/2019 0010 WAT070 Item Code Description UNP-PRO-LMP-W Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT	Due Date Received BOL Lot No. 8/2/2019 7/3/2019 0010 WAT070319-3 Item Code Description Rate Per Ib. UNP-PRO-LMP-W Unprocessed - Projection CRT Lamp Assy (w/Tubes) - WAT 0.185

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABL Carrier:	E) WAT070319-3
BOL # (D (D)() ^{Shipper:} Closed Loop Refining and Recovery, Inc 1675 Watkins Road Columbus, OH 43207	Seal # ZS9945Z3 Trailer # 51119 Ø Pick Up Date/Time: 713119 1530
Sold To: Novotec 3960 Groves Rd	Booking/PO # 18418

Special Instructions:

Phone: Contact: Columbus, 43232, OH

No. of Pkgs.	Kind of	Description of Product	Shipping]
	Package		Weight Lbs.	
26	GAYLORD CONTAINERS	CRT-Leed cathode	19,45年	NET TARE
		Ray types projection	11,950	GROSS
Lot	8 WAT 07031	9-3 lenser	21,407	
ſ	DOCK#15			
	locked 4:0	5° pm		
carrier:	5 sart			
	- Je	7/03/2019		

2284

Catrier 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:	TIME OUT:	
Signature*: EQ: Ruga	Signature:	DATE:	
*As an authorized agent of Garrison Southfield Park LLC	7/54 <	J shiring	

SHIPMENT LOG/INVENTORY

1	Material:	CRT Projection Lens	Truck #	_511190
	Date:	7/03/19	Seal #	25994523
	BOL #	$\phi \phi \phi'$	Skids:	26
9 9 1 1 1 1 1 1 1 1	#	Gross Weight (lb)	Tare Weight (lb)	Net Weight (lb)
	1	Q338-1232	75	ILSI
	2	0324-1029	75	954
14 - A.	3	0337-SID	75	435
	4	0325-946	75	871
	5	0326-627	75	552
v .	6	Q328-727	75	652
	7	Q327-549	75	474
	8	Q329-927	7-5	85Z
	9	0330-1213	75	1138
	10	0331-185 1300	75	1225
	11	Q332-S32	75	457
	12	Q333-832	75	757
	13	Q336-806	75	731
	14	0335-864	75	789
	15	Q334-515	7-5	44 P
	16	0323-1344	75	1269
	17	Q3222-1114	75	1039
;	18	0321-1319	75	1244
	19	0306-670	75	595
	20	Ø307-361	75	286
	21	Q314-598	75	433
	22	QZ69-497	75	422
	23	(p287-757	75	682
	24	0271-322	75	247
	25	4261-327	75	2.52
	26	Q759-1579	75	ISP4
	27	•		•
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L	40			
Т	TOTALS:	(21,407)(1,950)	(19,457)

Novotec

Doch = 15

Scale Checked

		REC	CEIVING			
Date:	7/3/2019		Rec'd By:		JOPI -	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 #	Iten	n Code	Weight
	Projector lump	260				
2	UNP-PRO-LIMP-WAT	1615				
3		690				
4		125				
5		435				
6		980 720				
4		600		in the second		
a	19.50.5	1055				
10		1235		1		
11		1265		L		
12		440				
13		720				
14		185				
15		745				
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19	and the second s	120				
10		4150				
20		520		_		
21		955				
22		645				
23		430				
24		875				
25		INTO				
26	K	147				

TOTAL BOL WEIGHT

9,45

TOTAL RECEIVED WEIGHT

19,505

F-51 Revision 04, Effective 8/17/18



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:

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



Columbus, Ohio 43232

Invoice

 Date
 Invoice #

 7/3/2019
 22849

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	Lo	ot No,	Appt. No.
Net 30	8/2/2019	7/3/2019		WAT	070319-1	18416
Quantity (lbs.)	Item Code		Descriptio	'n	Rate Per Ib.	Amount
19,840	UNP-PRO-LMP-W	Unprocessed - - WAT	Projection CRT	Lamp Assy (w/Tubes	s) 0.185	3,670.40
					Total	\$3,670.40
					Payments	\$0.00
			Phone #	614-236-2222	Balance	\$3,670.40

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABLE) 070319-1 BOL # CARPS Shipper: Seal # 5994521 Closed Loop Refining and Recovery, Inc 1675 Watkins Road Trailer # 3175 Columbus, OH 43207 Pick Up Date/Time: (± 15) 10:21 713/19 0945 Sold To: Booking/PO # Novotech Kerylin 3960 Groves Road 18416 Columbus 43232 22849 Phone: Contact:

Special Instructions:

-

No. of Pkgs.	Kind of Package	Description of Product	Shipping	7
25	GAYLORD CONTAINERS	CRT-Used cathode Run tubes/projection herds	Weight Lbs. 19, 149 1875 21, 024	NET TARE GROS
		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 NOTICE: Freight moving under this Bill of Lading.

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.	Carrior		
	Camer.	A	TIME OUT:
Signature*: COA	Signature:	1	DATE:
CC V Long y			he is a second s
*As an authorized agent of Garrison Southfield Dark LLO	An.	1 Ala 1	
States, Cambon Oculined Park LLC		- Journa	2
	/	7	

SHIPMENT LOG/INVENTORY

Material:	CRT Projection Lens	Truck #	43175
Date:	7319	Seal #	25994521
BOL #	(POUS	Skids:	25
#	Gross Weight (lb)	Tare Weight (lb)	Net Weight (lb)
1	0144-1115	75	1040
2	Q145-693	75	618
3	Q146-526	75	451
4	0147- 9.86	75	911
5	Q148-829	75	754
6	Ø15CP-767	75	692
7	Q149-335	75	7.6Φ
8	P151-1208	75	1(33
9	0161-544	75	469
10	Q155-1308	<u> 75</u>	12-33
11	Q257-647	+3	572
12	03cps-135cp	75	12.75
13	QZSS-548	<u>75</u>	473
14	0256-434	-73	359
15	CP253-537	- <u>75</u>	462-
16	0231-1676	75	$ (\phi \varphi) $
17	0252-483	75	498
18	(p232-1255	-72	1180
19	0304-1106	-+5	1031
20	0303-827	<u>+5</u>	+52
21	(p3cpz-1058	- 75	783
22	0301-577	-+	592
23	0254-572	- <u>+5</u>	467
24	0298-799	<u>+5</u>	+L9
25	QUST-079	+>	799
20	Ψωσ		
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TOTALS:	Z1,024) (18,75	8 (19,149)

No	recycling	Doch #15		Scale	Z970 Checked <u>M</u>
Date:	7/3/2019	REC	CEIVING Rec'd By: N	ORBERTO	
B/L:			Truck In:	:30 Time	Start: 10:30
Lot #:	WAT070319-1		Truck Out:	10 Time F	inish: 11:10
Stack #	Item Code	Weight	Stack #	Item Code	Maight
F	ROJECTION	795		ton out	weight
2	LAMP	730			
4	UNI-PRO-LIMP WAT	7145			
5		995			
6	1	760			
7	10 million	1040			_
8	19,390	1190			-
10		415			
10		1615			
12		230			
		425			
(4)		1285			
5		580			
16		1295			
19/		525			
18		1190			
20		350			
		SOF			
22		960			
5		510			-
29		1105			1
		670			

TOTAL BOL WEIGHT

TOTAL RECEIVED WEIGHT

19.8

F-51 Revision 04 Effective 8/17/18



Certificate of Recycling

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* 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



Columbus, Ohio 43232

Invoice

 Date
 Invoice #

 7/3/2019
 22863

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	Lo	ot No.	Appt. No.
Net 30	8/2/2019	7/3/2019	0009	WAT	070319-2	18417
Quantity (Ibs.)	Item Code		Description		Rate Per Ib.	Amount
13,115	UNP-PRO-LMP-W.,	Unprocessed - Pro	pjection CRT L	amp Assy (w/Tubes) 0.185	2,426.28
					Total	\$2,426.2
-					Payments	\$0.00
		111.	Phone #	(14.02/ 0000	Delaway	

STRAIGHT BILL OF LADING (ORIGINAL NON-NEGOTIABI	E) WATO70319-2
BOL # DOO9 Shipper: Closed Loop Refining and Recovery, Inc 1675 Watkins Road	Seal# 2599 4522 Trailer# 51119 Ø
Columbus, OH 43207 DOCK#15 (12:23)	Pick Up Date/Time: 7 3 19 12 00
Noustech 3100 P Groves Rd Join bus, OH 43232 Phone: Contact:	Booking/PO# 18417 22863

Special Instructions:

No. of Pkgs.	Kind of	Description of Product	Shipping].
	Package		Weight Lbs.	
23	GAYLORD CONTAINERS	CRT- used cathode Ray tobes	34,521 1,725 36,246	NET TARE GROSS
-				
		KHAM + 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. It at 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*: So has	Signature:	DATE:
*As an authorized agent of Garrison Southfield Park I I C	A. J.	: #
ι φ ²	the cope	

SHIPMENT LOG/INVENTORY

Materia	I: CRT Projection Lens	Truck #	511/910
Date:	7 3 19	- Seal #	7.5994522
BOL #	0009	Skids:	23
#	Gross Weight (lb)	Tare Weight (lb)	Net Weight (lb)
1	0250-466	17	391
2	Q249-1051	75	V1/.
3	0247-686	7.5	170
4	Q246-525	75	YCO
5	0242-784	75	709
6	P244-1176	75	
7	4233-388	75	313
8	Q245-498	75	47.3
9	0234-1764	75	1699
10	0243-848	75	-7-7-2
11	QZ35-1048	75	972
12	0241- 828	75	763
13	0239-1131	F	(056
14	OZ40-1049	F	974
15	QZ38-739	75	10/04
16	07.37-624	75	549
17	QZ36-72Q	75	louis
18	(D315-* Z952	75	7.877
19	9316-4493	7-5	418
20	Q317-4072	75	3992
21	Q318-3066	75	2.99.1
22	Q319-4252	75	4177
23	0320-2986	75	7911
24			
25			
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38			
30			
40			
OTALS:	31 -14-11	1	17115
(56,27p/ (1+LS/	(54,561)
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NovøTec recyclina

TAKE OUT Time : 1:10 DOCK # 155 Scale Checked ____

		REG	CEIVING	······································		
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	1:10
Stack #	Item Code	Weight	Stack #	Item C	ode	Weight
7	PROJECIONLENS	580		? 6	lass	2925
8		660	2			2990
		665	3		<u>~</u>	4170
$\frac{10}{11}$		1040	4	21	, da	3930
17		390	$\frac{1}{1}$			4370
13	-13,115	915	6			2065
14		(-20)				
15		700		UNP-GS	- Mikalan	
16		450		<u>v. </u>	TIX-WAL	
17		320		49944999 (Maaroon an ar galan Maroon an an ar an an ar	······	
18		1100				
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_20		1680				
21		<u>770</u>				
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TOTAL BOL WEIGHT

34,521

TOTAL RECEIVED WEIGHT



F-51 Revision 04, Effective 8/17/18



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

<u>Agency Address</u> 3960 Groves Road Columbus, Ohio 43232

List of Lots Recycled

Lot Number	WAT070319-2		
B.O.L.	0009		
Invoice #	22863		

W[~]L LOG AND DRILLING REPC ORIGINAL State of Ohio DEPARTMENT OF NATURAL RESOURCES Division of Water No. 187906 1500 Dublin Road Columbus, Ohio ... Township 🔏Section of Township...... and_ County Owner Address Location of property. CONSTRUCTION DETAILS BAILING OR PUMPING TEST Type of pump......Developed capacity...... Depth of pump settingPump installed by..... 1952 Date of completion ... WELL LOG SKETCH SHOWING LOCATION Formations Locate in reference to numbered Sandstone, shale, limestone. From То State Highways, St. Intersections, County roads, etc. gravel and clayFt. 0 Feet 0 20 20 75 56 50 Ε. y 3972.SAPt See reverse side for instructions Drilling Fi Date . Address 4 Signed

LL LOG AND DRILLING REP T ORIGINAL 161 State of Ohio DEPARTMENT OF NATURAL RESOURCES Division of Water No. 187946 1500 Dublin Road Columbus, Ohio County Township.. Section of Township. Address Owner Location of property CONSTRUCTION DETAILS **BAILING OR PUMPING TEST** Casing diameter Drawdown MML ft. Date Type of screen.... Length of screen Developed capacity 300 9.P.N. Type of pump..... Capacity of pump....... Static level-depth to/watgr... Pump installed by Aleku. ME Date of completion. WELL LOG SKETCH SHOWING LOCATION Formations Locate in reference to numbered Sandstone, shale, limestone, From Тο State Highways, St. Intersections, County roads, etc. gravel and clay 0 FeetFt. Ņ. Ø 102 W. E. 引いり S. See reverse side for instructions **IG**^ACQ_{ate} 5 Drilling Firm λh Signed Address .. an 127

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Appendix C Health and Safety Plan

COVID-19 RIDER

Before onsite project activities commence, an addendum to the Health and Safety Plan will be prepared that incorporates guidance and best practices set forth in the attached OSHA *Guidance on Returning to Work* (June 2020), OSHA *Guidance on Preparing Workplaces for COVID-19* (March 2020), the attached *CDC Interim Guidance for Businesses and Employers Responding to Coronavirus Disease 2019 (COVID-19)* (May 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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Guidance on Returning to Work

OSHA 4045-06 2020



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 Returning to Work

U.S. Department of Labor Occupational Safety and Health Administration

OSHA 4045-06 2020



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Overview

The Occupational Safety and Health Administration (OSHA) has developed the following guidance to assist employers and workers in safely returning to work and reopening businesses deemed by local authorities as "non-essential businesses" during the evolving Coronavirus Disease 2019 (COVID-19) pandemic. Employers can use this guidance to develop policies and procedures to ensure the safety and health of their employees.

This guidance is intended to supplement the U.S. Department of Labor and U.S. Department of Health and Human Services' previously developed Guidance on Preparing Workplaces for COVID-19 and the White House's Guidelines for Opening up America Again. It focuses on the need for employers to develop and implement strategies for basic hygiene (e.g., hand hygiene, cleaning and disinfection), social distancing, identification and isolation of sick employees, workplace controls and flexibilities, and employee training. This guidance is based on the application of traditional infection prevention and industrial hygiene practices to a phased approach for reopening, as the White House guidelines describe.

Reopening should align with the lifting of stay-at-home or shelter-in-place orders and other specific requirements of the Federal Government and state, local, tribal, and/or territorial (SLTT) governments across the United States, as well as with public health recommendations from the Centers for Disease Control and Prevention (CDC) and other federal requirements or guidelines. Employers should continually monitor federal, State, territorial, tribal, and local government guidelines for updated information about ongoing community transmission and mitigation measures, as well as for evolving guidance on disinfection and other best practices for worker protection. Where applicable, these guidelines may supplement state- or locality-specific information and re-opening requirements.

The CDC provides the latest information about the COVID-19 pandemic at: www.cdc.gov/coronavirus/2019-ncov.

OSHA provides specific information for workers and employers about the COVID-19 pandemic at: www.osha.gov/coronavirus.

The National Governors Association provides a state-bystate summary of public health criteria in reopening plans at: www.nga.org/coronavirus-reopening-plans.

Planning for Reopening

All employers should monitor SLTT health department communications to understand how the communities in which their workplaces are located are progressing through the reopening phases identified in the Guidelines for Opening up America Again. The guidelines provide general principles for relaxing restrictions that were put in place to slow the spread of COVID-19. Employers should continue to consider ways to utilize workplace flexibilities, such as remote work (i.e., telework), and alternative business operations to provide goods (e.g., curbside pickup) and services to customers.

During all phases of reopening, employers should implement strategies for basic hygiene (e.g., hand hygiene; cleaning and disinfection), social distancing, identification and isolation of sick employees, workplace controls and flexibilities, and employee training that are appropriate for the particular phase.

In general, during:

Phase 1: Businesses should consider making telework available, when possible and feasible with business operations. For employees who return to the workplace, consider limiting the number of people in the workplace in order to maintain strict social distancing practices. Where feasible, accommodations (i.e., flexibilities based on individual needs) should be considered for workers at higher risk of severe illness, including elderly individuals and those with serious underlying health conditions. Businesses should also consider extending special accommodations to workers with household members at higher risk of severe illness. Non-essential business travel should be limited.

- Phase 2: Businesses continue to make telework available where possible, but non-essential business travel can resume. Limitations on the number of people in the workplace can be eased, but continue to maintain moderate to strict social distancing practices, depending on the type of business. Continue to accommodate vulnerable workers as identified above in Phase 1.
- Phase 3: Businesses resume unrestricted staffing of work sites.

Changing outbreak conditions in each community will directly affect workers' exposure risks to SARS-CoV-2, the virus that causes COVID-19. For all phases of reopening, employers should develop and implement policies and procedures that address preventing, monitoring for, and responding to any emergence or resurgence of COVID-19 in the workplace or community. Employers should continue these practices to the extent possible to help prevent COVID-19 from emerging or resurging in their workplace. Such a resurgence could lead to increases in infected and sick employees, the increased need for contact tracing of individuals who visited a workplace, enhanced cleaning and disinfection practices, or even a temporary closure of the business.

Based on evolving conditions, employers' reopening plans should address:

Guiding Principle	Examples of How to Implement
Hazard assessment, including practices to determine when, where, how, and to what sources of SARS-CoV-2 workers are likely to be exposed in the course of their job duties.	 Assess all job tasks performed by or job categories held by employees to determine which job tasks or job categories involve occupational exposure. This can be a desktop assessment to maintain social distancing practices. Consider, among other things, exposures from members of the public (e.g., customers, visitors) with whom workers interact, as well as exposures from close contact with coworkers in the workplace. Consider current outbreak conditions in the community.
Hygiene , including practices for hand hygiene, respiratory etiquette, and cleaning and disinfection.	 Provide soap, water, and paper towels for workers, customers, and visitors to wash their hands, and encourage frequent and proper (for at least 20 seconds) handwashing. Provide hand sanitizer with at least 60% alcohol and encourage workers to use it frequently when they cannot readily wash their hands. Identify high-traffic areas, as well as surfaces or items that are shared or frequently touched, that could become contaminated. Target them for enhanced cleaning and disinfectants and adherence to CDC guidance for controlling the spread of COVID-19.

Guiding Principle

Social distancing,

including practices for maximizing to the extent feasible and maintaining distance between all people, including workers, customers, and visitors. Six feet of distance is a general rule of thumb. though social distancing practices may change as changes in community transmission of SARS-CoV-2 and other criteria prompt communities to move through the reopening phases.

Identification and isolation of sick

employees, including practices for worker self-monitoring or screening, and isolating and excluding from the workplace any employees with signs or symptoms of COVID-19.

Examples of How to Implement

- Limit business occupancy to a number of workers/customers that can safely be accommodated to allow for social distancing.
- Demarcate flooring in six-feet zones in key areas where workers, customers, or visitors would ordinarily congregate (i.e., restrooms, check-out lines, areas with time clocks) to encourage people to keep appropriate social distance between themselves and others.
- Post signage reminding workers, customers, and visitors to maintain at least six feet between one another.
- Post directional signs in hallways/ corridors where the width restricts movement and limits social distancing.
- Ask employees to evaluate themselves for signs/symptoms of COVID-19 before coming to work, and to stay home if they are not well. (See the "Employer Frequently Asked Questions" on page 11.)
- Establish a protocol for managing people who become ill in the workplace, including details about how and where a sick person will be isolated (in the event they are unable to leave immediately) while awaiting transportation from the workplace, to their home or to a health care facility, and cleaning and disinfecting spaces the ill person has occupied to prevent exposure to other workers, customers, or visitors. Employers may need to collaborate with SLTT health officials to facilitate contact tracing and notification related to COVID-19 cases or possible exposures.

Guiding Principle Examples of How to Implement Return to work after Follow CDC guidance for discontinuing self-isolation and returning to work after illness or exposure. including after workers illness, or discontinuing self-quarantine recover from COVID-19 or and monitoring after exposure, as complete recommended appropriate for the workplace. self-quarantine after Ensure workers who have been exposure to a person with exposed to someone with COVID-19 COVID-19. routinely monitor themselves or receive monitoring, including for signs and/or symptoms of potential illness, at work, in accordance with CDC guidance. **Controls**, including Select and implement appropriate engineering and engineering controls (e.g., physical barriers/shields to separate administrative controls. safe work practices. workers, enhanced ventilation), and and personal protective administrative controls (e.g., staggering equipment (PPE) work shifts, limiting breakroom

and personal protective equipment (PPE) selected as a result of an employer's hazard assessment.

capacity, practicing social distancing, replacing in-person meetings with video-conference calls, ensuring workers wear appropriate face coverings, such as cloth face masks, to contain respiratory secretions), and providing and ensuring workers use appropriate PPE, identified through hazard assessments and in accordance with OSHA's standards at 29 CFR 1910. Subpart I, and OSHA and CDC guidance on use of PPE. (Note: cloth face coverings are not PPE, because they protect other people from the wearer's respiratory secretions, rather than protecting the wearer).

Guiding Principle	Examples of How to Implement
Workplace flexibilities, including those concerning remote work (i.e., telework) and sick leave.	 Evaluate existing policies and, if needed, consider new ones that facilitate appropriate use of telework, sick or other types of leave, and other options that help minimize workers' exposure risks. Communicate about workplace flexibilities, and ensure workers understand how to make use of available options (e.g., fatigue management).
Training , including practices for ensuring employees receive training on the signs, symptoms, and risk factors associated with COVID-19; where, how, and to what sources of SARS-CoV-2 employees might be exposed in the workplace; and how to prevent the spread of	 Train workers in the appropriate language and literacy level about their risks of exposure to SARS-CoV-2, what the employer is doing to protect them, including site-specific measures, and how they can protect themselves. Train workers about wearing cloth face coverings in the workplace, including any employer policies related to their use and considerations for when cloth face coverings could cause or contribute to a workplace safety and

health hazard.

prevent the spread of SARS-CoV-2 at work.

 As required by OSHA standards for PPE, including respiratory protection, and consistent with OSHA and CDC guidance, train workers how to put on, use, and take off PPE; how to clean, maintain, store, and dispose of PPE; and what the limitations of the PPE are. (Note: As described above, cloth face coverings are not PPE, because they protect other people from the wearer's respiratory secretions, rather than protecting the wearer).

Guiding Principle

Anti-retaliation, including practices for ensuring that no adverse or retaliatory action is taken against an employee who adheres to these guidelines or raises workplace safety and health concerns.

Examples of How to Implement

- Ensure workers understand their rights to a safe and healthful work environment, who to contact with questions or concerns about workplace safety and health, and prohibitions against retaliation for raising workplace safety and health concerns.
- Ensure workers understand their right to raise workplace safety and health concerns and seek an OSHA inspection under the Occupational Safety and Health Act.
- Ensure supervisors are familiar with workplace flexibilities and other human resources policies and procedures, as well as with workers' rights in general.

The examples presented in the table are intended to help employers understand each of the guiding principles that should go into their plans for resuming operations and reopening facilities. However, these examples are not an exhaustive list of controls that may be appropriate, necessary, or feasible, nor do all examples apply to every employer. The interagency Guidance on Preparing Workplaces for COVID-19 and the OSHA COVID-19 webpage provide additional recommendations for addressing and implementing these guiding principles within the workplace, including how the implementation of the principles varies by workers' exposure risk levels. Regardless of the types of infection prevention and control measures employers incorporate into their reopening plans, they should consider ways to communicate about those measures to workers, including through training (as described above) and providing a point of contact for any worker questions or concerns.

Applicable OSHA Standards and Required Protections in the Workplace

All of OSHA's standards that apply to protecting workers from infection remain in place as employers and workers return to work.

While covered employers are always responsible for complying with all applicable OSHA requirements, the agency's standards for PPE (29 CFR 1910.132), respiratory protection (29 CFR 1910.134), and sanitation (29 CFR 1910.141) may be especially relevant for preventing the spread of COVID-19. Where there is no OSHA standard specific to SARS-CoV-2, employers have the responsibility to provide a safe and healthful workplace that is free from serious recognized hazards under the General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health (OSH) Act of 1970.

Appendix A of this booklet outlines some of OSHA's general industry rules for hazard and exposure assessment, implementation programs, workplace controls, training, and recordkeeping, as well as prohibitions on retaliation, applicable to protecting workers from occupational exposure to SARS-CoV-2. Consult OSHA resources for other sectors not covered by the appendix, including construction, shipyard employment, and longshoring and marine terminals.

Employer Frequently Asked Questions¹

Can employers conduct work site SARS-CoV-2 testing?

Yes. Employers may consider implementing strategies to reduce risks to the safety and health of workers and workplaces from COVID-19 that include conducting SARS-CoV-2 testing. Neither the OSH Act nor OSHA standards prohibit employer testing for SARS-CoV-2, if applied in a transparent manner applicable to all employees (i.e., non-retaliatory).

^{1.} Note that these FAQs speak to Federal OSHA standards. Other federal and SLTT laws may apply.

Because of the limitations of current testing capabilities, employers should act cautiously on negative SARS-CoV-2 test results. Employers should not presume that individuals who test negative for SARS-CoV-2 infection (i.e., the virus that causes COVID-19) present no hazard to others in the workplace. Employers should continue to implement the basic hygiene, social distancing, workplace controls and flexibilities, and employee training described in this guidance in ways that reduce the risk of workplace spread of SARS-CoV-2, including by asymptomatic and pre-symptomatic individuals.

Can employers conduct work site temperature checks or other health screening?

Yes. Neither the OSH Act nor OSHA standards prohibits employer screening for COVID-19, if applied in a transparent manner applicable to all employees (i.e., non-retaliatory). Employers may consider implementing strategies to reduce risks to the safety and health of workers and workplaces from COVID-19 that include conducting daily in-person or virtual health checks (e.g., symptom and/or temperature screening, questionnaires, self-checks and self-questionnaires). Any such screening should consider ways to maintain confidentiality, as required by the Americans with Disabilities Act.

Because people infected with SARS-CoV-2 can spread the virus even if they do not have signs or symptoms of infection, temperature screening may play a part in a comprehensive program to monitor worker health during the pandemic, but may have limited utility on its own. In many workplaces, temperature screening efforts are likely to be most beneficial when conducted at home by individual workers, with employers' temperature screening plans relying on workers' self-monitoring and staying home if they have a fever or other signs or symptoms of illness, rather than employers directly measuring temperatures after workers arrive at the work site. Consider implementing such programs in conjunction with sick leave policies that encourage sick workers, including those whose self-monitoring efforts reveal a fever or other signs or symptoms of illness, to stay at home.

Regardless of whether or how employers ultimately decide to implement temperature checks or other health screening measures, they should act cautiously on results. Employers should not presume that individuals who do not have a fever or report experiencing other symptoms of COVID-19 do not have SARS-CoV-2, the virus that causes COVID-19. Employers should continue to implement the basic hygiene, social distancing, workplace controls and flexibilities, and employee training described in this guidance in ways that reflect the risk of community spread of COVID-19, including from asymptomatic and pre-symptomatic individuals, in the geographical area where the workplace is located.

What OSHA requirements must an employer follow when conducting health screening, temperature checking, or COVID-19 testing?

If an employer implements health screening or temperature checks and chooses to create records of this information, those records might qualify as medical records under the Access to Employee Exposure and Medical Records standard (29 CFR 1910.1020). The employer would then be required to retain these records for the duration of each worker's employment plus 30 years and follow confidentiality requirements. As explained above, employers need not make a record of temperatures when they screen workers, but instead may acknowledge a temperature reading in real-time. In addition, temperature records do not qualify as medical records under the Access to Employee Exposure and Medical Records standard unless they are made or maintained by a physician, nurse, or other health care personnel, or technician.

Additionally, personnel administering COVID-19 tests, inperson temperature checks, or other in-person health screening must be protected from exposure to sources of SARS-CoV-2, including asymptomatic and pre-symptomatic workers who might be infected but not know it. Protection of screening and testing workers should incorporate standard and appropriate transmission-based precautions and should follow the hierarchy of controls, including appropriate engineering and administrative controls, safe work practices, and PPE. See the CDC's General Business Frequently Asked Questions for more information about protecting screening workers. While diagnostic testing that involves saliva or nasal/ oral cavity swabbing would not typically fall under the scope of the Bloodborne Pathogens standard (29 CFR 1910.1030), any testing that involves drawing blood would.

Is there guidance on how to address the various health screening and medical issues associated with COVID-19 to avoid violating other labor, disability, and employment laws?

The U.S. Equal Employment Opportunity Commission (EEOC) has established guidance regarding What You Should Know About COVID-19 and the ADA, the Rehabilitation Act, and Other EEO Laws. Employers are encouraged to review this guidance as they develop the health screening, workplace policies, return to work plans, and consider other issues that may arise as they reopen their workplaces and plan to continue operations during the COVID 19 public health emergency. Additional information about labor, disability, and employment laws is available on the Summary of the Major Laws of the Department of Labor webpage.

When can employees who have had COVID-19, or illness consistent with COVID-19, return to work?

The CDC provides guidance about the discontinuation of isolation for people with COVID-19 who are not in healthcare settings. This guidance may be adapted by state and local health departments to respond to rapidly changing local circumstances.

How do I know if employees need personal protective equipment (PPE)?

Employers must conduct a hazard assessment in accordance with OSHA's PPE standard (29 CFR 1910.132), if applicable, to determine the PPE requirements for their unique work site. Employers subject to this standard must determine if PPE (such as gloves, surgical masks, and face shields) is necessary for employees to work safely after considering whether engineering and administrative controls and safe work practices (such as social distancing or the use of cloth face coverings) can effectively mitigate identified hazards.

Employers should consider modifying worker interactionboth among coworkers and with customers, visitors, or other members of the general public—in order to reduce the need for PPE, especially in light of potential equipment shortages. If PPE is necessary to protect workers from exposure to SARS-CoV-2 during particular work tasks when other controls are insufficient or infeasible, or in the process of being implemented, employers should either consider delaying those work tasks until the risk of SARS-CoV-2 exposure subsides or utilize alternative means to accomplish business needs and provide goods and services to customers. If PPE is needed, but not available, and employers cannot identify alternative means to accomplish business needs safely, the work tasks must be discontinued. Consider CDC guidance for conserving and extending filtering facepiece respirator supplies in nonhealthcare sectors.

Cloth face coverings are not PPE. However, they can be worn to reduce the spread of potentially infectious respiratory droplets from the wearer to others, including when the wearer has the virus but does not know it. This is known as source control. Employers may consider requiring cloth face coverings to be worn in the workplace as an administrative control. More information about cloth face coverings is available from OSHA's COVID-19 Frequently Asked Questions webpage. OSHA's PPE Safety and Health Topics page provides additional information about PPE selection, provision, use, and other related topics: www.osha.gov/SLTC/personalprotectiveequipment.

For More Information

Federal, State, territorial, tribal, 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 conditions in the geographic area where the business is located.

Below are several recommended websites to access the most current and accurate information:

- OSHA website: www.osha.gov
- Whistleblower Protection Program website: www.whistleblowers.gov
- U.S. Department of Labor COVID-19 webpage: www.dol.gov/coronavirus
- CDC website: www.cdc.gov/coronavirus
- 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.

OSHA Regional Offices

Region 1

Boston Regional Office (CT*, ME*, MA, NH, RI, VT*) JFK Federal Building 25 New Sudbury Street, Room E340 Boston, MA 02203 (617) 565-9860 (617) 565-9827 Fax

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

Chicago Regional Office (IL*, IN*, MI*, MN*, OH, WI) John C. Kluczynski Federal Building 230 South Dearborn Street, Room 3244 Chicago, IL 60604 (312) 353-2220 (312) 353-7774 Fax

Region 6

Dallas Regional Office (AR, LA, NM*, OK, TX) A. Maceo Smith Federal Building 525 Griffin Street, Room 602 Dallas, TX 75202 (972) 850-4145 (972) 850-4149 Fax

Region 7

Kansas City Regional Office (IA*, KS, MO, NE) Two Pershing Square Building 2300 Main Street, Suite 1010 Kansas City, MO 64108-2416 (816) 283-8745 (816) 283-0547 Fax

Region 8

Denver Regional Office (CO, MT, ND, SD, UT*, WY*) Cesar Chavez Memorial Building 1244 Speer Boulevard, Suite 551 Denver, CO 80204 (720) 264-6550 (720) 264-6585 Fax

Region 9

San Francisco Regional Office (AZ*, CA*, HI*, NV*, and American Samoa, Guam and the Northern Mariana Islands) San Francisco Federal Building 90 7th Street, Suite 2650 San Francisco, CA 94103 (415) 625-2547 (415) 625-2534 Fax

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 *These states and territories operate their own OSHA-approved job safety and health plans and cover state and local government employees as well as private sector employees. The Connecticut, Illinois, Maine, New Jersey, New York and Virgin Islands programs cover public employees only. (Private sector workers in these states are covered by Federal OSHA). 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-OSHA (6742).

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.



Appendix A — **Applicable OSHA Standards and Requirements**

Note: Specific paragraphs referenced in the table refer to the main provisions of the listed OSHA standards with which employers should be familiar. Other parts of these standards and additional standards not mentioned in the table may apply.		Personal Protective Equipment General Requirements, 29 CFR 1910.132	Respiratory Protection 29 CFR 1910.134	Sanitation, 29 CFR 1910.141	Hazard Communication 29 CFR 1910.1200	Access to Employee Exposure & Medical Records 29 CFR 1910.1020	Recording and Reporting Occupational Injuries & Illnesses, 29 CFR Part 1904
Applies generally to potential and actual	SARS-CoV-2 virus	(a)	(a)			(b), (c)(13)	29 CFR 1904.4(a)-(b)
exhozore(s) to	Chemical hazards (e.g., cleaning and disinfection)	(a)	(a)		(b)	(b), (c)(13)	29 CFR 1904.4(a)-(b)
Hazard/exposure assessment	Required, generally	(d)(1)	(d)(1)(i), (iii)		(d)		
	Written requirements	(d)(2)			(e)		
Implementation program	Required, generally	(d)(1), (2)	(c)		(e)		
	Written requirements	(d)(2)	(c)		(e)		
	Worker involvement		(1)				29 CFR 1904.35
Controls	Engineering controls		(a)(1)				

Note: Specific paragraphs refe to the main provisions of the lis with which employers should b of these standards and addition mentioned in the table may app	renced in the table refer ted OSHA standards e familiar. Other parts nal standards not ly.	Personal Protective Equipment General Requirements, 29 CFR 1910.132	Respiratory Protection 29 CFR 1910.134	Sanitation, 29 CFR 1910.141	Hazard Communication 29 CFR 1910.1200	Access to Employee Exposure & Medical Records 29 CFR 1910.1020	Recording and Reporting Occupational Injuries & Illnesses, 29 CFR Part 1904
Controls	Administrative controls and safe work practices				(f)		
	PPE	(a)	(a), (d), (f), (g)				
Housekeeping	General cleaning			(a)(3)			
	Handwashing facilities with soap and running water			(d)			
Training	Required, generally	(f)(1)	(c), (k)		(h)		
	Initial training	(f)(1)	(k)(3)		(h)(1)		
	Periodic training	(f)(3)	(k)(5)		(h)(1)		
	In a language and format worker(s) can understand		(k)(2)				
	Covers use of PPE (e.g., donning and doffing)	(f)(1)(iii)	(c)		(h)(3)(iii)		

Note: Specific paragraphs referenced in the table refer to the main provisions of the listed OSHA standards with which employers should be familiar. Other parts of these standards and additional standards not mentioned in the table may apply.		Personal Protective Equipment General Requirements, 29 CFR 1910.132	Respiratory Protection 29 CFR 1910.134	Sanitation, 29 CFR 1910.141	Hazard Communication 29 CFR 1910.1200	Access to Employee Exposure & Medical Records 29 CFR 1910.1020	Recording and Reporting Occupational Injuries & Illnesses, 29 CFR Part 1904
Training	Training must be effective (e.g., workers must demonstrate competency)	(f)(2)	(k)		(h)(1)		
Recordkeeping	Maintenance of medical records		(m)			(b), (d)*	
	Respirator fit testing		(m)				
	Access by OSHA and/or NIOSH					(e)(3)	
Retaliation**	Prohibitions against employer retaliation						29 CFR 1904.36

* Note that 29 CFR 1910.1020 may apply to temperature records. Employers should evaluate the burdens and benefits of maintaining temperature records or asking workers to complete written questionnaires, as both will qualify as medical records if maintained by a physician, nurse, or other health care personnel, or technician. If employers do not record workers' temperatures, or if workers' temperatures are recorded but not made or maintained by a physician, nurse, or other health care personnel, or technician. If employers do not record workers' temperatures, or if workers' temperatures are recorded but not made or maintained by a physician, nurse, or other health care personnel or technician, the mere taking of a temperature would not amount to a record that must be retained.

** Section 11(c) of the OSH Act states:

(1) No person shall discharge or in any manner discriminate against any employee because such employee has filed any complaint or instituted or caused to be instituted any proceeding under or related to this Act or has testified or is about to testify in any such proceeding or because of the exercise by such employee on behalf of himself or others of any right afforded by this Act.

(2) Any employee who believes that he has been discharged or otherwise discriminated against by any person in violation of this subsection may, within thirty days after such violation occurs, file a complaint with the Secretary alleging such discrimination. Upon receipt of such complaint, the Secretary shall cause such investigation to be made as he deems appropriate. If upon such investigation, the Secretary shall cause such investigation to be made as he deems appropriate. If upon such investigation, the Secretary altermines that the provisions of this subsection have been violated, he shall bring an action in any appropriate United States district court against such person. In any such action the United States district courts shall have jurisdiction, for cause shown to restrain violations of paragraph (1) of this subsection and order all appropriate relief including rehiring or reinstatement of the employee to his former position with back pay.

(3) Within 90 days of the receipt of a complaint filed under this subsection the Secretary shall notify the complainant of his determination under paragraph 2 of this subsection.



U.S. Department of Labor





Guidance on Preparing Workplaces for COVID-19

OSHA 3990-03 2020



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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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-toperson 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:
 - 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/2019ncov/specific-groups/guidance-business-response.html.

Engineering Controls

Engineering controls involve isolating employees from workrelated 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 levels.



Occupational Risk Pyramid for COVID-19

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/2019ncov/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.

OSHA Regional Offices

Region 1

Boston Regional Office (CT*, ME*, MA, NH, RI, VT*) JFK Federal Building 25 New Sudbury Street, Room E340 Boston, MA 02203 (617) 565-9860 (617) 565-9827 Fax

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

Chicago Regional Office (IL*, IN*, MI*, MN*, OH, WI) John C. Kluczynski Federal Building 230 South Dearborn Street, Room 3244 Chicago, IL 60604 (312) 353-2220 (312) 353-7774 Fax

Region 6

Dallas Regional Office (AR, LA, NM*, OK, TX) A. Maceo Smith Federal Building 525 Griffin Street, Room 602 Dallas, TX 75202 (972) 850-4145 (972) 850-4149 Fax

Region 7

Kansas City Regional Office (IA*, KS, MO, NE) Two Pershing Square Building 2300 Main Street, Suite 1010 Kansas City, MO 64108-2416 (816) 283-8745 (816) 283-0547 Fax

Region 8

Denver Regional Office (CO, MT, ND, SD, UT*, WY*) Cesar Chavez Memorial Building 1244 Speer Boulevard, Suite 551 Denver, CO 80204 (720) 264-6550 (720) 264-6585 Fax

Region 9

San Francisco Regional Office (AZ*, CA*, HI*, NV*, and American Samoa, Guam and the Northern Mariana Islands) San Francisco Federal Building 90 7th Street, Suite 2650 San Francisco, CA 94103 (415) 625-2547 (415) 625-2534 Fax

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

*These states and territories operate their own OSHA-approved job safety and health plans and cover state and local government employees as well as private sector employees. The Connecticut, Illinois, Maine, New Jersey, New York and Virgin Islands programs cover public employees only. (Private sector workers in these states are covered by Federal OSHA). 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-OSHA (6742).

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: OCCUpational Safety and Health Administration www.osha.gov (800) 321-OSHA (6742)



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Coronavirus Disease 2019 (COVID-19)

Interim Guidance for Businesses and Employers Responding to Coronavirus Disease 2019 (COVID-19), May 2020 Guidance for Businesses & Employers

Plan, Prepare and Respond to Coronavirus Disease 2019

Updated May 6, 2020

Print

Summary of Changes to the Guidance:

Below are changes as of May 6, 2020

- Updated strategies and recommendations for employers responding to COVID-19, including those seeking to resume normal or phased business operations:
 - Conducting daily health checks
 - $\circ\,$ Conducting a hazard assessment of the workplace
 - Encouraging employees to wear cloth face coverings in the workplace, if appropriate
 - Implementing policies and practices for social distancing in the workplace
 - $\circ\,$ Improving the building ventilation system
- A table outlining the engineering controls, administrative controls, and personal protective equipment (PPE) that employers may use to help prevent the spread of COVID-19 in the workplace

More Changes

CDC Industry Guidance

• Resources for Airlines

- Resources for the Ship Industry
- Employers with Workers at High Risk

OSHA/HHS Guidance

• Guidance on Preparing Workplaces for COVID-19 📐 🖸

Resuming Business Toolkit



Purpose

This interim guidance is based on what is currently known about the coronavirus disease 2019 (COVID-19). CO 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. There is much more to learn about the transmiss severity, and other characteristics of COVID-19 and investigations are ongoing. Updates are available on CDC's page at https://www.cdc.gov/coronavirus/2019-ncov/. CDC will update this interim guidance as additional information becomes available.

This interim guidance may help prevent workplace exposures to COVID-19 in non-healthcare settings (separat guidance is available for healthcare settings). CDC has also provided guidance for critical infrastructure worker may have had exposure to a person known or suspected to have COVID-19. Unless otherwise specified, this in guidance for businesses and employers applies to critical infrastructure workplaces as well.

Role of Businesses and Employers in Responding to COVID-19

Businesses and employers can prevent and slow the spread of COVID-19 within the workplace. Employers sho respond in a way that takes into account the level of disease transmission in their communities and revise the business response plans as needed. Employers should follow the White House Guidelines for Opening Up Ama Again a phased approach based on current levels of transmission and healthcare capacity at the state or lc level, as part of resuming business operations. Business operation decisions should be based on both the leve disease transmission in the community and your readiness to protect the safety and health of your employees customers.

Businesses and employers are encouraged to coordinate with state 🗹 and local 🗹 health officials to obtain ti

and accurate information to inform appropriate responses. Local conditions will influence the decisions that p health officials make regarding community-level strategies. CDC has guidance for mitigation strategies A accc to the level of community transmission or impact of COVID-19.

As an employer, if your business operations were interrupted, resuming normal or phased activities presents a opportunity to update your COVID-19 preparedness, response, and control plans. All employers should impler and update as necessary a plan that:

- Is specific to your workplace,
- identifies all areas and job tasks with potential exposures to COVID-19, and
- includes control measures to eliminate or reduce such exposures.

Talk with your employees about planned changes and seek their input. Additionally, collaborate with employee unions to effectively communicate important COVID-19 information.

See the OSHA COVID-19 guidance P C for more information on how to protect workers from potential exposition according to their exposure risk. Plans should consider that employees may be able to spread COVID-19 even do not show symptoms.

All employers need to consider how best to decrease the spread of COVID-19 and lower the impact in your workplace. This should include activities to:

- prevent and reduce transmission among employees,
- maintain healthy business operations, and
- maintain a healthy work environment.

Prevent and Reduce Transmission Among Employees

Monitor federal, state, and local public health communications about COVID-19 regulations, guidance, and recommendations and ensure that workers have access to that information. Frequently check the CDC COVID-website.

Actively encourage sick employees to stay home:

- Employees who have symptoms should notify their supervisor and stay home.
- Sick employees should follow CDC-recommended steps. Employees should not return to work until the crit discontinue home isolation are met, in consultation with healthcare providers.
- Employees who are well but who have a sick family member at home with COVID-19 should notify their sug and follow CDC recommended precautions.

Consider conducting daily in-person or virtual health checks (e.g., symptom and/or temperature screening) employees before they enter the facility, in accordance with state and local public health authorities and, if avayour occupational health services:

- If implementing in-person health checks, conduct them safely and respectfully. Employers may use social distancing, barrier or partition controls, or personal protective equipment (PPE) to protect the screener. Ho reliance on PPE alone is a less effective control and is more difficult to implement, given PPE shortages and training requirements.
 - See the "Should we be screening employees for COVID-19 symptoms?" section of General Business Frequently Asked Questions as a guide.
- Complete the health checks in a way that helps maintain social distancing guidelines, such as providing mu screening entries into the building.
- Follow guidance from the Equal Employment Opportunity Commission 🖸 regarding confidentiality of mec records from health checks.
- To prevent stigma and discrimination in the workplace, make employee health screenings as private as pos Do not make determinations of risk based on race or country of origin and be sure to maintain confidential each individual's medical status and history.

Identify where and how workers might be exposed to COVID-19 at work. Employers are responsible for prove safe and healthy workplace 2. Conduct a thorough hazard assessment 2 of the workplace to identify potent workplace hazards related to COVID-19. Use appropriate combinations of controls from the hierarchy of control limit the spread of COVID-19, including engineering controls, workplace administrative policies, and personal protective equipment (PPE) to protect workers from the identified hazards (see table below):

- Conduct a thorough hazard assessment to determine if workplace hazards are present, or are likely to be p and determine what type of controls or PPE are needed for specific job duties.
- When engineering and administrative controls cannot be implemented or are not fully protective, employe required by OSHA standards to:
 - $\circ\,$ Determine what PPE is needed for their workers' specific job duties,
 - $\circ\,$ Select and provide appropriate PPE to the workers at no cost, and
 - $\circ\,$ Train their workers on its correct use.
- Encourage workers to wear a cloth face covering at work if the hazard assessment has determined that the not require PPE, such as a respirator or medical facemask for protection.
 - CDC recommends wearing a cloth face covering as a measure to contain the wearer's respiratory drop and help protect their co-workers and members of the general public.
 - Cloth face coverings are not considered PPE. They may prevent workers, including those who don't kn they have the virus, from spreading it to others but may not protect the wearers from exposure to the that causes COVID-19.
- Remind employees and customers that CDC recommends wearing cloth face coverings in public settings w other social distancing measures are difficult to maintain, **especially** in areas of significant community-base transmission. Wearing a cloth face covering, however, does not replace the need to practice social distancir
- See the OSHA COVID-19 🖸 webpage for more information on how to protect workers from potential COVI exposures and guidance for employers 🔎 🖸 , including steps to take for jobs according to exposure risk.

Separate sick employees:

• Employees who appear to have symptoms upon arrival at work or who become sick during the day should immediately be separated from other employees, customers, and visitors, and sent home.

• Have a procedure in place for the safe transport of an employee who becomes sick while at work. The emp may need to be transported home or to a healthcare provider.

Take action if an employee is suspected or confirmed to have COVID-19 infection:

In most cases, you do not need to shut down your facility. If it has been less than 7 days since the sick employe been in the facility, close off any areas used for prolonged periods of time by the sick person:

- Wait 24 hours before cleaning and disinfecting to minimize potential for other employees being exposed to respiratory droplets. If waiting 24 hours is not feasible, wait as long as possible.
- During this waiting period, open outside doors and windows to increase air circulation in these areas.

If it has been 7 days or more since the sick employee used the facility, additional cleaning and disinfection is necessary. Continue routinely cleaning and disinfecting all high-touch surfaces in the facility.

Follow the CDC cleaning and disinfection recommendations:

- Clean dirty surfaces with soap and water before disinfecting them.
- To disinfect surfaces, use products that meet EPA criteria for use against SARS-Cov-2 🖸 , the virus that cau COVID-19, and are appropriate for the surface.
- Always wear gloves and gowns appropriate for the chemicals being used when you are cleaning and disinfe
- You may need to wear additional PPE depending on the setting and disinfectant product you are using. For product you use, consult and follow the manufacturer's instructions for use.

Determine which employees may have been exposed to the virus and may need to take additional precaution:

- Inform employees of their possible exposure to COVID-19 in the workplace but maintain confidentiality as required by the Americans with Disabilities Act (ADA) 🖸 .
- Most workplaces should follow the Public Health Recommendations for Community-Related Exposure and instruct potentially exposed employees to stay home for 14 days, telework if possible, and self-monitor for symptoms.
- Critical infrastructure 🖸 workplaces should follow the guidance on Implementing Safety Practices for Criti Infrastructure Workers Who May Have Had Exposure to a Person with Suspected or Confirmed COVID-19. Employers in critical infrastructure also have an obligation to manage potentially exposed workers' return t in ways that best protect the health of those workers, their co-workers, and the general public.

Educate employees about steps they can take to protect themselves at work and at home:

- Encourage employees to follow any new policies or procedures related to illness, cleaning and disinfecting, work meetings and travel.
- Advise employees to:
- Stay home if they are sick, except to get medical care, and to learn what to do if they are sick.
- Inform their supervisor if they have a sick family member at home with COVID-19 and to learn what to do if someone in their home is sick.

- Wash their hands often with soap and water for at least 20 seconds or to use hand sanitizer with at least 6(alcohol if soap and water are not available. Inform employees that if their hands are visibly dirty, they shou soap and water over hand sanitizer. Key times for employees to clean their hands include:
 - $\circ\,$ Before and after work shifts
 - Before and after work breaks
 - $\circ\,$ After blowing their nose, coughing, or sneezing
 - After using the restroom
 - $\circ\,$ Before eating or preparing food
 - $\circ\,$ After putting on, touching, or removing cloth face coverings
- Avoid touching their eyes, nose, and mouth with unwashed hands.
- Cover their mouth and nose with a tissue when you cough or sneeze, or use the inside of their elbow. Thro tissues into no-touch trash cans and immediately wash hands with soap and water for at least 20 seconds. and water are not available, use hand sanitizer containing at least 60% alcohol. Learn more about coughing sneezing etiquette on the CDC website.
- Practice routine cleaning and disinfection of frequently touched objects and surfaces such as workstations, keyboards, telephones, handrails, and doorknobs. Dirty surfaces can be cleaned with soap and water prior 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. Cl and disinfect them before and after use.
- Practice social distancing by avoiding large gatherings and maintaining distance (at least 6 feet) from others possible.

For employees who commute to work using public transportation or ride sharing, consider offering the fol support:

- If feasible, offer employees incentives to use forms of transportation that minimize close contact with othe biking, walking, driving or riding by car either alone or with household members).
- Ask employees to follow the CDC guidance on how to protect yourself when using transportation.
- Allow employees to shift their hours so they can commute during less busy times.
- Ask employees to clean their hands as soon as possible after their trip.

Maintain Healthy Business Operations

Identify a workplace coordinator who will be responsible for COVID-19 issues and their impact at the workpla

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 a 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 children due to school and childcare closures. Additional flexibilities might include giving advances on futur leave and allowing employees to donate sick leave to each other.

- The Families First Coronavirus Response Act (FFCRA or Act) requires certain employers 🗹 to provide their employees with paid sick leave or expanded family and medical leave for specified reasons related to COVI
- Employers with fewer than 500 employees are eligible for 100% tax credits 🖸 for Families First Coronaviru Response Act COVID-19 paid leave provided through December 31, 2020, up to certain limits.
- Employers that do not currently offer sick leave to some or all of their employees should consider drafting punitive "emergency sick leave" policies.
- Employers should not require a COVID-19 test result or a healthcare provider's note for employees who are validate their illness, qualify for sick leave, or to return to work.
 - Under the American's with Disabilities Act, employers are permitted to require a doctor's note from yc employees
 If to verify that they are healthy and able to return to work. However, as a practical matter aware that healthcare provider offices and medical facilities may be extremely busy and not able to pr such documentation in a timely manner. Most people with COVID-19 have mild illness and can recove home without medical care and can follow CDC recommendations to determine when to discontinue lisolation and return to work.
 - The U.S. Equal Employment Opportunity Commission (EEOC) has established guidance regarding Pane Preparedness in the Workplace and the Americans with Disabilities Act
 The guidance enables empto take steps to protect workers consistent with CDC guidance, including requiring workers to stay hor when necessary to address the direct threat of spreading COVID-19 to others.
- Review human resources policies to make sure that your policies and practices are consistent with public h recommendations and with existing state and federal workplace laws (for more information on employer responsibilities, visit the Department of Labor's [2] and the Equal Employment Opportunity Commission's websites).
- Connect employees to employee assistance program (EAP) resources, if available, and community resource needed. Employees may need additional social, behavioral, and other services, for example, to help them n stress and cope.

Protect employees at higher risk for severe illness through supportive policies and practices. Older adults a people of any age who have serious underlying medical conditions are at higher risk for severe illness from COVID-19.

- Support and encourage options to telework, if available.
- Consider offering vulnerable workers duties that minimize their contact with customers and other employe (e.g., restocking shelves rather than working as a cashier), if the worker agrees to this.
- Offer flexible options such as telework to employees. This will eliminate the need for employees living in hit transmission areas to travel to workplaces in lower transmission areas and vice versa.
- Ensure that any other businesses and employers sharing the same workspace also follow this guidance.

Communicate supportive workplace polices clearly, frequently, and via multiple methods. Employers may r communicate with non-English speakers in their preferred languages.

- Train workers on how implementing any new policies to reduce the spread of COVID-19 may affect existing and safety practices.
- Communicate to any contractors or on-site visitors about changes that have been made to help control the spread of COVID-19. Ensure that they have the information and capability to comply with those policies.

- Create and test communication systems that employees can use to self-report if they are sick and that you use to notify employees of exposures and closures.
- Consider using a hotline or another method for employees to voice concerns anonymously.

Assess your essential functions and the reliance that others and the community have on your services or pro

- Be prepared to change your business practices, if needed, to maintain critical operations (e.g., identify alter suppliers, prioritize existing customers, or temporarily suspend some of your operations).
- Identify alternate supply chains for critical goods and services. Some goods and services may be in higher c or unavailable.
- If other companies provide your business with contract or temporary employees, talk with them about the importance of sick employees staying home and encourage them to develop non-punitive leave policies.
- Talk with business partners about your response efforts. Share best practices with other businesses in you communities (especially those in your supply chain), chambers of commerce, and associations to improve community response efforts.
- When resuming onsite business operations, identify and prioritize job functions for continuous operations. Minimize the number of workers present at worksites by resuming business operations in phases, balancir need to protect workers with support for continuing operations.

Determine how you will operate if absenteeism spikes from increases in sick employees, those who stay hor care for sick family members, and those who must stay home to watch their children until childcare programs K-12 schools resume.

- 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 absent.

Establish policies and practices for social distancing. Alter your workspace to help workers and customers m social distancing and physically separate employees from each other and from customers, when possible. Her some strategies that businesses can use:

- Implement flexible worksites (e.g., telework).
- Implement flexible work hours (e.g., rotate or stagger shifts to limit the number of employees in the workpl the same time).
- Increase physical space between employees at the worksite by modifying the workspace.
- Increase physical space between employees and customers (e.g., drive-through service, physical barriers su partitions).
- Use signs, tape marks, or other visual cues such as decals or colored tape on the floor, placed 6 feet apart, indicate where to stand when physical barriers are not possible.
- Implement flexible meeting and travel options (e.g., postpone non-essential meetings or events in accordar

with state and local regulations and guidance).

- Close or limit access to common areas where employees are likely to congregate and interact.
- Prohibit handshaking.
- Deliver services remotely (e.g., phone, video, or web).
- Adjust your business practices to reduce close contact with customers for example, by providing drive-th service, click-and-collect online shopping, shop-by-phone, curbside pickup, and delivery options, where fease
- Move the electronic payment terminal/credit card reader farther away from the cashier, if possible, to incre the distance between the customer and the cashier.
- Shift primary stocking activities to off-peak or after hours, when possible, to reduce contact with customers

If you have more than one business location, consider giving local managers the authority to take appropriat actions outlined in their COVID-19 response plans based on their local conditions.

Maintain a healthy work environment

Since COVID-19 may be spread by those with no symptoms, businesses and employers should evaluate and in controls according to the hierarchy of controls to protect their employees and members of the general public.

Consider improving the engineering controls using the building ventilation system. This may include some the following activities:

- Increase ventilation rates.
- Ensure ventilation systems operate properly and provide acceptable indoor air quality for the current occul level for each space.
- Increase outdoor air ventilation, using caution in highly polluted areas. With a lower occupancy level in the building, this increases the effective dilution ventilation per person.
- Disable demand-controlled ventilation (DCV).
- Further open minimum outdoor air dampers (as high as 100%) to reduce or eliminate recirculation. In mild weather, this will not affect thermal comfort or humidity. However, this may be difficult to do in cold or hot weather.
- Improve central air filtration to the MERV-13 or the highest compatible with the filter rack, and seal edges o filter to limit bypass.
- Check filters to ensure they are within service life and appropriately installed.
- Keep systems running longer hours, 24/7 if possible, to enhance air exchanges in the building space.

Note: Some of the above recommendations are based on the American Society of Heating, Refrigerating, and . Conditioning Engineers (ASHRAE) Guidance for Building Operations During the COVID-19 Pandemic 🗹 . Review ASHRAE guidelines for further information on ventilation recommendations.

Ensure the safety of your building water system and devices after a prolonged shutdown:

• Follow the CDC Guidance for Building Water Systems, which describes 8 steps to take before you reopen you business or building.

Give employees, customers, and visitors what they need to clean their hands and cover their coughs and sneezes:

- Provide tissues and no-touch trash cans.
- Provide soap and water in the workplace. If soap and water are not readily available, use alcohol-based har sanitizer that is at least 60% alcohol. Ensure that adequate supplies are maintained.
- Ideally, place touchless hand sanitizer stations 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 other workplace areas where they are likely to be seen. This should include signs for non-English speakers, needed.
- Discourage handshaking. Encourage employees to use other noncontact methods of greeting.
- Direct employees to visit CDC's coughing and sneezing etiquette and clean hands webpage for more inform

Perform routine cleaning:

- Follow the Guidance for Cleaning and Disinfecting to develop, implement, and maintain a plan to perform r cleanings to reduce the risk of exposure to COVID-19.
- Routinely clean all frequently touched surfaces in the workplace, such as workstations, keyboards, telephor handrails, and doorknobs.
 - $\circ\,$ If surfaces are dirty, clean them using a detergent or soap and water before you disinfect them.
 - 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 on the website. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concen application method, and contact time).
- Discourage workers from using each other's phones, desks, offices, or other work tools and equipment, wh possible.
- Provide disposable disinfecting wipes so that employees can wipe down commonly used surfaces (e.g., doorknobs, keyboards, remote controls, desks, other work tools and equipment) before each use.
- Store and use disinfectants in a responsible and appropriate manner according to the label.
- Do not mix bleach or other cleaning and disinfection products together. This can cause fumes that could be dangerous to breathe in.
- Advise employees to always wear gloves appropriate for the chemicals being used when they are cleaning a disinfecting and that they may need additional PPE based on the setting and product.

Perform enhanced cleaning and disinfection after persons suspected/confirmed to have COVID-19 have be the facility:

• If a sick employee is suspected or confirmed to have COVID-19, follow the CDC cleaning and disinfection recommendations.

Limit travel and advise employees if they must travel to take additional precautions and preparations:

• Minimize non-essential travel and consider resuming non-essential travel in accordance with state and loca

regulations and guidance.

- Check the CDC's Traveler's Health Notices for the latest guidance and recommendations for each country w 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 before starting travel and to notify their supervisor and stay home if they are sick.
- Ensure employees who become sick while traveling or on temporary assignment understand that they show notify their supervisor and promptly call a healthcare provider for advice if needed.
- If they are outside the United States, sick employees should follow company policy for obtaining medical ca contact a healthcare provider or overseas medical assistance company to help them find an appropriate healthcare provider in that country. A U.S. consular officer can help locate healthcare services. However, U. embassies, consulates, and military facilities do not have the legal authority, capability, or resources to evac or give medicines, vaccines, or medical care to private U.S. citizens overseas.

Minimize risk to employees when planning meetings and gatherings:

- Use videoconferencing or teleconferencing when possible for work-related meetings and gatherings.
- Cancel, adjust, or postpone large work-related meetings or gatherings that can only occur in-person in accc with state and local regulations and guidance.
- When videoconferencing or teleconferencing is not possible, hold meetings in open, well-ventilated spaces continuing to maintain a distance of 6 feet apart and wear cloth face coverings.

The table below presents examples of controls to implement in your workplace. The most effective controls ar that rely on engineering solutions, followed by administrative controls, then PPE. PPE is the least effective cont method and the most difficult to implement. Worksites may have to implement multiple complementary control from these columns to effectively control the hazard.

Employers: Use the table below to implement the most appropriate controls for your workplace

TABLE: Example Controls to Prevent the Spread of COVID-19 in Work Environments

Engineering	Administrative	Personal Protective
		Equipment (PPE)

Facilities and Equipment

- Assess job hazards for feasibility of engineering controls
- Ensure ventilation and water systems operate properly
- Alter workspaces to maintain social distancing. Examples include:
 - Configure partitions as a barrier shield
 - Move electronic payment reader away from cashier
 - Use verbal announcements, signage, and visual cues to promote social distancing
 - Remove/rearrange furniture
 - Provide remote shopping alternatives (e.g., delivery, pick-up)

Management and Communications

- Monitor state and local public health communications about COVID-19
- Encourage sick workers to report symptoms, stay home, and follow CDC guidance
- Develop strategies to:
 manage worker concerns
 - $\circ\,$ communicate with workers
- Remind workers of available support services
- Communicate to partners, suppliers, other contractors on policies and practices
- Encourage social distancing and the use of cloth face coverings (if appropriate) in the workplace
- Use technology to promote social distancing (e.g., telework and virtual meetings)
- Cancel group events
- Close/limit use of shared spaces
- Ask customers who are ill to stay home
- Consider policies that encourage flexible sick leave and alternative work schedules.
- Schedule stocking during off-peak hours

Cleaning and Disinfection

- Clean and disinfect frequently touched surfaces, (e.g., counters, shelving, displays)
- Provide employees with disposable disinfectant wipes, cleaner, or sprays that are effective against the virus that causes COVID-19

Training

PPE

- Conduct workplace hazard assessment
- Determine what PPI needed for their wo specific job duties b on hazards and othe controls present
- Select and provide appropriate PPE to t workers at no cost.
Provide employees with training on:

- Policies to reduce the spread of COVID-19
- General hygiene
- Symptoms, what to do if sick
- Cleaning and disinfection

Resources for more information: CDC Guidance

- COVID-19 Website
- Business and Workplaces webpage
- General Business Frequently Asked Questions
- Small Business
- Transportation and Delivery
- What You Need to Know About COVID-19
- What to Do If You Are Sick With COVID-19
- What Workers and Employers Can Do to Manage Workplace Fatigue during COVID-19
- People at Higher Risk of Severe Illness
- Public Health Recommendations for Community-Related Exposures
- Public Health Recommendations after Travel-Associated COVID-19 Exposure
- Health Alert Network
- Travelers' Health Website
- National Institute for Occupational Safety and Health's Small Business International Travel Resource Travel Planner 📐
- Managing Workplace Fatigue

Other Federal Agencies and Partners

- OSHA COVID-19 Website 🖸
- OSHA Guidance for Preparing Workplaces for COVID-19 🔼 🖸

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

Last Updated

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HEALTH AND SAFETY PLAN CATHODE RAY TUBE MATERIAL REMOVAL AND BUILDING REMEDIATION

FORMER CLOSED LOOP FACILITY 1655 AND 1675 WATKINS ROAD COLUMBUS, OHIO

EnSafe Project Number: 0888823935/001

Prepared for:

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

September 2020

P.O. Box 24261 Cleveland, Ohio 44124 901-372-7962 | 800-588-7962 www.ensafe.com



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GENERAL HEALTH AND SAFETY POLICY STATEMENT

EnSafe Inc. is committed to providing a safe and healthful working environment. Environmental Health and Safety (EHS) performance will not be compromised for the sake of other business or client demands. We will achieve this mission by promoting an "EHS Culture" in which employee health and safety are paramount in each endeavor. We will actively promote and maintain the following beliefs in everything we do.

Concern for employee health and safety will be evident and embedded into all phases of our work by design and through the business decisions we make. Each employee is empowered with responsibility for his or her personal health and safety and the health and safety of their fellow employees and stakeholders.

Continuous improvement is a way of life at EnSafe; we use feedback and experience to refine and build upon our EHS Culture to ensure continual forward progress. EHS incidents are preventable; we will strive to ensure that our policies, practices, and decisions are proactive on all accounts. Management is responsible for ensuring employees have the knowledge, skills, and equipment necessary to protect themselves and others.

We will not be satisfied to simply meet EHS compliance standards. Every task must be performed with concern for the welfare of our employees, our contractors, our visitors, our clients, and the communities in which we operate.

Protecting the well-being of our employees is a way of life around the clock — both on and off the job. We ask that all employees understand the EHS issues and responsibilities associated with their work and adhere to our established policies and programs. The success of our program depends on all employees incorporating our EHS Culture into every part of our day-to-day business practice and decisions.

Written Safety Program Goals and Objectives

EnSafe utilizes a written safety program entitled "EnSafe Corporate Safety Management System." This Safety Management System is the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk. Elements include organizational structure; risk assessments; and continual improvement based on preventative and corrective measures.

Stop Work Authority

It is an EnSafe requirement to maintain a safe and secure work environment. We seek to prevent personal harm, property damage, or adverse effects to the environment. Any person regardless of position, seniority, or discipline has the right and duty to apply the STOP WORK policy if in his/her opinion or judgment, such activity is deemed to be a potential incident. STOP WORK shall be applied if any situation arises due to an unsafe action, behavior, or omission or non-action of any party involved in the operation, and if such situation were permitted to continue, may potentially lead to the occurrence of a mishap.

There shall be no blame or fault put on any employee call for a STOP WORK order even if, upon investigation, the STOP WORK was deemed unnecessary. The STOP WORK order must be applied in good faith.

EnSafe will suspend the Site work and will evacuate the area under the following conditions:

- If inadequate safety precautions are being taken, or
- If it is believed that site personnel may be exposed to an immediate health and/or safety hazard that cannot be mitigated.

Accident Experience

EnSafe and its subcontractor(s) accident experience (i.e., Occupational Safety and Health Administration 300 form or Experience Modification Rate), if required, will be found in the appendices to this Health and Safety Plan.

CERTIFICATE PAGE

This Health and Safety Plan (HASP) was prepared for employees performing field activities at the Closed Loop Refining & Recovery (Closed Loop) facility (subject property) located at 1655 and 1675 Watkins Road in Columbus, Ohio. It was prepared based on the best available information regarding the physical and chemical hazards known, or suspected to be present, at project sites.

This HASP is based upon the necessity to eliminate injuries, occupational illnesses, and property damage, as well as to protect the public whenever and wherever the public encounters the company's work.

This HASP is intended to conform with any, or a combination of, Occupational Safety and Health Administration 29 Code of Federal Regulations 1910/1926; Army Corps of Engineers Safety and Health Requirements Engineers Manual (EM 385-1-1); American National Standards Institute and American Society of Safety Professionals A10.33-2011 (R2016 — Multi-Employer Program); Environmental Protection Agency Emergency Responder Health and Safety Manual, and any other applicable regulation or standard not specifically named but required for the project.

This HASP is intended to be dynamic in nature and conform to specific project requirements. Therefore, elements within the HASP and associated appendices (e.g., Resume, Accident Experience, Training Certificates, etc.) that do not pertain to the project may be omitted. However, if requirements change, this HASP is structured to support additional information, as necessary.

While it is not possible to discover, evaluate, and protect in advance against all possible hazards that may be encountered during the completion of the project, adherence to the safety and health program requirements of this HASP will be fully executed to ensure all workers on this project are working toward a healthful and safe workplace.

SIGNATURE SHEET

By signing below, I acknowledge that I have reviewed and hereby approve this Health and Safety Plan (HASP) for the field activities as described for this HASP. This HASP has been written for exclusive use by EnSafe Inc. employees and its subcontractors. This HASP was written for specified site conditions, dates, and personnel and must be amended if these conditions change.

Plan Preparer:

R.R.

Date: 09/13/20

1.a. Edward B Baker Project Manager EnSafe Inc.

Plan Approver:

Date: 09/13/20

1.b. Scott F Campbell EnSafe Corporate Health and Safety Manager EnSafe Inc.

Plan Concurrence:

1.c. B Venky Venkatesh Project Manager/On-Scene Coordinator EnSafe Inc. Date: 09/13/20

REVISION RECORD

Revisions to this document will be recorded below. Changes must be communicated to affected personnel and acknowledged.

Note: This may require the use of additional signature pages.

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RED PLAN

Table 1A Emergency Response Telephone Roster							
PERSONNEL Office Cell							
EnSafe Inc, (Environmental Consultant)							
Project Manager: Edward "Ned" B. Baker	216-485-3221	216-924-2437					
Site Manager: Venky Venkatesh	513-259-2396	216-235-8613					
Health and Safety Coordinator: Venky Venkatesh	513-259-2396	216-235-8613					
Health and Safety Manager: Scott Campbell	901-937-4255	504-377-2619					
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 614-566-9000						
Fire Department: Columbus Fire Station 22	911 or 614-221-3132						
Police Department: Columbus Police	911 or 614-645-4545						
Health Department: Franklin County Health & Wellness Center	911 or 614-645-3131						
Ambulance Service: Life Medical Response	911 or 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						

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Table 1B Emergency Services Instructions

For Emergency Medical Incidents, Emergency Fire Response, or Hazardous Materials Incidents

Emergency Telephone Numbers:

- Hospital: 911
- Police: 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 and 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 Onsite 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)



Health and Safety Plan, Cathode Ray Tube Material Removal and Building Remediation Former Closed Loop Facility Columbus, Ohio September 2020



Table 1C Personal Protective Equipment — Selection					
		Level of	Protection	Required	
Site Task Descriptions	Α	В	С	Mod D	D
Site Inspection/Testing and Visitors			\boxtimes		
Site Maintenance			\square		
CRT Material Removal			\square		
Equipment Removal			\square		
Building Remediation			\boxtimes		

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 onsite supply requirements are detailed in the following Table 1D.

Table 1D							
Equipment	Req	Reg Rec NA Equipment				Rec	NA
Steel-Toe Boots	\boxtimes			SCBA			\boxtimes
Outer Disposable Boots	\square			Full-face Airline Resp.			\square
Long Sleeve Shirt and Pants	\boxtimes			Full Face Negative Pressure Resp.			\boxtimes
Flame Retardant Coveralls			Half Face Negative Pressure Respirator with P100 Cartridge (or equivalent)				
Tyvek Suit (or equivalent)				\boxtimes			
Poly-coated Tyvek/Saranex Suit			\boxtimes	First Aid Kit			
Fully Encapsulated Chemical Suit			\boxtimes	Fire Extinguisher			
Hearing Protection		\boxtimes		Communication (Call Phones or			
Task Appropriate Gloves Work Gloves, Impact Gloves, etc.				Walkie Talkies)			
Inner Chemical Gloves Latex or Nitrile		\boxtimes		Eye Wash (e.g., portable bottle)			
Outer Chemical Gloves Latex or Nitrile				Water or Other Fluid Replenishment			
Hard Hat	\boxtimes			Sunscreen			\boxtimes
Safety Glasses with Side Shields	\boxtimes			Insect Repellent			\square
Vented (Splash proof) Goggles			Personal Fall Arrest System, Full				
High Visibility Clothing				Body Harness with Self-Retracting Lanyard (Task Specific)			

Notes:

Req = required

recommendednot applicable Rec recommended

NA

SCBA = self-contained breathing apparatus



Health and Safety Plan, Cathode Ray Tube Material Removal and Building Remediation Former Closed Loop Facility Columbus, Ohio September 2020

FIGURE 1 S ZONE FLOW ł SCALE E **DRAWN** М Secondary Rally Point is the west parking lot area located west of the initial Rally Point DATE 1 PPE MASS DECONTAMINATION ZONE (MENS) ١ Ν EXIT OF EXCLUSION ZONE (MENS) PPORT ZONE PPE REMOVAL ZONE (MENS) MENS WASH ZONE SUPPORT ZONES & RALLY POINT 1655 & 1675 WATKINS ROAD PROJECT NUMBER: 137530 COLUMBUS, OHIO PPE DON ZONE /OMANS EXIT OF EXCLUSION ZONE (WOMENS) PPE MASS DECONTAMINATION ZONE (WOMENS) NS) SITE ENTRANCE ZONE SUPPORT ENTRANCE TO EXCLUSION ZONE **1675 WATKINS ROAD** EXCLUSION ZON ENTRANCE TO EXCLUSION ZONE **AKT**PEERLES **1655 WATKINS ROAD** www.aktpeerless.com 1ST LEVEL OFFICE AREA VIEW OF BUILDING LAYOUT

Figure 2 Support Zone and Rally Point Drawing



1.0 BACKGROUND

EnSafe Inc. Project Number: 0888823935/001

Project Name: Former Closed Loop Facility — 1655 and 1675 Watkins Road Warehouses

Project Description: This Health and Safety Plan (HASP) was prepared to inform all personnel (i.e., EnSafe, Garrison Southfield Park LLC; Jones Lang LaSalle; 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 and 1675 Watkins Road, Columbus, Ohio (Site).

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 in size and was solely occupied by Closed Loop.

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 cathode ray tube (CRT) glass crushing operations, conducted by Closed Loop within the Building 1675, was not operating with adequate dust control systems to meet Ohio Environmental Protection Agency (EPA) (i.e., Ohio Administrative Code 3745-31-02 and -03, Air Permitting) or United States EPA (U.S. EPA) (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.



2.0 PURPOSE

All Site personnel will review this HASP and be provided a Site-specific briefing prior to the commencement of work to ensure that employees are familiar with this HASP and the information and requirements it contains. Additional briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during ongoing Site characterization and analysis.

2.1 Scope of Work

The onsite 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 at 1655 and 1675 Watkins Road. Phase II consists of the removal of partially processed CRTs (crushed CRT glass) located in Building 1675 on Watkins Road. Phase III consists of the removal of Closed Loop operating equipment and decontamination activities associated with both buildings, after all the CRT materials have been removed from the buildings.

2.2 Specific Job Tasks

Please see major phases of work for full description.

2.3 Major Phases of Work

Phase I and Phase II

The principal components of the onsite 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

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 offsite 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 G, construction specifications for Site-specific dust containment structures, and applicable sections of the Closure Plan.

Task 2 — Movement and Relocation of Cathode Ray Tube 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
 - 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 (SOP) — Section 2 contained in Appendix C, applicable JHAs included in Appendix G, and applicable sections of the Closure Plan.

Task 3 — Evaluation of Cathode Ray Tube Material Container Condition

This task includes the inspection of the condition of CRT material containers for shipping, repackaging, 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 — Section 3 contained in Appendix C, applicable JHAs included in Appendix G, and applicable sections of the Closure Plan.

Task 4 — Decontamination of Cathode Ray Tube Material Containers

This task includes the cleaning of CRT material containers with CRT materials or palletized CRT materials wrapped in stretch film to be shipped offsite 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 of lead-containing dust off 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 — Section 4 contained in Appendix C, applicable JHAs included in Appendix G, and applicable sections of the Closure Plan.

Task 5 — Preparation of Cathode Ray Tube Material Containers for Shipping

This task includes preparing CRT material containers and/or palletized CRT materials for shipping offsite 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 — Section 5 contained in Appendix C, applicable JHAs included in Appendix G, and applicable sections of the Closure Plan.

Task 6 — Transfer of Cathode Ray Tube 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 chamber and restricted Clean Loading Zone chamber to load trucks for offsite recycling and/or disposal. This task includes, but is not limited to, the following:

- Loading trucks through Contaminant Reduction Zone and Clean Loading Zone chambers
- Double stacking of CRT Gaylords containers

Refer to the established guidelines, procedures, protocols and methods of SOP — Section 6 contained in Appendix C, applicable JHAs included in Appendix G, and applicable sections of the Closure Plan.

Task 7 — Daily Cleaning of Work Areas

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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 — Section 8 contained in Appendix C, applicable JHAs included in Appendix G, and applicable sections of the Closure Plan.

Task 8 — Final Equipment Decontamination

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 — Section 10 contained in Appendix C, applicable JHAs included in Appendix G, and applicable sections of the Closure Plan.



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.

Task 10 — Building Decontamination

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 nonstructural drywall partition walls, carpeting, select heating, ventilation, and air conditioning 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 offsite disposal

Refer to the applicable guidelines, procedures, protocols and methods of the Closure Plan and applicable JHAs included in Appendix G.

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Task 11 — Final Equipment Decontamination

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 — Section 10 contained in Appendix C, applicable JHAs included in Appendix G, 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 G.



2.4 Project Map



2.5 Equipment to Be Used

Equipment planned to be used includes: forklifts, scissor lifts, banding machine, vacuum cleaners, and others as needed.

2.6 Anticipated High-Risk Activities

High risk activities are defined as tasks that involve a job function or activity that has one or more critical steps that has the potential to create a mishap that involves serious injury or death. Examples



of these activities include locking out hazardous energy, entering a confined space, working at heights using hoisting, rigging, etc.

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 with P100 cartridge (or equivalent). Additional PPE requirements are outlined in this HASP (see Table 1D or 8) and all personnel shall familiarize themselves with the appropriate health and safety responses for exposure to known onsite chemicals prior to beginning work at the Site. See Appendix A for chemical safety data. Personal air monitoring shall be completed in accordance with Section 8.

Physical Hazards — Hazards from floor and wall openings, careless movements, protruding objects, building contents (stockpiled CRT materials), debris, spills, and placement of materials on paths or foot traffic areas present a problem with regards to slips, trips, falls, and puncture wounds.

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.

Working Near Railroads — There is a rail line adjacent to the property. However, it is not anticipated to be used for this project.

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 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.



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.

Forklift Operation — Forklifts are powerful vehicles that are ideal for lifting and carrying heavy loads. Just like any type of machinery, however, these lifts also come with their own sets of hazards to look out for in the work zone.

3.0 RESPONSIBILITIES AND LINES OF AUTHORITY

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All employees and contractors working on behalf of EnSafe are ultimately accountable for implementing their assigned responsibilities and activities to achieve our health and safety goals and objectives, as well as compliance with applicable health and safety legal requirements.

All initial activity-specific HASPs shall be prepared, submitted, and accepted before any work is performed at the Site. The HASP must be reviewed and approved by the EnSafe Corporate Health and Safety Manager or designee prior to implementation.

Conditions for which we schedule additional briefings include, but are not limited to, changes in Site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents occurring during Site work.

3.1 EnSafe Corporate Health and Safety Manager

- Ensure all management and affected employees are aware of the *EnSafe Safety Management System* and enforce the same
- Reviews and approves the project HASP
- Coordinates incident investigations or other reports pertaining to the Site's Environmental Health and Safety systems
- Conduct and/or facilitate training, as outlined in this HASP
- Make sure that management and affected employees are aware of the incident and hazard reporting requirements and ensure its enforcement
- Hold all assigned responsible parties accountable for non-compliance with the program
- Provide all materials and resources needed for effective implementation of this HASP
- Update the work-related incidents, injuries, and illnesses reporting tracking parameter on a monthly basis

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3.2 **Project Manager**

- Prepares and organizes the preparation and review of the overall HASP
- Initiates and leads development of the HASP for the Site work activities
- Obtains permission for the Site access and coordinates activities with governmental representatives
- Ensures that the HASP is completed and on schedule
- Ensures compliance with the HASP
- Supports the Site Safety and Health Officer (SSHO) or designated competent person to ensure that safety and health requirements are met
- Prepares support files on the field activities and any final reports

3.3 Site Safety and Health Officer

The SSHO or designated competent person (e.g., the Site supervisor) reports all Site-specific safety issues and concerns to the project manager and/or the EnSafe corporate health and safety manager.

The SSHO will review the HASP daily to identify any potential changes necessary based on changes in conditions or work plans, and ensure that daily inspection (e.g., Jobsite Inspection, JHA/AHA, or Safe Work Assessment and Permit [SWAP]) forms are completed/reviewed for the day's specific tasks and activities. All work conducted by EnSafe or its contractors shall not commence unless the designated competent person or SSHO is present at the Site and is prepared and comfortable with the work activity to begin.

The SSHO is responsible for daily implementation of the HASP, including such issues as PPE, training, policy enforcement, health monitoring, and report preparation, among others. The SSHO is also responsible for decontamination procedures, equipment, and supplies. Other responsibilities include the following:

- Ensures protective clothing is consistent with the requirements of the HASP
- Periodically inspects protective clothing and equipment



- Ensures that PPE is properly stored and maintained
- Controls entry and exit of personnel in authorized areas
- Coordinates safety and health program activities with onsite essential personnel
- Confirms each field team member's suitability for work based on a physician's recommendations
- Monitors the "work parties" for signs of stress, such as cold exposure, heat stress, and fatigue
- Monitors onsite hazards and conditions
- Participates in the preparation of and the implementation of the HASP
- Conducts periodic inspections to determine if the HASP is being followed
- Ensures that all required safety equipment is available
- Advises Site personnel of potential chemical exposures and consequences
- Is aware of plant emergency procedures, evacuation routes, and the telephone numbers of the ambulance service, local hospital, poison control center, fire department, and police department
- Notifies, when necessary, local emergency officials
- Coordinates emergency medical care
- Orders a cease of work activities if required for any emergency situation

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3.4 Field Crew Members

Depending on the size of the field team, any or all of the field team may be in the "work party", but the "work party" shall consist of at least two people. Field team members may consist of equipment operators, sampling technicians, environmental technicians, etc. Field team responsibilities include the following:

- Safely completes the onsite tasks required to fulfill work plan
- Complies with the HASP, JHA/AHA, or other safety instructions or documents
- Notifies SSHO or project manager of any unsafe conditions

3.5 Contractors, Subcontractors, and Suppliers

- Safely completes the onsite tasks required to fulfill the HASP
- Complies with the HASP, JHA/AHA, or other safety instructions or documents
- Notifies SSHO or project manager of any unsafe conditions
- Shall not perform work onsite unless a designated competent person/SSHO is on the Site

3.6 Other Local/State/Federal Agency Representatives

The Ohio EPA will be onsite for various stages of work.

3.7 Safety and Health Inspections

Occupational Safety and Health Administration (OSHA) standard 29 CFR 1926.20(b)(2) requires that contractors "provide for frequent and regular inspections of the jobsites, materials, and equipment to be made by competent persons designated by the employer."

All jobsite inspections are coordinated by the SSHO or designated competent person during periods of ongoing work activities. Inspections will be documented on the appropriate jobsite forms, logs, and checklists located in Appendix G. Completed inspections will be reviewed and areas of concern will be addressed by the SSHO or designated competent person. The completed documents will be stored in accordance with EnSafe and project requirements.

If required, initial activity specific JHA/AHA forms will be submitted and accepted at preparatory meetings, prior to work being performed.

JHAs will also be reviewed daily to ensure that they address the work tasks adequately and to ensure that employees are familiar with the activities.



For this project, the designated jobsite inspections will be conducted by:

Name	Inspections Performed
Edward Baker (Project Manager, EnSafe Inc.)	Jobsite Safety Inspections
Venky Venkatesh (Site Safety and Health Officer, Site Manager — EnSafe)	Jobsite Safety Inspections

3.8 Qualified/Competent Persons Assigned

An OSHA "competent person" is defined as "*one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them*" [29 CFR 1926.32(f)]. By way of training and/or experience, a competent person is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation and has the authority to correct them. Some standards add additional specific requirements which must be met by the competent person. Examples of tasks that require competent persons:

- Erection and/or use of scaffolding
- Working at heights
- Entering a confined space
- Hoisting and rigging
- Excavation and trenching
- Operating a crane

Work requiring a task specific competent person may be required on this Site. If the competent person tasks are identified, the project manager/SSHO will be responsible for identifying the appropriate employee/subcontractor and area of competency. The following table contains the required information for task-specific competencies for this project and the personnel assigned.

Area	Competent or Qualified Person			
Lead Protection	Venky Venkatesh, EnSafe Inc.			
Fall Protection	To be determimed — NovoTec			
	To be determined — Hepa Environmental Services			

3.9 Lines of Authority

The identification and accountability of personnel for key positions responsible for safety and health, at both the corporate and project level, are listed in the Emergency Action Plan (EAP) (Appendix A). This list will also include the list of suppliers and contractors and their contact information.

3.10 General Rules of Conduct

Employees will be required to practice safe working activities, use required personal protective items, become familiar with this HASP, and to report both accidents and hazards to the proper personnel. Employees performing work with methods which are not in compliance with requirements will be counseled as to the correct method and the reason for it. Repeat infractions may require written warnings or dismissal.

The following general rules of conduct are required for anyone working on this project:

- Contraband items: Contraband refers to any item that, relating to its nature, is illegal to be possessed or sold.
 - Additionally, contraband items may include any item that may be restricted on the project Site by the client (or agency), that may introduce hazards to the worksite or violate security regulations and other established guidelines.
 - Examples may include: weapons, recording devices, animals, laser pointers, etc.
- Any violation of local, state, or federal laws, or conduct outside the generally accepted moral standards of the community is prohibited.
- Willfully damaging or destroying property, or removing records is prohibited.
- Misappropriation or unauthorized alteration of any record is prohibited.
- Gambling in any form, selling tickets or articles, taking orders, soliciting subscriptions, and taking up collections are prohibited.
- Compliance with posted signs and notices is required.
- Boisterousness and noisy or offensive work habits, abusive language, or any oral, written, symbolic, or other communication that tends to disrupt work or morale of others is forbidden.
- Fighting or threatening bodily harm to another is forbidden.



- Defacing any property is forbidden.
- Wearing any type of offensive logos, pictures, or phrases on clothing is forbidden.
- Shirts, shoes, pants, slacks, or coverall-type garments will be worn at all times.
- People operating motor vehicles will obey all laws and regulations.

3.11 Forms

Various field safety forms that may be included in this HASP (not limited to):

- HASP Acceptance Form This form is to be completed by each person working on the Site and stored with the HASP.
- Site Visitor Log This form is to be completed by each person visiting the Site and stored with the HASP
- SWAP A hazard assessment performed prior to any work started on the jobsite.
- Underground Utility Location Checklist A checklist of the steps that should be taken when performing excavations to assure that utilities are not affected.
- Mishap Investigation Report Form A form that includes findings of mishaps on the jobsites. Includes near miss, serious risk eliminated, and mishaps pertaining to injuries and/or property damage
- Job Site Safety Inspection Checklist An overall safety checklist pertaining to Site housekeeping, PPE, elevated surfaces, hazard communication, elevated surfaces, and others.
- JHA/AHA A document that allows employers and supervisors to manage, examine, and document risks involved in certain hazardous workplace activities.
- Additional process inspection forms or checklists (e.g., lockout tagout, etc.)

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4.0 EMERGENCY ACTION PLAN

Under OSHA regulations (29 CFR 1910.38) an EAP is required. This EAP will either be generated by EnSafe for its employees and contractors or may be adopted from the Site, if one exists.

The EnSafe project manager, or responsible person, shall ensure that the EAP is available and located within the HASP. Review of the EAP will be conducted by all personnel assigned to the project when:

- Prior to their initial job assignment
- When the plan changes
- When the employee's responsibilities under the plan change

The EAP for this project is located in Appendix A and covers the following (at a minimum):

- 1910.38(c)(1) Procedures for reporting a fire or other emergency (e.g., local telephone for rescue services, Site emergency contact information, etc.)
- 1910.38(c)(2) Procedures for emergency evacuation, including type of evacuation and exit route assignments
- 1910.38(c)(3) Procedures to be followed by employees who remain to operate critical plant operations before they evacuate
- 1910.38(c)(4) Procedures to account for all employees after evacuation (e.g., assembly areas, designated personnel for accounting)
- 1910.38(c)(5) Procedures to be followed by employees performing rescue or medical duties
- 1910.38(c)(6) The name or job title of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan
- Maps, or other appropriate documentation that show evacuation routes, shelter in place locations, and assembly areas
- Additional plans or procedures for other types of emergencies, as needed (e.g., Hazardous Waste Operations and Emergency Response [HAZWOPER], Active Shooter, Earthquake, etc.)

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Note: Employers whose workers will be involved in emergency response operations for releases of, or substantial threats of releases of, hazardous substances regardless of the location of the hazard must comply with OSHA's HAZWOPER standard, 29 CFR 1910.120. OSHA Compliance Directive CPL 02-02-073 describes OSHA enforcement procedures under the relevant provisions of the HAZWOPER standard, and can be also used as guidance.

4.1 Severe Weather Emergency Planning

The EAP in this HASP is intended to assist EnSafe employees and contractors in preparing for, and responding to, various emergency situations. Though the EAP may primarily involve evacuations, emergency planning also involves identifying safe places of refuge for workers to go to in the event of severe weather.

Fieldwork shall not be conducted when lightning can be seen, or thunder heard from the work area. When lightning and/or thunder occur, employees are to cease work, perform emergency personal and equipment decontamination as needed, then seek shelter. Work shall not resume until lightning and/or thunder have not been detected for a period of not less than 30 minutes. If additional lightning and thunder occurs, the 30-minute clock will restart.

During extreme weather conditions, the SSHO shall use their best judgment and has the authority to stop fieldwork or dismiss workers for the day. Examples of conditions that may warrant work stoppage include tornado warnings, high winds, hail, and flooding.

If the area is placed under a hurricane watch or warning, the project manager and SSHO will communicate with Site personnel, the client, and local authorities (as necessary) to determine the course of action to be taken.

The SSHO shall coordinate with the facility contact and determine where the closest shelter-in-place location is to the work areas. If severe weather is anticipated, work stoppage and shelter-in-place instructions shall be given by the SSHO and recorded in the EAP.

4.2 Spill Prevention and Response

Chemical spills during field work can involve small volumes of a potentially large variety of chemicals, whereas construction or utility settings generally use fewer, but larger quantities of chemicals. For some chemicals and biologicals, exposure to employees is the priority concern; whereas with others, such as petroleum compounds, the greater, or more immediate, concern is a release to the environment. Regardless of the type or quantity of hazardous chemical or substance involved, all



worksites must implement measures to reduce the potential for spills and have a plan for responding to spills. The Spill Prevention and Response Plan is located in Attachment A2.

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5.0 MISHAP REPORTING AND INVESTIGATION

EnSafe shall report, thoroughly investigate, and analyze all mishaps occurring incidentally to an operation, project, or facility for which this HASP is applicable.

All injuries, illnesses, and near misses (mishaps) must be reported immediately. This must occur on the shift in which the injury occurs or immediately upon recognition of injury symptoms, if the shift has ended.

Notification shall also be made, when required, to all reporting parties on the contract (e.g., Multi-Employer Work Site) such as the contracting officer, contracting officer's representatives, controlling employer, controlling contractor, general contractor, client, supervising project officer, etc.

All mishaps shall be thoroughly investigated by EnSafe pertaining to the work on this project by EnSafe employees, contractors, or other entities authorized by EnSafe. The Corporate Health and Safety manager shall review the findings of the investigation and any appropriate corrective actions with the SSHO. The investigation is focused on identifying and correcting root causes, not on finding fault or blame.

EnSafe shall maintain an Occupational Illness and Injury Log (OSHA 300 Form) onsite, when required by U.S. Army Corps of Engineers as part of EM385-1-1 requirements for Accident Prevention Plans.

For job related mishaps which require medical treatment, an authorized representative on the day of injury, shall accompany the injured employee to the medical treatment facility to facilitate the exchange of information, both to facility staff and for reporting purposes.

Refer to mishaps and injury management (Appendix B) for project specific processes and reporting requirements.


6.0 SITE HAZARDS

Site hazards can be categorized into three broad areas: physical, chemical, and process. Hazards can be introduced over time as work and processes change, equipment or tools become worn, maintenance is neglected, or housekeeping practices decline. Setting aside time to regularly inspect the workplace for hazards can help identify shortcomings so that they can be addressed before an incident occurs. Therefore, the collection, organization, and review of information with workers to determine what types of hazards may be present and which workers may be exposed or potentially exposed is needed. EnSafe uses the SWAP process to document daily activities, identify hazards associated with those activities, and institute control measures. Using the process of "Think Things Through" or "T³" as part of the SWAP, will reduce the risk of incidents associated with the hazards. See Appendix C for a description of site-specific hazards.

6.1 Site-Specific Briefing for Visitors

A Site-specific briefing will be provided to all Site visitors who enter the Site beyond the Site entry point. For visitors, the Site-specific briefing provides information about Site hazards; the Site layout including work zones and places of refuge, emergency shower locations, the emergency alarm system, and emergency evacuation procedures; and other pertinent safety and health requirements as appropriate.

6.2 **Physical Hazards**

Field personnel should be aware of and act to minimize dangers associated with physical hazards typically encountered during environmental remediation projects. These hazards may include extreme temperatures, high-noise areas, lifting, biological (reptiles, insects, and plants), and use of heavy equipment.

6.3 Chemical Hazards

Field personnel should be aware of chemical hazards at the Site. Chemical hazards may include soil contaminants, spill residues, and/or hazardous chemicals that are used or stored at the Site. Management of chemical hazards will occur through hazard communication training, provision of chemical safety information to affected employees (e.g., safety data sheets), implementation of engineering and administrative controls, and use of PPE.

6.4 Process Hazards

Process safety hazards have the potential for large scale accident or injury, resulting in loss of life, loss of production facilities, and prolonged downtime. A process safety hazard may also garner



unwelcome media coverage that tarnishes a company's reputation. The financial consequences of any of these outcomes are often substantial.

Identifying and mitigating process safety hazards requires expert knowledge of the processes involved. It is also imperative that equipment be regularly maintained and inspected. Once a hazard has been identified, the level of risk is determined and the appropriate safeguards are put in place.

6.5 Hazard Communication

In order to ensure chemical safety in the workplace, information about the identities and hazards of the chemicals must be available and understandable to workers. OSHA's Hazard Communication Standard requires the development and dissemination of such information:

- Chemical manufacturers and importers are required to evaluate the hazards of the chemicals they produce or import, and prepare labels, and safety data sheets to convey the hazard information to their downstream customers; and
- All employers with hazardous chemicals in their workplaces must have labels and safety data sheets for their exposed workers, and train them to handle the chemicals appropriately.

6.6 Spill Control and Emergency Response General Procedures

Any incident involving the spill/release of hazardous chemicals, unintended mixtures of such chemicals, or hazardous waste that requires the intervention of spill cleanup specialists to contain and remove the spilled material safely, is an emergency response spill. A HAZWOPER-trained team (29 CFR 1910.120) must manage these spills in certain circumstances. Every leak or spill should be evaluated by the SSHO to determine whether it has crossed that threshold beyond which any spill cleanup must be performed by specifically trained and equipped personnel.

Releases (spills) can be categorized into three distinct groups in terms of emergency recognition:

- Releases that are clearly incidental
- Releases that may be incidental or may require emergency response, depending upon circumstances
- Releases that clearly require emergency response



Emergency recognition must be employed to distinguish between "incidental spills" and those requiring emergency response. OSHA defines an **incidental release or spill** as "*a release of a hazardous substance which does not pose a significant safety or health hazard to employees in the immediate vicinity or to the worker cleaning it up, nor does it have the potential to become an emergency.*" Incidental spills do not require an emergency response, and therefore do not require HAZWOPER-trained cleanup personnel. They may be cleaned-up by employees with appropriate hazard communication training.

6.7 Air Monitoring Requirements

Airborne contaminants can present a significant threat to worker health and safety. Thus, identification and quantification of these contaminants through air monitoring is an essential component of a health and safety program. Air monitoring may also be used to verify effectiveness of engineering controls or determine the appropriate level of respiratory protection.

Employee exposures to airborne contaminants are compared to established occupational exposure limits, such as those published by the OSHA, American Conference of Governmental Industrial Hygienists, or National Institute for Occupational Safety and Health. The project specific air monitoring plan is provided in Attachment C1.

6.8 Decontamination

Decontamination is the process of removing or neutralizing contaminants that have accumulated on personnel and equipment. It is critical to health and safety at hazardous waste sites. Decontamination protects workers from hazardous substances that may contaminate and eventually permeate the protective clothing, respiratory equipment, tools, vehicles, and other equipment used onsite; it protects all site personnel by minimizing the transfer of harmful materials into clean areas; it helps prevent mixing of incompatible chemicals; and it protects the community by preventing uncontrolled transportation of contaminants from the Site.

Decontamination Plan

A decontamination plan should be developed (as part of the HASP) and set up before any personnel or equipment may enter areas where the potential for exposure to hazardous substances exists. The decontamination plan should:

- Determine the number and layout of decontamination stations.
- Determine the decontamination equipment needed.



- Determine appropriate decontamination methods.
- Establish procedures to prevent contamination of clean areas.
- Establish methods and procedures to minimize worker contact with contaminants during removal of personal protective clothing and equipment.
- Establish methods for disposing of clothing and equipment that are not completely decontaminated.

The HASP should be revised whenever the type of personal protective clothing or equipment changes, the site conditions change, or the Site hazards are reassessed based on new information.

The decontamination procedures are designed to meet, in part, the requirements of 1910.120(k).

7.0 MEDICAL SCREENING AND SURVEILLANCE

EnSafe is required to mitigate exposure to occupational hazards through the implementation of engineering controls, administrative controls, proper work practices, and PPE.

- Medical surveillance may be recommended or required in addition to these controls to reduce or monitor potential personnel exposure.
- Medical surveillance is a series of medical services provided by a physician or other licensed healthcare professional for prevention or identification of occupational injuries and illnesses, including a review of occupational and medical history, physical exams, diagnostic and performance testing, and vaccinations. Post-exposure treatment is provided by workers' compensation medical providers who give post-exposure treatment and prophylaxis.
- EnSafe complies with applicable regulations and guidelines and establishes minimum medical surveillance requirements to prevent occupational injuries and illnesses for employees whose job duties place them at risk of exposure to occupational hazards.

Medical screening and medical surveillance are two fundamental strategies for optimizing employee health. Both can contribute significantly to the success of worksite health and safety programs. However, OSHA "medical surveillance" requirements are generally clinically focused (e.g., medical and work histories, physical assessment, biological testing) with information obtained from the clinical processes used in the monitoring and analysis elements of medical surveillance.

The personnel listed within this HASP have met all requirements, received training, and are cleared to work with the occupational hazards that have a potential for exposure while on this jobsite.

8.0 PERSONAL PROTECTIVE EQUIPMENT

PPE is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. PPE may include items such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, or coveralls, vests and full body suits. PPE specifically required for this project are listed in Appendix D.

Action Levels

Vapors, gases, and particulates from hazardous substance response activities place response personnel at risk. For this reason, response personnel must wear appropriate personal protective clothing and equipment whenever they are near the Site.

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. The concentration level (above background level) and the ability of the PPE to protect against that specific contaminant determines each action level. The action levels are based on concentrations in the breathing zone. Action levels are based upon sound scientific principles as expressed by various regulatory agencies or industry groups.

If ambient levels are measured, which exceed the action levels in areas accessible to unprotected personnel, then necessary control measures (removal from area, barricades, warning signs, mitigative actions to limit access, etc.) must be implemented prior to commencing activities at the specific work area.

Personnel should also be able to upgrade or downgrade their level of protection with the concurrence of the SSHO or designee.

Reasons to upgrade:

- Known or suspected presence of dermal hazards
- Occurrence or likely occurrence of gas, vapor, or dust emission
- Change in work task that will increase the exposure or potential exposure to hazardous materials



Reasons to downgrade:

- New information indicating that the situation is less hazardous than was originally suspected
- Change in Site conditions that decrease the potential hazard
- Change in work task that will reduce exposure to hazardous materials

The SSHO and Corporate Health and Safety Manager must review/approve any decision which deviates from specified levels of PPE as indicated by the task specific JHA/AHA.



9.0 SITE CONTROL

The purpose of site control is to minimize potential contamination of workers, protect the public from the Site's hazards, and prevent vandalism. Site control is especially important in emergency situations. Several Site control procedures can be implemented to reduce worker and public exposure to chemical, physical, biologic, and safety hazards.

Site control will be maintained during all work activities to prevent unauthorized personnel from entering any area that may pose a health and safety risk. Work areas will be clearly marked with barrier tape or other acceptable alternatives. Coordination with the client may be required to ensure that client personnel are aware of our Site activities and Site control measures being used.

Several Site control procedures can be implemented to reduce worker and public exposure to chemical, physical, biologic, and safety hazards:

- Compile a Site map. Prepare the Site for subsequent activities
- Establish work zones
- Use the buddy system when necessary
- Establish and strictly enforce decontamination procedures for both personnel and equipment, Attachment C2
- Establish Site security measures
- Set up communication networks
- Enforce safe work practices

The degree of Site control necessary depends on Site characteristics, Site size, and the surrounding community. The Site control program should be established in the planning stages of a project and modified based on new information and Site assessments.

See Appendix E for project-specific Site control measures.

ENSAFE

10.0 TRAINING STANDARDS

Any training, external inspections, qualifications/certifications required (e.g., U.S. Coast Guard Domestic Ports, U.S. EPA, Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Asbestos, Qualified Persons, HAZWOPER) for the project will be noted in Appendix F.

When required, the EnSafe HAZWOPER training program is consistent with the requirements of 29 CFR 1910.120(e) and addresses the following Site-specific information: training for Site workers, including this HASP; Site briefings for visitors and workers; initial HAZWOPER training and required refresher training; supervised field experience; management and supervisor training; qualification of trainers; training certification; and training records.

Refresher training shall be provided at an appropriate frequency based on the following criteria:

- Regulatory requirements;
- Company policy or standard;
- To reinforce a consistent level of competency for efficient and safe performance of function/task; and
- Annually, or other frequency, as required by OSHA regulations or other national standards (e.g., the Process Safety Management standard requires refresher training every 3 years).



11.0 SANITARY FACILITIES AND LIGHTING REQUIREMENTS

Site personnel shall be equipped with the capability to perform basic hygiene functions. This may be accomplished by means of fixed facility assets or by use of field hand wash items.

Sanitary facilities, permanent or temporary, will be provided on the Site. The requirements for sanitary facilities onsite will meet all applicable standards found in CFR 29 1910.120 (n)(3).

11.1 Toilet Facilities

Number of Employees	Minimum Number of Facilities
20 or fewer	One
More than 20, fewer than 200	One toilet seat and one urinal per 40
More than 200	One toilet seat and one urinal per 50

11.2 Lighting

Work activities are currently planned for daylight hours only; however, should the need arise for nighttime operations, the following lighting scale shall be used:

Foot-Candles	Area or Operations
5	General Site areas
3	Excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas
5	Indoors, warehouses, corridors, hallways, and exit ways
5	Tunnels, shafts, and general underground work areas (exception: minimum of 10-foot candles is required at tunnel and shaft heading during drilling, mucking, and scaling. Mine Safety and Health Administration-approved cap lights shall be acceptable for use in the tunnel heading.)
10	General shops (e.g., mechanical and electrical equipment rooms, active storerooms, barracks or living quarters, locker or dressing rooms, dining areas, and indoor toilets and work rooms)
30	First-aid stations, infirmaries, and offices

Appendix A Emergency Action Plan This page intentionally left blank.

EMERGENCY ACTION PLAN

The purpose of an Emergency Action Plan (EAP) is to facilitate and organize employer and employee actions during workplace emergencies. All site personnel must be aware of these procedures to mitigate further injury or loss prior to start of work. A poorly prepared EAP, will likely lead to a disorganized evacuation or emergency response, resulting in confusion, injury, and property damage.

Unexpected Hazards

If there is any doubt regarding the degree of hazard of a particular circumstance, and personnel are unsure as to what measures to take or what protective equipment to utilize, then the following steps should be taken to ensure the health and safety of those involved:

- Stop Work Immediately and Secure the Area Personnel should remove themselves from the hazard or suspected hazard area
- Contact the project manager and/or Corporate Health and Safety Manager

Personnel will be given proper direction on how to proceed. Many accidents can be avoided by simply removing personnel from the hazard and maintaining good communication.

General Procedures During an Emergency

Emergency procedures are to be followed if any of the following situations develop onsite:

- Any member of the field crew is involved in an accident or experiences any adverse effects or symptoms of exposure while onsite
- A condition is discovered that suggests a situation more hazardous than anticipated

The following emergency procedures should be followed:

- Site work area entrance and exit routes will be planned and emergency escape routes delineated by the Site Safety and Health Officer (SSHO).
- If any member of the field team experiences any effects or symptoms of exposure while on the scene, then the entire field crew will immediately halt work and act according to the instructions provided by the SSHO.

- For applicable Site activities, wind indicators visible to all onsite personnel will be provided by the SSHO to indicate possible routes for upwind escape.
- Identifying any conditions that suggest a situation more hazardous than anticipated will result in the suspension of work until the SSHO has evaluated the situation and provided the appropriate instructions to the field team.
- If a mishap occurs, the SSHO is to complete an accident report form for submittal to the appropriate company official.
- If a member of the field crew suffers a personal injury, then the SSHO will call 911 (serious injury) to alert appropriate emergency response agencies or administer onsite first aid (minor injury) as the situation dictates. A mishap report form will be completed for any such incident.
- If a member of the field crew suffers a chemical exposure, then the affected areas should be immediately flushed with generous amounts of clean water. If the situation dictates, the SSHO should alert the appropriate emergency response agencies or personally ensure that the exposed individual is transported to the nearest medical treatment facility for prompt treatment. A mishap report form will be completed for any such incident.

Fire and/or Explosion (no injury)

If a fire or explosion occurs onsite, then the following steps should be taken:

- If the fire occurs, then all personnel should immediately evacuate the Site.
- Emergency response personnel should be immediately contacted. If the fire involves hazardous chemicals, then the emergency responders must be appropriately informed.

Attachment A1 — Site Specific Plans

Location Maps

All emergency action planning must include a pictorial overview of the site in general. Location maps in the associated Health & Safety Plan serve as a great visual tool to communicate important information with the EAP plan.

Emergency Communication Plan

Workplace emergencies are things that cause damage to the property or a person, are a threat to the property or a person, or shut down the operation of your organization. Items such as power

outages, medical emergencies, weather emergencies, or immediate danger at the location (e.g., active shooter) require some plan of action that also involves communicating that danger to other employees on the Site.

It is imperative to remember the Site's physical address when calling 911. At a minimum, the Site supervisor and all employees onsite will have a cellular telephone which can be used in an emergency, or handheld two-way radios in areas where mobile phones may have limited service, and employees may be separated in their duties.

There will be situations where field work is in an area where cellular telephones may not have appropriate connectivity, or even coverage by a certain cellular provider. Natural disasters, or civil emergencies, can also disrupt mobile communications. Therefore, knowing where the nearest landline is located, even if it is the closest town to the Site, is imperative.

In some instances, a contact schedule (e.g., every hour) should be considered by the workers to ensure the health and safety of each other. This communication may include information such as their location; what they plan to do; or where they plan to be within the next hour. If a contact schedule is missed, information of that employee's general location or intentions will be known to pass on to others in an emergency.

Duties and Responsibilities of Personnel and Emergency Action Plan Assignments

Site supervisors may designate various personnel to perform various duties during an emergency. The name and job title of each person must be identified and listed.

Emergency coordinators and assembly area captains are responsible for evacuating personnel from a location and assisting personnel to the assembly area.

Evacuation Procedures and Routes

The SSHO shall ensure there are escape routes from various areas of the Site and the work being performed. This should also include an identification of conditions where an evacuation would be necessary.

Site employees will promptly evacuate the Site when ordered and will assist other employees in getting to the assembly area/rally point for accountability. Furthermore, once a head count has been established and everyone accounted for, Site employees may be requested to assist with additional emergency duties.

Evacuation maps serve as a great visual tool to communicate important information. An evacuation map should be accurate, detailed, and strategically posted to best protect employees. These evacuation maps should include locations of exits, assembly points, and equipment (such as fire extinguishers, first aid kits, and spill kits) that may be needed in an emergency.

Accounting of Personnel (Assembly Areas or Rally Points)

The SSHO must be aware of all personnel on the Site and account for personnel during/after an emergency. All personnel onsite must have a designated assembly area if they are to evacuate. These "rally points" should be located at a point that is convenient to the Site (or building) but does not interfere with any emergency response staging. All personnel shall remain at the rally point until released by the Site supervisor or other authority.

Depending on the Site and potential distances of the work area, a minimum of two rally points should be identified.

Severe Weather Plan

Workers may have little warning before severe weather hits. Severe weather can involve thunderstorms, lightning, hail, tornadoes, flash floods, high winds, and even hurricanes. Seasonal weather may also include heat waves and blizzards. With safety as a priority, it's crucial to monitor the weather so you are prepared for any type of weather condition, especially when you are outdoors.

Workers must consider potential weather conditions and the plan of action that will be taken during such occurrences. The SSHO shall take into consideration local weather conditions and forecasted weather events each day prior to beginning work. Monitoring local weather resources such as radio, television, or internet should be done on a regular basis during work activities.

Severe weather includes a variety of types of storms. The type of storm depends on the time of year, the geographic location, and other environmental conditions that may be present. For example, a thunderstorm occurs when unstable air of differing temperatures collides. Warm air near the ground rises quickly, rushing into colder air. When this occurs, the storm brews. Winter storms occur when cold air near the surface of the earth mixes with moisture. Rising air brings clouds and resulting precipitation, usually in the form of snow or ice.

• All thunderstorms produce lightning and can be dangerous. When cloud-to-ground lightning is seen, or thunder is heard, outdoor activity should be stopped and everyone should be directed to shelter.

- Do not resume activities until approximately 30 minutes have passed since the last thunder was heard.
- The existence of a blue sky and the absence of rain are not a guarantee that lightning will not strike. At least 10% of lightning occurs when there is no rainfall and when blue sky is often visible somewhere in the sky, especially with summer thunderstorms. Lightning can, and does, strike as far as 10 (or more) miles away from the rain shaft.

Chemical Spills (no injury)

If a chemical spill occurs onsite, then the following steps should be taken:

- Immediately report the spill to the SSHO. The initial report shall include at least the following information:
 - Identification of the person and their employer reporting the spill
 - Type and description of released material
 - Estimate amount of material released
 - Extent of injury or property damage occurring
 - Extent of actual or potential environmental contamination, if known
 - Information concerning the spill reaching or potentially reaching the plant storm sewer system
 - Identification of the actions being taken in response to the spill
 - Identification of the assistance required to respond to the spill
- The SSHO will authorize spill containment if properly trained personnel with appropriate personal protective equipment are present.

The Spill Prevention and Response Plan is located in Attachment A-2.

Emergency Shower and Eyewash

Emergency showers and eyewash equipment will be provided as the project dictates. The Occupational Safety and Health Administration requirements for emergency eyewashes and showers, found at 29 Code of Federal Regulations 1910.151(c), specify that "where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use." As the standard states, an eyewash and/or safety shower would be required where an employee's eyes or body could be exposed to injurious corrosive materials. If none of the materials used in this work area is an injurious corrosive [chemical] (as indicated by the Safety Data Sheet for each product), then an emergency eyewash or shower would not be required pursuant to 1910.151(c).

Attachment A1 Site Specific Plans This page intentionally left blank.

SITE SPECIFIC PLANS

Location Maps





Emergency Communication Plan

Overall primary emergency communications will be conducted either by physical voice or by mobile telephone.

During any emergency, contact first responders immediately. Once emergency responders have been notified, ensure that the following persons are notified of the incident and any details possible.

First aid kits will be maintained onsite. 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 onsite 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.

Physical Address 1655 and 1675 Watkins Road, Columbus, Ohio 43207			
Hospital: Grant Medical Center	911 or 614-566-9000		
Fire Department: Columbus Fire Station 22	911 or 614-221-3132		
Police Department: Columbus Police	911 or 614-645-4545		
Health Department: Franklin County Health & Wellness Center	911 or 614-645-3131		
EnSafe 1Source Occupational Health	866-622-7348		
EnSafe Inc. — Memphis Office	901-372-7962		
Poison Control Center	800-222-1222		
Water/Sewer/Gas/Electric/Alarms/Sprinkler System Building Management Coordinator: Kelly Tamulonis	614-390-9708 (c) 614-460-4405 (o)		
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		

For Emergency Medical Incidents, Emergency Fire Response, or Hazardous Materials Incidents

Emergency Telephone Numbers:

- Hospital: 911
- Police: 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 Onsite 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.

KEY PERSONNEL	Office	Cell
EnSafe Inc, (Environmental Consultant)		
Project Manager: Edward "Ned" B. Baker	216-485-3221	216-924-2437
Site Manager: Venky Venkatesh	513-259-2396	216-235-8613
Health and Safety Coordinator: Venky Venkatesh	513-259-2396	216-235-8613
Health and Safety Manager: Scott Campbell	901-937-4255	504-377-2619
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 614-566-9000	
Fire Department: Columbus Fire Station 22	911 or 614-221-3132	
Police Department: Columbus Police	911 or 614-645-4545	
Health Department: Franklin County Health & Wellness Center	911 or 614-645-3131	
Ambulance Service: Life Medical Response		
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	

Duties and Responsibilities of Personnel

- 1. Emergency Coordinator
 - a. Site Safety and Health Officer, Site Supervisor, or Designated Authority
 - b. Evacuates personnel out of an office or area and assists personnel to the Assembly Area.
- 2. Assembly Area Captain
 - a. Field worker, or other designated personnel by the Site Safety and Health Officer
 - b. A minimum of one Area Captain will be assigned for each assembly area

- c. Understand the emergency procedures and be prepared to assume his/her responsibilities promptly and calmly in an emergency.
- d. Maintain an accurate roster of all members assigned to his/her zone, which will be updated at least weekly and upon the arrival of any new personnel, or temporary/permanent departure of personnel from the Site.

Name	Job Title	Responsibility	Phone Number
B Venky Venkatesh	Site Health and Safety Officer	Emergency Coordinator	216-235-8613
To be determined	Field Worker	Assembly Area Captain	To be determined

Emergency Action Plan Assignments

Evacuation Routes and Rally Points

Evacuation routes and rally point areas are shown in the figure below.



Evacuation Assembly Areas



There are two rally points for this location. Assembly Areas A and B are to the north west of the building, in the event of an emergency evacuation, personnel are to arrive at the nearest assembly area to the building that they are working. If an assembly area is not available (due to hazard or other circumstance) then the opposite Assembly Area shall be used.

Shelter in Place

Shelter in place means finding a safe location indoors and staying there until you are given an "all clear" or told to evacuate. You may be asked to shelter in place because of an active shooter; tornado; or chemical, radiological, or other hazard.

The primary shelter in place locations for severe weather are the interior offices away from any windows, or the stairwell located within the client buildings.

Severe Weather Plan

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, 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.

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Attachment A2 Spill Prevention This page intentionally left blank.

INTRODUCTION

A hazardous spill is defined as the uncontrolled release of a hazardous chemical, oil, or biological material, either as a solid, liquid, or a gas. Spills on EnSafe Inc. project sites may occur in a variety of situations. The challenges related to dealing with spills will vary with the type and volume of chemical or material involved and the potential exposures.

Chemical spills during field work can involve small volumes of a potentially large variety of chemicals, whereas construction or utility settings generally use fewer, but larger quantities of chemicals. For some chemicals and biologicals, exposure to employees is the priority concern; whereas with others, such as petroleum compounds, the greater, or more immediate, concern is a release to the environment. Regardless of the type or quantity of hazardous chemical or substance involved, all worksites must implement measures to reduce the potential for spills and have a plan for responding to spills.

This document describes generic methods for preventing spills, directly responding to spills of low or minor hazard, and the procedures for reporting and addressing larger, or major, releases while on a project.

- The Spill Prevention and Response Plan (SPRP) is written, in part, to support the National Oil and Hazardous Substances Pollution Contingency Plan and the Environmental Protection Agency (EPA) Clean Water Act requirements as EnSafe employees may be also working on projects that fall under EPA Comprehensive Environmental Response, Compensation, and Liability Act. Comprehensive Environmental Response, Compensation, and Liability Act. Comprehensive Environmental Response, Compensation, and Liability Act. Superfund Program", and the sites are commonly known as the "Superfund Program", and the sites are commonly known as "Superfund Sites".
- This document is not intended to cover, or provide, EPA Spill Prevention, Control, and Countermeasure plans, or the EPA Facility Response Plan requirements for facilities.

EnSafe project site employees should be familiar with these regulations and plans and incorporate those measures into the SPRP where needed if working on a project site that is required to enact the plans or requirements above.

The SPRP, as part of the overall Health and Safety Plan will include the following at a minimum:

- Emergency Action Plan (EAP), which serves as both a planning and action document, should be maintained as an easily accessible, stand-alone section of the plan
- Facility information, including its name, type, location, owner, operator information
- Emergency notification, equipment, personnel, and evacuation information
- Identification and analysis of potential spill hazards
- Discussion of small, medium, and worst-case discharge scenarios and response actions
- Description of discharge detection procedures and equipment
- Detailed implementation plan for response, containment, and disposal
- Description and records of self-inspections, drills and exercises, and response training
- Diagrams of facility site plan, drainage, and evacuation plan
- Security (e.g., fences, lighting, alarms, guards, emergency cut-off valves and locks, etc.)

Note: Some of these elements are inherently part of the Health and Safety Plan (such as the EAP) and can be incorporated with this SPRP.

ACKNOWLEDGEMENTS

Much of this document and format is based on a Plan developed by the University of Alberta Office of Environmental Health and Safety, and Ball State University Department Office of Risk Management Services *Spill Prevention and Response Plan*.

Roles and Responsibilities

The following sets out the responsibilities of various individuals or entities within EnSafe for the prevention and response to spills of chemicals, petroleum, biological, and other types of hazardous or noxious materials.

EnSafe Corporate Health and Safety Manager

Provide training to the employees that may require spill response training. This training will involve review of these guidelines, hazard assessment, the use and selection of personal protective equipment, spill response training, incident reporting procedures, and review of worksite responsibilities.

- Assist Ensafe employees and contractors (field workers) in developing site-specific spill response procedures and procuring spill response kits with the necessary equipment or devices;
- Perform inspections of chemical, biological, and oil storage and handling areas (if applicable) to ensure proper precautions are being followed and response capabilities maintained;
- Provide guidance to chemical spills that are beyond the training, ability, or equipment field personnel to address;
- Request assistance, as required or advisable, from outside authorities and contractors in the event of a spill or release beyond field worker capabilities;
- Report, as required or advisable, any spills or releases to the necessary governmental entities; and,
- Investigate chemical incidents to determine direct, indirect, and root causes, and to provide preventative recommendations.

Project Manager and Site Safety and Health Officer

Project Managers (PM) and Site Safety and Health Officers (SSHO) when involved in the supervision of onsite field workers, in conjunction with the EnSafe Corporate Health and Safety Manager, are responsible for performing the duties under this plan. Specifically, these include:

• Ensuring that all employees, where required, have received the required Occupational Health and Safety Act (OSHA) hazard training under OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) standards (in general industry, 29 Code of Federal Regulations [CFR] 1910.120; and construction 29 CFR 1926.65);

- Ensure that all hazardous chemicals in the workplace are identified, provide an inventory of these chemicals including matching Safety Data Sheets (SDS), ensure adequate personnel are trained, follow applicable EnSafe or client written Hazard Communication Programs, follow and ensure compliance of OSHA Hazard Communications Guidelines and Hazard Communication System (HCS) requirements under 29 CFR 1910.1200 (g);
- Cooperating with the project/site contacts to integrate site existing spill plans and response procedures, where appropriate or required, and providing site-specific and material-specific training for their project and will potentially be involved in chemical spill/emergency response situations;
- Ensuring there are sufficient and appropriate spill response supplies in their area for the hazard characteristics and quantities of the chemicals or substances stored or handled;
- Taking all necessary steps to minimize the chance of spills when working with chemicals;
- Provide assistance in response to chemical spills, where required or applicable. The extent to which the field workers will respond to chemical spills will vary with project site policies or extent/type of the spill. The PM and/or SSHO will coordinate response and summoning of additional response personnel and provide assistance or direction in the event of a spill where requested or feasible.
- Regularly conduct safety inspections to chemical storage areas to ensure that spill kits are available and that supplies are relevant to the chemicals being handled in the area for which the spill kit is designated for use.
- Maintain records regarding inspections conducted, personnel training completed, emergency equipment testing, and spill kit maintenance.

EnSafe Field Workers

All field workers are expected to cooperate for the purpose of protecting their own health and safety and that of other workers, and the public. Specifically, these responsibilities include:

• Take all necessary steps to minimize the chance of spills when working with chemicals, oils, biological, or radioactive materials;
- Cooperate with their PM, SSHO, supervisor, project site contacts, implement a chemical spill program for the site;
- Respond to those minor spills for which they are responsible (or discover) and for which they have the requisite training and equipment; and,
- Be aware that not all site personnel are trained or equipped to respond to spills or releases other than those they may have caused with the chemicals with which they are familiar and have received training.

Spill Prevention

The first step in chemical or biological spill response is to prevent the exposure, release, or spill from happening in the first place. The project site should be examined to identify measures that can be taken to minimize the risk of a release occurring. These measures can be identified during regular worksite and safety inspections.

The precautions may include physical controls (secondary containment, safety cabinets); standard operating procedures (labeling, container specifications, lab procedures), or training.

Chemical, biological, or radiological spills occur during five types of activities: Storage, Transport, Transfers, Usage, and Disposal.

SDSs must be maintained and readily available for each chemical or product containing hazardous chemicals — throughout each of the following activities:

Storage

Storage may be temporary, long-term, or for daily use. Regardless, certain precautions must be taken:

• Follow the HCS requirements under 29 CFR 1910.1200 (g) and ensure that all containers are properly identified with the common chemical name (not a formula), physical and health hazards (labels or words), and manufacturer. All containers must include these three pieces of information. This will be on all chemicals as received and must be maintained in a legible condition or be replaced when necessary

- If a chemical or other hazardous or biological material is removed from its primary container for use or dispensing, the secondary container must be labeled with the same information chemical name, hazards, and manufacturer. Mixtures must also be so identified. The "manufacturer" name may be the individual preparing the material or decanting it to the working container;
- Store no more hazardous chemicals than is necessary, or allowed per State and local codes, including regulatory bodies such as the National Fire Protection Agency, or International Building Codes;
- If provided, ensure storage areas containing shelving units, counters, or cabinets are sturdy. Shelves used for chemical storage should be securely fastened to the wall or floor to provide added stability. The shelves should have "lips" to prevent falling of the containers from the shelves;
- Identify the presence and hazards of chemicals stored in an enclosed area, storage room, or other areas with appropriate signage;
- Ensure chemicals are stored within easy reach of everyone in any storage area, and no higher than eye level. Large bottles and containers should be stored as close to floor level as possible. Liquid containers should be stored no higher than shoulder height;
- Flammable, combustible, and corrosive chemicals should be stored in safety cabinets whenever possible;
- Do not store chemical containers directly on the floor where they might be knocked over and broken unless they are in ULC approved safety cans or still in their original shipping carton and packing (and do not cause a tripping or egress hazard);
- Do not store chemical containers on top of flammable storage or acid storage cabinets;
- Minimize the number of chemicals and size of containers stored in the lab. For commonly used chemicals (i.e., acids, solvents), a good rule of thumb is to keep quantities to a minimum;
- Ensure that lighting and ventilation is adequate in the storage area;

- Do not store chemicals in unsuitable containers or containers made of incompatible material;
- Do not store incompatible chemicals together (e.g., acids with bases, oxidizers with acids). Chemicals must be stored by hazard category and not alphabetically (except within a hazard group) or by size;
- Ensure that all gas cylinders are securely fastened and upright with cylinder caps in place when not in use;
- Any waste chemicals or products should be identified as waste or unwanted material and, if a hazardous waste, be so identified, contact the PM or SSHO for waste characterization assistance or removal.

Localized Transport

When transporting large, heavy, or a multitude of containers use a cart suitable for the load with high edges or spill trays that will contain any spills or leaks. Two people should be involved when transporting large amounts of chemicals.

- A drum cart should be used when moving 55-gallon containers.
- Carry glass containers in bottle carriers or another leak resistant, unbreakable secondary container.
- Use a gas cylinder handcart when transporting large gas cylinders. Ensure the cylinder is securely strapped to the cart.
- When possible, transport chemicals in freight elevators to avoid the possibility of exposing people on passenger elevators in the event of a spill. Do not take the stairs.

Transfer of Chemicals

Hazard Communication: When a substance containing a hazardous chemical is transferred from its original container to a secondary container, the secondary container must be labeled with the identity of the chemical and any hazards it presents, including the route of entry to the body, health hazard, physical hazard, and affected organ(s) following manufacture SDS, and the HCS requirements under 29 CFR 1910.1200 (g).

Employers are responsible for maintaining the labels on the containers, including, but not limited to, tanks, totes, and drums. This means that labels must be maintained on chemicals in a manner which continues to be legible and the pertinent information (such as the hazards and directions for use) does not get defaced (i.e., fade, get washed off) or removed in any way.

If a field work transfers hazardous chemicals from a labeled container to a portable container that is only intended for immediate use by the employee who performs the transfer, no labels are required for the portable container.

Precautions: When transferring chemicals between containers, pay careful attention to the size of the receiving container to prevent overfilling it.

- When transferring liquids from large containers, use pumps, siphoning (not initiated by mouth) or other mechanical means instead of pouring;
- Use funnels and spill containment trays to catch leaks and spills when transferring liquids;
- Use approved safety containers when transferring flammable and combustible liquids.
- When transferring flammable liquid from drums, ensure that both the drum and receptacle are grounded and bonded together to avoid an explosion initiated by a static electric spark.
- Ensure that the materials are compatible prior to mixing.
- Remember to label the secondary container with the material name, hazards, and manufacturer.
- Perform the material transfers only in locations with containment to capture or retard the escape of any spillage to the environment or drains.

Handling and Use

All employees must be knowledgeable and trained in chemicals that are being used in the workplace. Employees shall receive training on hazardous chemicals in their work area at the time of their initial assignment and whenever a new chemical hazard on which they have not been previously trained is introduced into the work area. Review of the manufacturer SDS, and any other applicable information, for the chemical, identification, hazards, composition, safe handling practices, and emergency control measures (e.g., firefighting) as well as physical and chemical properties, stability and reactivity information, toxicological information, exposure control information is required.

A hazard assessment shall be performed by a person knowledgeable about the hazards and the use and limitations of engineering controls and personal protective equipment. Wear all appropriate personal protective equipment (PPE) as designated by the SDS, HAZCOM Labels, or other documentation pertaining to the hazards identified.

Basic Procedures

- Follow all manufacturer guidance on the handling of specific chemicals
- Ensure that ventilation is adequate for the chemical or material being handled, used, or applied. Remember that vapors, particulates, or odors may cause exposure to persons not in the immediate vicinity. Review the SDS for these hazards and ensure adequate PPE.
- Check gas cylinder valves and gas tubing for leakage before use.
- If possible, keep cylinders of highly toxic or corrosive gases in a ventilated enclosure.
- Ensure there is access to and know the location of a suitable spill response kit before working with chemicals.
- Know the location and how to use emergency equipment such as eye washes, and emergency showers, be aware of the exits and evacuation routes, telephone locations, and Material SDSs.

Disposal

The following are general precautions for the disposal of waste chemicals. Employees are to follow all applicable waste management procedures or regulations pertaining to the materials being used.

- Properly identify the contents of all waste containers and the associated hazards to avoid unsafe or inappropriate disposal
- Be knowledgeable of the types of waste you may generate (hazardous waste, universal waste, solid waste, etc.) and how to properly identify, label, for dispose of the wastes.

- Do not mix incompatible wastes together otherwise unexpected chemical reactions may occur
- Leave at least 10% air space in bottles of liquid waste to allow for vapor expansion and to reduce the potential for spills due to overfilling.
- When not in use (emptying or adding contents), keep waste containers securely closed or capped. Do not leave open funnels in waste containers.
- Dispose of waste on a regular basis; do not allow excess waste to accumulate in the work area. Contact PM, SSHO, or project site contact for proper disposal procedures.
- Be sure that any containers being discarded have been emptied. Containers storing some chemicals (some hazardous wastes and pesticides) must be triple rinsed before discarding.

SPILL RESPONSE PREPARATION AND RESPONSE

Preparation

Emergency preparedness is an important element of a spill response plan. When worksites, are prepared for chemical spills — fewer errors are made and there is a reduced risk to persons, property and the environment. The essential elements of spill response preparation are: Training, Hazard Information, Proper Equipment, and Written Procedures as described below.

Training: This training normally includes, but is not limited to: Review of EnSafe Corporate guidelines for spill response, review of any site specific chemical spill response plans, instruction in spill cleanup techniques and equipment, and review of hazards found in the work area (chemical, physical, biological, radiological) which may be of concern during spill response. Training is separately provided to EnSafe personnel involved. Much of the required spill response training adequately completed during OSHA Hazard Communication and OSHA HAZWOPER initial and annual refresher training.

Hazard Information: Information on the chemical hazards present at the worksite must be kept up-to-date and readily available. Sources of information include SDSs, signs, container labels, posters, and reference books. EnSafe Corporate Health and Safety, PM, and SSHO are responsible for ensuring that this information is readily available to employees in the project worksite. The availability of SDSs is mandated under the HCS requirements under 29 CFR 1910.1200 (g) for all employees

Equipment: Ensure that an adequate supply of spill response and personal protective equipment is maintained at the project worksite. Corporate Health and Safety, PM, and SSHO are responsible to ensure that the necessary spill preparedness and response equipment is available for their personnel and the chemical, biological, or radioactive hazards they deal with or may be exposed to during their work activities. The type of equipment required includes; first-aid equipment (including emergency eye washes/showers), personal protective equipment (gloves, eye protection, etc.), and spill cleanup supplies (absorbents, neutralizing agents, etc.). Spill kits and PPE should be customized to account for specific hazards and conditions at a specific site.

Spill Kits

Spills kits can be assembled from individual parts or suitable spill kits may be purchased from most chemical or safety supply companies. If a commercial kit is purchased, however, ensure that it contains all the necessary items as listed below. In addition, note that most commercial spill kits and the lists below are generic; it is important that spill kits be tailored to meet the specific spill control needs of each worksite.

Small Chemical Spill Kit: A small chemical spill kit should be available in each worksite that uses chemicals. It can be used for immediate response to most spills, and to clean up small, low hazard spills that may occur and do not require specialized personnel protective equipment or spill control supplies.

- a. Personal Protective Equipment
 - Chemical Splash Goggles
 - Lab Coat or Coated Tyvek
 - Heavy Nitrile or Neoprene Gloves
- b. Spill Clean Up Equipment
 - Plastic Dustpan and Brush
 - Heavy Plastic Bags (at least 3-millimeter (mil) thickness)
 - Universal Spill Absorbent (1:1:1 mix of sodium carbonate: kitty litter: sand), spill pillows, socks, or other suitable spill absorbent (enough to absorb a spill of the largest container in the work area).
 - Other absorbents/neutralizers as required for the chemicals at the worksite.
 - Drain covers (if floor, sink, or yard drains are in the vicinity)

The above may be conveniently stored in a labeled plastic container that can also be used for containment and disposal of the spill cleanup wastes. Other chemically resistant gloves or clothing may be necessary depending on the chemicals used or stored in the worksite area.

Large Spill Kit: Every worksite that has significant quantities of chemicals should have one or more large chemical spill kits containing PPE and spill cleanup supplies to complement (in addition to) the above described smaller worksite kits, and as backup supplies for outside responders. The number and location of these kits, as well as internal supplies, will depend on the size of the worksite, whether the worksite is split in separate areas, the number of chemicals in use, the size of the spill response team, etc.

It must be noted that a large spill cleanup will require that the response personnel are a HAZWOPER-trained team (29 CFR 1910.120) and must manage these types of spills. Along with the PPE and cleanup procedures, the HAZWOPER team must also perform decontamination procedures as well.

- a. Personal Protective Equipment (potential responders must be PPE trained)
 - Half-mask air purifying respirator (2)
 - Multigas Type Respirator Cartridges (6)
 - Safety goggles (2)
 - Face-shield (1)
 - Disposable coveralls (Tyvek[™]) (6) coated if necessary, for the chemicals used
 - Gloves
 - i. Neoprene (4)
 - ii. PVC (4)
 - iii. PVA (4)
 - iv. Nitrile (4)
 - Plastic shoe covers (box)
 - Duct tape (roll)
 - Alcohol swabs (box) or respirator disinfectant
- b. Spill Clean Up Equipment
 - Chemical absorbents (0.5 cubic foot)
 - Specific absorbent/neutralizers for acids/caustics, formaldehyde, hydrofluoric acid, etc., as needed)
 - Plastic pail (5-gallon) with lid (2)

- Felt marking pen (2)
- Heavy Plastic Bags; at least 4 mil thickness (12)
- Plastic bucket with handle (1)
- Long handle sponge mop (1)
- Extra sponges (4)
- Plastic dust pan (1)
- Broom (1)
- Duct tape (roll)
- Detergent (Alconox or equivalent box)
- Citric Acid (500 g)
- Sodium Bicarbonate (500 g)
- Sodium Thiosulfate (500 g)

Spill Response Guideline

General Response Information

When a chemical or biological spill occurs, personnel at the spill scene must act quickly to reduce the consequences of the spill. The actions taken depend on the magnitude, complexity, and degree of risk associated with the spill.

The following steps outline the general actions which should be taken in response to chemical spills. However, because the appropriate response often depends on the identity or characteristics of the material spilled, a series of Spill Response Guides have been developed for certain categories of chemicals, biological agents, and radioactive materials. Those are provided in this section immediately following the general procedures listed below.

Releases (spills) can be categorized into three distinct groups in terms of emergency recognition:

- Releases that are clearly incidental,
- Releases that may be incidental or may require emergency response, depending upon circumstances, and
- Releases that clearly require emergency response.

Emergency recognition must be employed to distinguish between "incidental spills" and those requiring emergency response.

- OSHA defines an **incidental release or spill** as "*a release of a hazardous substance which does not pose a significant safety or health hazard to employees in the immediate vicinity or to the worker cleaning it up, nor does it have the potential to become an emergency*". Incidental spills do not require an emergency response, and therefore do not require HAZWOPER-trained cleanup personnel. They may be cleaned up by employees working in the area where the spill occurred or by maintenance personnel.
- An emergency response spill is defined by 29 CFR 1910.120 as follows: *"response efforts conducted by employees outside of the immediate area of release or by other designated responders (fire departments, internal hazmat teams, etc.) to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance."*

Any incident involving the spill/release of hazardous chemicals, mixtures of such chemicals, or hazardous waste that requires the intervention of spill cleanup specialists to contain and remove the spilled material safely is an emergency response spill. A HAZWOPER-trained team (29 CFR 1910.120) must manage these spills. Every leak or spill should be evaluated to determine whether it has crossed that threshold beyond which any spill cleanup must be performed by specifically trained and equipped personnel.

General Response Procedures

An employee who discovers a spill shall:

- Ensure employee safety.
- Briefly assess the severity of the spill, determining the extent and nature of the event.
- Report spills of any size that cannot be contained or cleaned up by onsite personnel, and/or that affects or threatens to affect navigable waters or adjoining shorelines using the contacts in Emergency Notification Phone List in the EAP Attachment A-1. Report location of occurrence, type of occurrence, and if it involves injuries.

Determine if the spill represents a release to the environment.

- a. A release means any spilling, leaking, pumping, pouring, escaping, leaching, or disposing into the environment.
- b. The environment is defined as:
 - The navigable waters of the U.S.
 - Any other surface water, groundwater, drinking water supply, land surface, or subsurface strata, or ambient air within the U.S.
 - The local project site storm sewer or wastewater treatment plant via the sanitary sewer.
- c. Any release that gets outside of a building or outside of an impervious containment area should be considered a release to the environment.

Determine if the quantity of material spilled represents a harmful (or reportable) quantity.

A harmful (reportable) quantity is defined as that which:

- a. Violates applicable water quality standards.
- b. Causes a film or sheen upon or discoloration of the surface of the water or adjoining shorelines, or a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.
- c. Enters the storm sewer system.
- d. Includes a spill of 25 gallons or more to the environment.
- e. Includes all spills that affect or threaten to affect navigable waters or adjoining shoreline

Refer to the Emergency Notification Phone List to identify persons to contact when a spill occurs

Information to be provided when reporting a spill includes the following:

- a. Time of the spill.
- b. Identity of the material spilled.
- c. Approximate quantity spilled.
- d. Location and source of the spill.
- e. Cause and circumstances of the spill.
- f. Existing or potential hazards (fire, explosion, etc.), if any.
- g. Personal injuries or casualties, if any.
- h. Corrective action being taken and an approximate timetable to control, contain, and clean up spill.
- i. Name(s) and telephone number(s) of individual(s) who discovered and/or reported the spill.
- j. Other unique or unusual circumstances.

For any spill of petroleum leaving the property and entering a drainage canal or storm drain, IMMEDIATELY NOTIFY: The State entity that is responsible for environmental conservation where the project site is located (e.g., Tennessee Department of Environment and Conservation Division of Water Resources). This number shall be in the emergency notification list.

Small Spills

For small spills (i.e., those that do not place personnel at risk for exposure above the permissible exposure limits), facility personnel may be directed by the EnSafe Corporate Health and Safety Manager, PM, or SSHO to initiate containment/cleanup. Appropriate personal protective equipment will be donned and the proper cleanup materials (i.e., booms, absorbents, etc.) utilized. Spent absorbent materials should be placed in appropriate containers (i.e., drums kept with the spill kits) for disposal offsite. All waste products generated by spill cleanup will be managed per applicable local, state, and federal regulations. All equipment used during spill cleanup operations should be

immediately replaced in the spill kit to maintain inventory. The area will be inspected post-cleanup to verify that efforts were sufficient, and that waste was properly packed for offsite disposal.

Large Spills

In the event of a large oil/hazardous materials release, the EnSafe Corporate Health and Safety Manager and PM should be contacted immediately. Large spill cleanup may be handled by a third-party emergency response contractor as coordinated by the spill consultant.

If a large spill occurs, efforts should be made to prevent oil/hazardous materials from reaching storm drains and Outfall 001. While these efforts are underway, the EnSafe Corporate Health and Safety Manager or PM will contact the spill consultant. The spill consultant has contracts with three emergency response contractors for statewide response activities. An emergency response contractor will be called to respond, when appropriate.

The project site contact that is responsible for environmental concerns, shall also be contacted immediately. All efforts shall be made by EnSafe to coordinate response and cleanup efforts, and provide appropriate documentation concerning the spill. State regulations will determine reporting requirements for the site owner. For example:

- 1. If the project site falls under 40 CFR 112.4, *Amendment of Spill Prevention, Control, and Countermeasure Plan by Regional Administrator*, they will be required to report a spill event to the regional administrator of United States Environmental Protection Agency (U.S. EPA) if the spill meets either of the criteria shown below. The owner or operator of the facility shall submit a written report within 60 days of the date of the spill.
- Greater than 1,000 gallons of oil into or upon the navigable water of the United States or adjoining shorelines in a single spill event.

OR

- More than 42 U.S. gallons of oil in each of two discharges occurring within any 12-month period.
- 2. State Regulations such as requirements to report any spill event or 25 gallons or more

Site Specific Spill Procedures

In addition to the general and material specific procedures of this Plan, chemical specific procedures may also be needed at worksites where other hazardous chemicals, petroleum compounds, or biologicals are used or where large quantities of potentially harmful material are stored. Site-specific procedures should include:

- 1. Information on the hazards of the chemical; the quantity and storage location of the hazardous chemical;
- 2. The personal protective equipment and spill abatement equipment required and their location;
- 3. The instructions for containing and cleaning up the spill;
- 4. The first-aid measures and materials required to treat exposed individuals; and,
- 5. The method of residual waste disposal.

SPILL RESPONSE GUIDES

The following are some basic guides to assist with spills that may occur on the worksite. These guides do not account for every situation or type of hazard but are some of the common spills that may be encountered.

Types of Spills that Cannot Be Handled by worksite Personnel: If the spill is too large to handle, involves more than 500 mil of any hazardous material, involves chemical class materials listed in the table below; is a threat to workers or the public; involves radioactive material; involves an infectious agent; or involves a corrosive, highly toxic, or reactive chemical, call for assistance.

Chemical Class	Example
Strong Acids — Any acid that is concentrated enough to fume or emit acid gases	Fuming Sulfuric Acid Red Nitric Acid Hydrofluoric Acid Perchloric Acid
Strong Bases — Any base that is concentrated enough to emit vapors	Ammonium Hydroxide
Poison by Inhalation — Any chemical that readily emits vapors/gases at normal temperature and pressure that are extremely toxic by inhalation	Phosphorous Oxychloride Titanium Tetrachloride Formates Isocyanates Dry Picric Acid Lithium Aluminum hydride
temperature — Any chemical that is sensitive to all, water shock, inction and/or	Sodium Borohydride Phosphorus Metal Organic Peroxides
Mercury — Any mercury compound	Metallic Mercury Mercury Salts Aqueous Mercury Solutions
Extremely Toxic — Any chemical that is readily absorbed through the skin and is extremely toxic at small concentrations	Benzene

Oil and Petroleum Spills

Oil spills are among those with no immediate appreciable human health hazard when encountered in quantities typical for most University work sites or laboratories. These include such solid materials as lubricating oils, vacuum pump oils, elevator oils, transformer dielectric fluids, vegetable oils, and synthetic oils that are not flammable or combustible. Flammable and combustible oils (fuels such as gasoline) should be handled in accordance with Spill Response Guide for **Flammable Liquids and Combustible and Other Nonflammable Organic Liquids**.

In general, all spills of these materials may be cleaned up by local personnel unless there are other mitigating circumstances that require outside assistance, area evacuation and notification.

Small Liquid Spill

- 1. If spill absorbent is available in the immediate area, dike around the spill (see Step 4 below) if it is safe to do so. This will prevent the spill from spreading further. A major concern with oils is preventing their reaching waterways either over the surface or via storm or sanitary sewers.
- 2. Use drain covers or develop a berm around any drains using absorbent socks or loose absorbent to prevent escape of the oil to a waterway.
- 3. Move outside the spill area. Obtain and read the SDS for the particular oil to confirm that the material is of low hazard and can be cleaned up safely following this procedure.

- 4. Don the appropriate personal protective equipment.
- 5. If not already done, dike around the spill using spill absorbent or spill pillows.
- 6. Cover the spill area with spill absorbent or spill pillows, starting at the outside and working inward.
- 7. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags).
- 8. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 9. Remove and bag personal protective equipment for cleaning or disposal.

Note: Spills of oil above approximately 1-gallon, or at such locations that may reach a waterway, sanitary, or storm sewer are to be addressed through the worksite Spill Prevention Control and Countermeasures Plan.

Flammable Liquids

Flammable liquids have flash points below 100 degrees Fahrenheit (°F), evaporate quickly, and within a short period of time can reach high, and potentially dangerous, vapor concentrations. Some common examples of flammable liquids include ethanol, methanol, hexane, diethyl ether, acetone, and toluene. Larger spills of flammable liquids may require a response by the fire department if vapor concentration exceeds or approaches the lower explosion limit. A spill of more than 500 ml is an emergency that requires area evacuation. Spills of less than 500 ml can be cleaned-up by local personnel who are adequately trained and have the proper spill response equipment available.

- 1. If spill absorbent is available in the immediate area, dike around the spill (see Step 6 below) if it is safe to do so. This will prevent the spill from spreading further and releasing more vapors.
- 2. Immediately extinguish any open flames and isolate and evacuate the spill area.
- 3. Shut down ventilation immediately, if indoors, and close doors to stop the spread of vapors.

- 4. If it can be done without exposure to the spilled substance, plug or cover any drains that may allow escape of the spilled substance.
- 5. Assemble trained cleanup response members and the spill response kit outside the spill area. Obtain and read the SDS for the substance(s) to determine the hazards associated with it and any special precautions that will need to be taken.
- 6. Don the appropriate personal protective equipment. The SDS will indicate this.
- 7. If not already done, dike around the spill using spill absorbent or spill pillows. Do not use paper towels to absorb the spill since this increases the rate of evaporation and vapor concentration of the liquid.
- 8. Carefully cover the spill area with spill absorbent or spill pillows, starting at the outside and working inward.
- 9. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy-duty plastic bags).
- 10. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 11. Remove and bag personal protective equipment for cleaning or disposal.

Once the spill has been cleaned up, the area should not be reentered until it has been purged of all remaining vapor. In the absence of air monitoring equipment, wait at least 1 hour before reentering the area.

Combustible and Other Nonflammable Organic Liquids

Combustible liquids (e.g., mineral spirits) have flash points above 100°F but below 200°F and are not fire hazards at room temperature. The principal hazard from non-flammable, volatile liquid spills is exposure to the vapor by inhalation or skin absorption. A spill of more than 1 quart (1 liter) is an emergency that requires area evacuation. Spills of less than 1 quart/liter can be cleaned up by worksite personnel who are adequately trained and have the proper spill response equipment available.

- 1. If spill absorbent is available in the immediate area, dike around the spill (see Step 6 below) if it is safe to do so. This will prevent the spill from spreading further.
- 2. Immediately extinguish any open flames, and isolate and evacuate the spill area.
- 3. Shut down ventilation immediately, if indoors, and close doors to stop the spread of vapors.
- 4. If it can be done without exposure to the spilled substance, plug or cover any open sink or floor drains that may allow escape of the spilled substance.
- 5. Assemble trained cleanup response members and the spill response kit outside the spill area. Obtain and read the SDS for the substance(s) to determine the hazards associated with it and any special precautions that will need to be taken.
- 6. Don the appropriate personal protective equipment. The SDS will indicate this.
- 7. If not already done, dike around the spill using spill absorbent or spill pillows. Do not use paper towels to absorb the spill since this increases the rate of evaporation and vapor concentration of the liquid.
- 8. Carefully cover the spill area with spill absorbent or spill pillows, starting at the outside and working inward.
- 9. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags).
- 10. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 11. Remove and bag personal protective equipment for cleaning or disposal.

Once the spill has been cleaned up, the area should not be reentered until it has been purged of all remaining vapor. In the absence of air monitoring equipment, wait at least 1-hour before reentering the area.

Acid Spills

The principal concern is the corrosive effect of these substances. Dilute solutions that irritate the skin, while concentrated solutions can result in burns and also react violently with water.

A spill of more than 1 quart (1 liter) of liquid or 500 gram (g) of solid acid is an emergency that requires area evacuation. Spills of most other acids of less than 1 liter/500 g can be cleaned up by worksite personnel who are adequately trained and have the proper spill response equipment available.

For a **liquid acid** spill:

- 1. If spill absorbent is available in the immediate area, dike around the spill (see Step 7 below) if it is safe to do so. This will prevent the spill from spreading further. Spill absorbents are available that are specifically designed for acid and caustic spills. Also, powder and liquid neutralizers are commercially available to neutralize the spilled chemical and reduce the hazards of cleanup.
- 2. Isolate and evacuate the spill area.
- 3. If the spilled chemical is volatile, and there is a ventilation system recirculating air, shut down the ventilation system.
- 4. If it can be done without exposure to the spilled substance, plug or cover any open sink or floor drains that may allow escape of the spilled substance.
- 5. Assemble other worksite spill team members, or other assistance, and the spill response kit outside the spill area. Obtain and read the SDS for the substance to determine the hazards associated with it and any special precautions that will need to be taken.
- 6. Don the appropriate personal protective equipment. The SDS will indicate this.
- 7. If not already done, dike around the spill using spill absorbent or spill pillows. Ideally, use spill absorbent that contains a mild neutralizing agent such as sodium carbonate (soda ash)
- 8. Carefully cover the spill area with spill absorbent or spill pillows, starting at the outside and working inward.

- 9. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags). Contact the EHS Office for proper removal and disposal of the spilled material and contaminated cleanup articles
- 10. Check the pH of the spill area. If it is less than pH6, then neutralize with a dilute solution of 5% sodium bicarbonate (baking soda).
- 11. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 12. Remove and bag personal protective equipment for cleaning or disposal.

Once the spill has been cleaned up, the area should be free of any acid fumes or vapors. However, if odors or irritation is still noted, isolate the area and wait at least 1 hour before reentering.

For a **solid acid** spill:

- 1. Isolate the spill area and assemble spill team members and the spill response kit outside the spill area. Obtain and read the SDS for the substance to determine the hazards associated with it and any special precautions that will need to be taken.
- 2. Don the appropriate personal protective equipment.
- 3. Spill absorbents are available that are specifically designed for acid and caustic spills. Also, powder and liquid neutralizers are commercially available to neutralize the spilled chemical and reduce the hazards of cleanup. If necessary, slightly moisten the solid, to minimize dust production. Use water, or if the material is water reactive, another inert liquid (e.g., ethylene glycol).
- 4. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags).
- 5. Remaining solid acid residue may be neutralized using a diluted solution of sodium bicarbonate (baking soda). Check the pH of the spill area; the final pH should be between pH 6 and pH 10. Use spill absorbent or spill pillows to absorb the neutralized residue.
- 6. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.

7. Remove and bag personal protective equipment for cleaning or disposal.

Alkalai and Base Spills

Like acids, the principal concern is the corrosive effect of these substances. Dilute solutions that irritate the skin, while concentrated solutions can result in burns. Concentrated alkali compounds can penetrate deeply and damage underlying tissue.

A spill of more than 1 quart (1 liter) of liquid or 500 g of solid alkali or base is an emergency that requires area evacuation. Spills of less than 1 liter/500 g can be cleaned up by worksite personnel who are adequately trained and have the proper spill response equipment available.

- 1. If spill absorbent is available in the immediate area, dike around the spill (see Step 6 below) if it is safe to do so. This will prevent the spill from spreading further. Absorbents and neutralizing liquids and powders are available for alkali and base steps. These materials can aid in both recovery of the spilled caustic, as well as ameliorate the associated hazards of the chemical.
- 2. Isolate and evacuate the spill area.
- 3. If the spilled chemical is volatile, and there is a ventilation system recirculating air, shut down the ventilation system.
- 4. Assemble spill team members and the spill response kit outside the spill area. Obtain and read the SDS for the substance to determine the hazards associated with it and any special precautions that will need to be taken.
- 5. Don the appropriate personal protective equipment.
- If not already done, dike around the spill using spill absorbent or spill pillows. Ideally, use spill absorbent that contains a mild neutralizing agent such as sodium carbonate (soda ash). Cover or dike any sink or floor drains that are in the spill area.
- 7. Carefully cover the spill area with spill absorbent or spill pillows, starting at the outside and working inward.

- 8. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags).
- 9. Check the pH of the spill area. If it is greater than pH 10, then neutralize with a dilute solution of 5% citric acid or other acidic material.
- 10. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 11. Remove and bag personal protective equipment for cleaning or disposal.

Once the spill has been cleaned up, the area should be free of any alkali fumes or vapors. However, if odors or irritation is still noted, isolate the area and wait at least 1-hour before re-entering.

For a **solid alkali** or **base spill**:

- 1. Isolate the spill area and assemble spill team members and the spill response kit outside the spill area. Obtain and read the SDS for the substance to determine the hazards associated with it and any special precautions that will need to be taken
- 2. Don the appropriate personal protective equipment
- 3. If necessary, slightly moisten the solid, to minimize dust production. Use water, or if the material is water reactive, another inert liquid (e.g., ethylene glycol).
- 4. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags).
- 5. Remaining solid alkali or base residue may be neutralized using a dilute solution of 5% citric acid. Check the pH of the spill area; the final pH should be between pH 6 and pH 10. Use spill absorbent or spill pillows to absorb the neutralized residue.
- 6. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 7. Remove and bag personal protective equipment for cleaning or disposal.

Oxidizer Spills

Oxidizing agents can ignite organic solvents and combustible materials. They are also skin and respiratory irritants. Examples include concentrated hydrogen peroxide, and permanganate, chlorate, nitrate, and dichromate compounds. Spills in excess of 1 quart (1 liter) of liquid or 500 g of solid oxidizer are emergencies and require area evacuation. Spills of less than 1 liter/500 g can be cleaned up by local personnel who are adequately trained and have the proper spill response equipment available.

Liquid Oxidizer Spill

- 1. If spill is available in the immediate area, dike around the spill (see Step 5 below) if it is safe to do so. This will prevent the spill from spreading further.
- 2. Isolate and evacuate the spill area.
- 3. Assemble spill team members and the spill response kit outside the spill area. Obtain and read the SDS for the substance to determine the hazards associated with it and any special precautions that will need to be taken.
- 4. Don the appropriate personal protective equipment.
- 5. If not already done, dike around the spill and any nearby sink or floor drains using spill absorbent or spill pillows. Remove or moisten with water any combustible materials or surfaces affected by the spill.
- 6. Carefully cover the spill area with spill absorbent or spill pillows, starting at the outside and working inward
- 7. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags).
- 8. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.

For a **solid oxidizer** spill:

1. Isolate the spill area, and assemble spill team members and the spill response kit outside the spill area. Obtain and read the SDS for the substance to determine the hazards associated with it and any special precautions that will need to be taken.

- 2. Don the appropriate personal protective equipment.
- 3. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags). Contact the EHS Office for disposal of the recovered and contaminated articles as hazardous waste.
- 4. If there is still oxidizer residue left in the spill area, neutralize with dilute 5% sodium thiosulfate solution. Use spill absorbent or spill pillows to absorb the neutralized residue.
- 5. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 6. Remove and bag personal protective equipment for cleaning or disposal.

Highly Toxic Materials Spills

Highly toxic chemicals include those with high acute systemic toxicity, and substances with chronic toxic effects such as carcinogens, reproductive or developmental (embryotoxins, teratogens) toxins, and mutagens. Also included in this category are compounds that can easily produce toxic products. For example, cyanide and sulfide salts produce toxic hydrogen cyanide and hydrogen sulfide, respectively, in the presence of acids. In general, spills of more than 100 mL (6 Tablespoons) of liquid or 50g (1 ³/₄ oz) of solid of these substances are emergencies and require area evacuation. Spills of less than 100mL / 50g can be cleaned up by worksite personnel who are adequately trained and have the proper spill response equipment available. These chemicals, however, should always be evaluated on an individual basis.

Liquid Spill

- 1. If spill absorbent is available in the immediate area, dike around the spill (see Step 5 below) if it is safe to do so. This will prevent the spill from spreading further.
- 2. If the spilled chemical is volatile, and the area's ventilation system recirculates the air throughout the building, have the ventilation shut down.
- 3. Isolate the spill area and assemble spill team members and the spill response kit outside the spill area. Obtain and read the SDS for the substance to determine the hazards associated with it and any special precautions that will need to be taken.
- 4. Don the appropriate personal protective equipment.

- 5. If not already done, dike around the spill using spill absorbent or spill pillows
- 6. Cover the spill area with spill absorbent or spill pillows, starting at the outside and working inward.
- 7. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags).
- 8. Remove any remaining residue using minimal detergent and water. Absorb this wash water using spill absorbent or spill pillows, and dispose as in Step 7 above.
- 9. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 10. Remove and bag personal protective equipment for cleaning or disposal.

Solid Spill:

- 1. Isolate the spill area and assemble spill team members and the spill response kit outside the spill area. Obtain and read the SDS for the substance to determine the hazards associated with it and any special precautions that will need to be taken.
- 2. Don the appropriate personal protective equipment
- 3. Slightly moisten the solid, to prevent the spread of dust. Use water, or if the material is water reactive, another inert liquid (e.g., ethylene glycol).
- 4. Sweep up the residue using spark-proof tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags). Contact the EHS Office for proper removal and disposal of the spilled material and contaminated cleanup articles.
- 5. Remove any remaining residue using minimal detergent and water. Absorb this wash water using spill absorbent or spill pillows, and dispose of as hazardous waste as in Step 4 above.
- 6. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 7. Remove and bag personal protective equipment for cleaning or disposal.

Low Hazard Material Spills

Low hazard materials are those with no appreciable health hazard when encountered in quantities typical for University work sites or laboratories. These include such solid materials as sodium chloride, calcium chloride, and liquids such as ethylene glycol, oils, and most paints. In general, all spills of these materials may be cleaned up by local personnel unless there are other mitigating circumstances that require outside assistance, area evacuation.

Liquid Spill

- 1. If spill absorbent is available in the immediate area, dike around the spill (see Step 4 below) if it is safe to do so. This will prevent the spill from spreading further. Dike or cover any sink, floor, or yard drains in the vicinity that the spilled material may otherwise drain to and enter.
- 2. Move outside the spill area. Obtain and read the SDS to confirm that the material is of low hazard and can be cleaned up safely following this procedure.
- 3. Don the appropriate personal protective equipment.
- 4. If not already done, dike around the spill using spill absorbent or spill pillows. Loose absorbents and absorbent pads, pillows, and socks are available specific to spill types oil only (retains oil allowing water to pass), acid/caustics, and oil, water, and solvents. General clay-based absorbents, soil, or kitty litter are also suitable for general spills of low hazard materials.
- 5. Cover the spill area with spill absorbent or spill pillows, starting at the outside and working inward.
- 6. Sweep up the residue using available tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy duty plastic bags).
- 7. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 8. Remove and bag personal protective equipment for cleaning or disposal.

Solid Spill

1. Move outside the spill area. Obtain and read the SDS to confirm that the material is of low hazard and can be cleaned up safely following this procedure.

- 2. Don the appropriate personal protective equipment.
- 3. If necessary, use water to lightly moisten the solid, to minimize the spread of dust. Do not add sufficient water to make the material mobile.
- 4. Sweep up the residue using available tools and place the residue into a labeled, plastic, waste container (plastic pail with lid or double heavy-duty plastic bags).
- 5. Mop the affected area using detergent and water. Dispose of this water to the sanitary sewer.
- 6. Remove and bag personal protective equipment for cleaning or disposal

Air and Water Reactive Material Spills

These materials are particularly hazards, since they will rapidly react with water and/or air to produce toxic products, and in many cases are also pyrophoric and may spontaneously ignite in the presence of water and/or air. Typical examples of water and air reactive materials include the alkali metals, metal hydrides and strong reducing agents such as sodium borohydride. All spills of air and water reactive materials are emergencies and require area evacuation.

- 1. Isolate the spill area.
- If an inert spill absorbent such as dry sand or kitty litter is available in the immediate area, dike around the spill if it is safe to do so. This will prevent the spill from spreading further. Cover or dike any nearby sink, floor, or yard drains if it is safe to do so.
- 3. Evacuate the area

Solid Spill

- 1. Isolate the spill area.
- 2. If an inert spill absorbent such as dry sand or kitty litter is immediately available in the area, immediately smother the spilled material if it is safe to do so. For reactive metals (e.g., sodium, potassium), a Class D fire extinguisher may be used.
- 3. Evacuate the area

Compressed Gas Leaks

Compressed gas leaks can be roughly divided into two categories. The first are those leaks which occur away from the cylinder in gas lines, tubing, or apparatus. These, once detected, can generally be stopped by closing the main cylinder valve. The second are those leaks that occur in the cylinder itself, and that cannot be stopped by closing the cylinder valve. Similarly, in some cases, it may not be possible to close a cylinder valve due to age or poor condition of the valve. All leaking gas cylinders are an emergency if the leak cannot be stopped by closing the cylinder valve. Leaks of oxygen, flammable gas, or toxic gas are especially dangerous.

For a major compressed gas leak, the following procedure should be followed:

- 1. If a leak is suspected, perform a leak test with a commercial leak detection solution or a non-reactive, detergent solution. If the leak is detected or is obvious, proceed to Step 2.
- 2. If the leak cannot be stopped by closing the cylinder valve, and it is an inert atmospheric gas (e.g., nitrogen, carbon dioxide, etc.) clear the affected area and/or floor. If the leak is of a flammable, toxic, or corrosive gas and is outside of a ventilated enclosure that will contain the gas immediately activate the building fire alarm system and evacuate the building.
- 3. If not already done so, contact 911. Meet emergency responders and provide information on the nature, extent and exact location of the leak.

A minor compressed gas leak is considered to be a small, slow, controllable release of a gas that poses a low risk of personal injury or exposure. Perform the following steps for minor compressed gas leaks.

- 1. Notify people in the area of the detected leak.
- 2. Wear appropriate personal protective equipment matched to the hazard, such as safety goggles, face shield, gloves, aprons, etc.
- 3. If the leak is in the gas supply system, close cylinder valve and tighten leaking connections.
- 4. If the leak is at the cylinder valve stem, attempt to tighten the packing nut. Be careful not to over tighten. If the leak cannot be stopped, move the cylinder into a fume hood, under a local exhaust canopy, or to an isolated, well-ventilated area to vent cylinder contents.

- 5. If the leak is at other areas on the cylinder (e.g., valve seal, valve threads, pressure safety device, etc.), move the cylinder into a fume hood, under a local exhaust canopy, or to an isolated, well-ventilated area to vent cylinder contents
- 6. If it is necessary to move a leaking cylinder through populated portions of the building, secure a plastic bag, rubber shroud or similar device over the top of the cylinder to confine leaking gas.
- 7. Keep flammable or oxidizing gases away from combustible materials.
- 8. If possible, direct corrosive and toxic gases into an appropriate chemical neutralizer.
- 9. Evacuate the immediate area and post warning signs to prevent access by others.
- 10. Notify the SSHO and site contact of the incident.
- 11. Remain outside the immediate area until cylinder contents have been exhausted.
- 12. Return cylinder to supplier for needed repairs.

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Appendix B Mishaps and Injury Management This page intentionally left blank.

MISHAPS AND INJURY MANAGEMENT

Mishap investigation, reporting, and record keeping are critical elements to EnSafe Inc.'s safety and health efforts. Determining the cause and identifying problem areas can help us better understand how to correct hazardous working conditions. The process can assist us in preventing and/or eliminate future reoccurrences, as well as educating us on the lessons learned. EnSafe's objective is to establish the requirements for mishap reporting, investigation, and review. This procedure is an integral part of the company's overall accident prevention program and aids in the determination of causal factors and corrective actions necessary to prevent incident re-occurrence.

Definitions

Injury Management

Defined as a workplace-managed process incorporating the employer and medical management team, from the time of injury to facilitate an efficient maintenance in or return to suitable employment. Effective injury management provides physical, psychological, and financial benefits to employees.

First Aid

First aid refers to medical attention that is usually administered immediately after the injury occurs and at the location where it occurred. It often consists of a one-time, short-term treatment, and requires little technology or training to administer. First aid can include cleaning minor cuts, scrapes, or scratches; treating a minor burn; applying bandages and dressings; the use of non-prescription medicine; draining blisters; removing debris from the eyes; massage; and drinking fluids to relieve heat stress.

Non-Urgent/Non-Emergency Care

Non-Urgent Emergency Department visits are typically defined as visits for conditions for which a delay of several hours would not increase the likelihood of an adverse outcome. Patients with non-urgent problems may be referred to the Family Health clinic, Urgent Care, or other Clinic for evaluation and treatment. Examples of a non-emergency include sprained knee, ankle, arm, minor headache, pulled muscle, controlled nosebleed, and small cuts.

Emergency Care

An emergency is defined as an acute illness or injury that may pose a threat to life, limb, or eyesight; results in unreasonable pain and suffering; or requires immediate care or attention to ensure the best possible recovery. Examples include cardiac arrest, broken and/or severed limbs, severe or

uncontrolled bleeding, severe pain, head, neck or spine injuries, shortness of breath, a motor vehicle accident, falls, pregnancy issues and infant or child emergencies.

General Procedures

In all cases, the EnSafe Corporate Health and Safety Manager and 1Source Occupational Health shall be notified within 30 minutes of any mishap on the Site. Within 2 hours any and all needed forms, and follow-up notification (e.g., Client Notification) shall be completed to the best abilities of the Site Safety and Health Officer (SSHO), Site Supervisor, employee, etc.

Additional steps can also be taken prior to arriving at the job site.

EnSafe Personnel Only

- Contact 1Source and provide them with the location and address of the worksite.
 - 1Source can provide local emergency room, and preferred network urgent care locations, Attachment B-1 and B-2.
- Gather any client information, such as notification procedures, or local emergency procedures (e.g., Working on Department of Defense facility, and getting their first responder information).
- Identify any challenges to the work area for First Responders (e.g., field work and closest access).
- Ensure that a first aid kit is available and readily accessible.

Contractor/Other Personnel

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 Site Manager or Site Heath and Safety Officer.

- Follow any and all company procedures concerning mishaps.
- Gather any client information, such as notification procedures, or local emergency procedures (e.g., Working on Department of Defense facility, and getting their first responder information).

- Identify any challenges to the work area for First Responders (e.g., field work and closest access).
- Ensure that a first aid kit is available and readily accessible.

First Aid

Before administering care to an ill or injured person, check the scene and the person. Size up the scene and form an initial impression.

Pause and look at the scene and the person before responding. Answer the following questions:

- Is the scene safe to enter?
- What happened?
- How many people are involved?
- What is my initial impression about the nature of the person's illness or injury? Does the person have any life-threatening conditions, such as severe, life-threatening bleeding?

If the person is NOT breathing:

- Send someone to call 911.
- Ensure that the person is face-up on a firm, flat surface
- Begin cardiopulmonary resuscitation (CPR) (starting with compressions) or use an automated external defibrillator (AED) if one is immediately available, if you are trained in giving CPR and using an AED.
- Continue administering CPR until the person exhibits signs of life, such as breathing, an AED becomes available, or Emergency Medical Services or trained medical responders arrive on scene.

If the person is breathing:

• Conduct a head-to-toe check.

- Roll the person onto his or her side into a recovery position if there are no obvious signs of injury.
- Ask questions pertaining to the type of injury (e.g., burn, fall, sprain, etc.).
- Initiate contact procedures for either non-urgent or emergency Care.
- Provide any needed first aid care utilizing a first aid kit or other measures.

Non-Urgent/Non-Emergency Care

If it has been determined that the situation does not require emergency care (i.e., call 911), and the injured worker has been stabilized, either the employee or the SSHO shall then contact EnSafe contracted Occupational Health Injury Management provider, 1Source.

1Source will determine if the injured worker needs further continuance of First Aid procedures, in depth diagnosis, provide telemedicine procedures, or referral to either a non-emergency care provider or emergency treatment.

Attachment B-1 and B-2 will provide contact information, and injury protocols to be followed.

Emergency Care

If Emergency Care is needed, call 911 immediately and relay all known information pertaining to the injured worker, how the mishap occurred, and any other information needed by the first responder organization.

NOTE: If there is time, while waiting for an ambulance to arrive, 1Source should be called by the SSHO, Site Supervisor, or any employee that is with the injured worker. Relay the information to the 1Source personnel. They may direct the injured worker to be taken to a specific emergency room in the area that falls under the EnSafe/1Source medical network. The emergency medical technician, Ambulance, or other First Response service can then be directed to take the injured worker to that location.

Once the injured worker has been attended to and is enroute to the local hospital the SSHO, Site Supervisor, or other designated employee shall take the 1Source documentation to the hospital where the injured worker is being treated and given to appropriate personnel. This information will be used as the "Insurance and Billing" information for the injured worker.


1655 Watkins Rd Columbus, OH 43207

Get on I-70 W from Fairwood Ave 12 min (4.6 mi)

Continue on I-70 W. Take E Mound St to E Chapel St 4 min (1.9 mi)

Continue on E Chapel St to your destination 2 min (0.2 mi) Grant Medical Center Emergency Room 111 S Grant Ave, Columbus, OH 43215 This page intentionally left blank.

Attachment B1 Electronic Card This page intentionally left blank.

Injury Treatment Contact Information & Protocols Injury Management Protocol: Diagnose & Treat (Injury) Instant Drug Screen – 10 Panel (Upon Request) Breath Alcohol Test (Upon Request)			
Billing Information	Send All Reports To:		
1 Source OHS Accounts Payable 7501 West 15 th Ave. Gary, IN 46406	<u>compliance@1sourceohs.com</u> or		
Phone #: (855) 517-6872	Fax #: (219) 228-8852		
Contact these individuals if you have any questions in regards to medical treatment. 1 Source is available 24 / 7 / 365.			
Injury Triage Contact Lines			
Primary: 866-622-7348			
Secondary: 855-517-6872			
Tertiary: 815-370-2940			

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Attachment B2 Service Providers This page intentionally left blank.



ENSAFE

Injury Protocols

 Emergency #:
 Dial 911 Immediately

 Primary Injury #:
 (866) 622-7348

 Secondary Injury #:
 (855) 517-6872

1 Source OHS 7501 West 15th Ave Gary, IN 46406 Phone #: (219) 427-5933 Fax #: (219) 228-8852

In the event you have an employee who reports a work-related injury or incident, follow the below itemized protocol:

- **Step #1:** Contact 1 Source Immediately to report the injury / incident. Make sure you have the following information readily available:
 - ✓ Injured Employee's Name
 - ✓ Employee's Date of Birth
 - ✓ Employee Contact Number(s)
 - ✓ Date of Injury
 - ✓ Type of Injury
 - ✓ Job Position
 - ✓ How much time is left on their shift
 - When is their next scheduled work day
 - ✓ Any pertinent information related to the event
- Step #2: The 1 Source representative will discuss the injury with both the supervisor as well as the injured employee. If the employee declines medical treatment, see Step #3. If the employee agrees to participate in the Access Care Program (Tele-Triage) see Step #4. If they require immediate medical attention proceed to Step #5.
- **Step #3:** If the employee makes the decision that they are declining medical treatment, 1 Source will explain all their rights as far as seeking medical treatment at a later date:
 - ✓ The employee can still seek medical attention at a later date
 - ✓ All medical care is still directed through the employer or 1 Source
 - ✓ Medical treatment not directed by the employer or 1 Source is the responsibility of the employee
 - ✓ They must sign the Medical Declination Waiver
 - ✓ The employee is provided 1 Source's 24 / 7 / 365 contact information if they require treatment
- **Step #4:** If the employee agrees to the Access Care Program, that employee will be put in contact with the appropriate 1 Source staff member. The employee will be subjected to the appropriate tele-triage diagnostic program. A treatment program and follow-up schedule will be developed based on the diagnostic information. All aspects of the injury and treatment plan will be reviewed with the employee. It will be confirmed and documented that the employee is agreeing to the Access Care Program Plan of Care. The employee will be given 1 Source's 24/7 contact information in case their medical condition changes. In addition, the employee will be informed that if they do seek medical treatment outside the direction of the employer or 1 Source it will be their fiscal responsibility.

1 Source will then review the plan of care with the supervisor. This will include any limitations that have been imposed. A report including the plan of care, limitations (if there are any) follow-up calls & anticipated MMI will be sent to the designated contacts.

- **Step #5:** As soon as it has been determined by 1 Source in conjunction with the employee and employer that the injured employee requires clinical-based medical attention, 1 Source will proceed with the following:
 - a) confirm the injured employee knows which clinic he/she is reporting to
 - b) confirm the employee has a copy of the injury cards (if needed)
 - c) 1 Source will create the authorization package and send it to the clinic
 - d) 1 Source will contact the clinic to review the case with the treating clinician
 - e) 1 Source will manage all aspects on the clinic-based injury care until the case is closed or if the assigned insurance adjuster indicates our participation is no longer required
- Note: 1 Source OHS must be informed of the injury prior to the injury being sent to the nearest medical clinic. Case management is critical in controlling your company's exposure. 1 Source will provide the clinic with all critical information including the "Authorization to Treat" form.

www.1sourceohs.com

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Appendix C Site Specific Hazards This page intentionally left blank.

SITE SPECIFIC PHYSICAL HAZARDS APPENDIX C

FORMER CLOSED LOOP FACILITY 1655 AND 1675 WATKINS ROAD COLUMBUS, OHIO

EnSafe Project Number: 0888823935/001

Prepared for:

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

September 2020

P.O. Box 24261 Cleveland, Ohio 44124 901-372-7962 | 800-588-7962 www.ensafe.com



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1.0 GENERAL

A hazard is any source of potential damage, harm or adverse health effects on something or someone. Basically, a hazard is the potential for harm or an adverse effect (for example, to people as health effects, to organizations as property or equipment losses, or to the environment).

1.1 Safety Hazards

Safety hazards are unsafe working conditions that can cause injury, illness, and death.

- Anything that can cause spills or trips such as cords running across the floor or ice.
- Anything that can cause falls such as working from heights, including ladders, scaffolds, roofs, or any elevated work area.
- Unguarded and moving machinery parts that a worker can accidentally touch.
- Electrical hazards like frayed cords, missing ground pins, and improper wiring.
- Confined spaces.

1.2 Biological Hazards

Biological hazards include exposure to harm or disease from working with animals, people, or infectious plant materials.

- Blood and other body fluids
- Fungi/mold
- Bacteria and viruses
- Plants
- Insect bites
- Animal and bird droppings

1.3 Physical Hazards

Physical hazards can be any factors within the environment that can harm the body without necessarily touching it.

• Radiation: including ionizing and non-ionizing (Electric and magnetic fields, microwaves, radio waves, etc.) materials

- High exposure to sunlight/ultraviolet rays
- Temperature extremes hot and cold
- Constant loud noise

1.4 Ergonomic Hazards

Ergonomic safety hazards occur when the type of work, body positions, and working conditions put a strain on your body.

- Improperly adjusted workstations and chairs
- Frequent lifting
- Poor posture
- Awkward movements, especially if they are repetitive
- Having to use too much force, especially if you have to do it frequently
- Excessive vibration

1.5 Chemical Hazards

Chemical hazards are present when a worker is exposed to any chemical preparation in the workplace in any form (solid, liquid, or gas).

- Liquids like cleaning products, paints, acids, solvents particularly if chemicals are in an unlabeled container
- Vapors and fumes that come from welding or exposure to solvents
- Gases like acetylene, propane, carbon monoxide and helium
- Flammable materials like gasoline, solvents, and explosive chemicals
- Pesticides

1.6 Construction Hazards

Workers in construction areas are often working in hazardous conditions. Below are some of the most common dangers found in a construction site.

Scaffolding

- Confined spaces
- Heavy equipment operation
- Fall protection (scope, application, definitions)
- Excavations (general requirements)
- Ladders
- Head protection
- Excavations (requirements for protective systems)
- Hazard communication
- Fall protection (training requirements)
- Hazardous Energy (lock out tag out)
- Electrical (wiring methods, design and protection)

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2.0 SITE SPECIFIC HAZARDS

2.1 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 HASP prohibits unauthorized entry into confined spaces, unless specifically approved by the EnSafe Corporate Health and Safety Manager.

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.

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 with P100 cartridge (or equivalent). See Attachment A for chemical safety data. Personal air monitoring shall be completed in accordance with Appendix C1, Air Monitoring. Additional PPE requirements are outlined in this HASP Appendix D and all personnel shall familiarize themselves with the appropriate health and safety responses for exposure to known onsite chemicals prior to beginning work at the site.

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 forklift, 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 U.S. EPA 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.

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 workday.

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.

Working Near Railroads — If 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.

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 onsite 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 multi-contact 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.

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 onsite (if such activities need to be completed, the contractor shall first consult with the HSC or SM so that an appropriate JHA can be prepared for the work activities);
- 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.

2.2 **Project Hazard Analysis**

The Project Hazard Analysis below identifies the hazards anticipated to be encountered by project.

Chemical Hazards Present:	K Flammable/combustible		
	Compressed gas		
		Highly Toxic	
	Organic peroxide		
	Water reactive	X Carcinogen	
	Unstable reactive		
□ None	Dust/Fumes/Particulates	Other:	
Physical Hazards Present:	🖾 Heat	Ionizing radiation	
	🖾 Cold	Non-ionizing radiation	
	Walking/working surfaces	Electricity	
	Visible Dust	Severe Weather	
	Traffic/Vehicles	Poor lighting	
	🖾 Noise	Overhead Hazards	
□ None	Other:		
Environmental/Mechanical	Heavy machinery/ Drill Rigs	Cranes/Hoists/Rigging	
Hazards Present:	Trenching/excavation	⊠ Ladders	
	Docks-marine operations	Scaffolding	
	Docks-loading	Manlifts	
		🛛 Gas cylinders	
	S Forklifts	Roadway work	
	Operations on Water	Railroad work	
	Elevated heights (includes fall protection)	Energized equipment (LO/TO)	
	Overhead/Underground utilities	Pressurized equipment (LO/TO)	
	Confined spaces	Drums and containers	
	Power tools	Others: Steam Cleaning	
□ None			
Biological Hazards Present:	Animal/human fluids or blood	Contaminated needles	
	Animal/human tissue(s)	Live bacterial cultures	
	Poisonous/irritating plants	Insects/rodents/snakes	
🛛 None	Other:	Other:	
Ergonomics Hazards Present:	Repetitive motion	Limited movement	
	Awkward position	Second Exertions	
	🖾 Heavy Lifting	Vibration	
□ None	Service 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:	

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 are summarized throughout this appendix, and summarized in Appendix C, Attachment 12 *Control Mechanisms*. Applicable JHAs for project tasks are included in Appendix G.

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 onsite;
- 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 1. 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 (Table 2). In this case, use the highest severity ranking of the tasks evaluated as the overall ranking.

Table 1 Hazard Summary				
The Hazard	Has No Severity	Has Minimal Severity	Has Moderate Severity	Has High Severity
Is Not Present (i.e., 0% of your onsite 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

Table 2 Task Hazard Summary and Controls			
Task Number(s) From Section 1.4	Hazards	Relative Hazard /Risk Rating*	Hazard Controls Appendix C15 and/or HASP Section
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Chemical	NA Low Medium High	B1
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Physical	NA Low Medium High	B2
NA	Railroad Safety	NA Low Medium High	B3
1, 2, 4, 7, 8, 9, 10, 11	Electrical Hazards/Safety	NA Low Medium High	B4
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Fire/Explosion	NA Low Medium High	B5
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Heat Stress	NA Low Medium High	B6
NA	Cold Stress	NA Low Medium High	B7
NA	Insects, Spiders, Snakes	NA Low Medium High	B8
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, 10, 11	Working Alone	NA Low Medium High	B11
NA	Severe Weather	NA Low Medium High	B12
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Material Handling / Ergonomics	NA Low Medium High	B13
1, 4, 5, 7, 8, 9, 10, 11	Power Tools	<mark>NA</mark> □ Low□ Medium⊠ High□	B14
1, 2, 4, 5, 6, 7, 8, 9, 10, 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

2.3 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 onsite areas other than the Support Zone.

2.4 Lead Exposure Medical Surveillance

In addition to the baseline medical examination requirements discussed above, 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 Z
- Standard 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 $30 \ \mu g/m^3$ TWA for more than 30 days each year. This program consists of periodic blood sampling and medical evaluation to be performed on a schedule 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 $30 \ \mu g/m^3$ must be tested prior to the individual starting work and then again at least every two months for the first 6months and every 6 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 µg/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 μ 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 μ 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.

2.5 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.

2.6 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.

2.7 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.

3.0 SITE SPECIFIC PROCESS HAZARDS

3.1 Phase I and II — Removal of Cathode Ray Tube Materials

The onsite 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 onsite 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 and1675 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.

3.2 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 g for JHAs applicable to project specific work activities and associated physical hazards, environmental hazards, and chemical hazards.

4.0 ADDITIONAL PLANS

Based on a risk assessment of project activities and on mandatory Occupational Safety and Health Administration (OSHA) compliance programs, the Health and Safety Plan shall address all applicable occupational risks and compliance plans. These plans shall also be acquired from any contractor/ sub-contractor working on this project.

Attach any guides, plans, programs, procedures (assessments and evaluations), (Attachment C-1 and C-2) may include but not be limited to:

- Public Health Hazards (e.g., COVID-19, Attachments C-3 to C-10)
- Bloodborne Pathogens
- Exposure Control
- Hearing Conservation
- Respiratory Protection Plan
- Process Safety Management Plan
- Indoor Air Quality
- Hazardous Energy Control
- Excavation and Trenching
- Cranes and Rigging
- Confined Space Entry Procedures
- Lead Compliance Plan
- Etc.

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5.0 HAZARD COMMUNICATION

5.1 Chemical Hazards General Overview

EnSafe Inc. is committed to preventing accidents and ensuring the safety and health of our employees. We will comply with all applicable federal and state health and safety rules. Under this program employees are informed of the contents of the Occupational Safety and Health Administration Hazard Communications Standard, the hazardous properties of chemicals with which they work, safe handling procedures and measures to take to protect themselves from these chemicals.

In order to ensure chemical safety in the workplace, information about the identities and hazards of the chemicals must be available and understandable to workers.

- **Hazard classification**: Provides specific criteria for classification of health and physical hazards, as well as classification of mixtures.
- **Labels**: Chemical manufacturers and importers will be required to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. Precautionary statements must also be provided that follow the Globally Harmonized System of Classification and Labeling of Chemicals. The Globally Harmonized System is a system for standardizing and harmonizing the classification and labeling of chemicals.
- Safety Data Sheets: The Hazard Communication Standard requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets) to communicate the hazards of hazardous chemical products. SDSs, if required for this project, are located in Attachment C-11.
- Information and training: EnSafe will provide all field personnel with appropriate training to the overall Hazard Communication information through initial and annual refresher Hazardous Waste Operations and Emergency Response training as per 29 Code of Federal Regulations (CFR) 1910.120 by also utilizing 29 CFR 1910 Subpart Z, and 29 CFR 1926 Subpart D.

The chemical hazards can be present in the form of liquids, solids, fumes/vapors, mists, and dusts on any project. It is imperative the project team fully understand the known and potentially present chemicals utilized at or nearby the project location. A list is attached below that identifies all hazardous chemicals with a potential for employee exposure at this workplace. Detailed information about the physical, health, and other hazards of each chemical is included in an SDS; the product identifier for each chemical on the list matches and can be easily cross-referenced with the product identifier on its label and on its SDS.

5.2 Training

Before workers start their jobs or are exposed to new hazardous chemicals, employees must attend a hazard communication training that covers the following topics:

- An overview of the requirements in Occupational Safety and Health Administration's Hazard Communication Standard.
- Hazardous chemicals present in their workplace.
- Any operations in their work area where hazardous chemicals are used.
- The location of the written hazard communication plan and where it may be reviewed.
- How to understand and use the information on labels and in SDSs.
- Physical and health hazards of the chemicals in their work areas.
- Methods used to detect the presence or release of hazardous chemicals in the work area.
- Steps we have taken to prevent or reduce exposure to these chemicals.
- How employees can protect themselves from exposure to these hazardous chemicals through use of engineering controls/work practices and personal protective equipment.
- An explanation of any special labeling present in the workplace.
 - What are pictograms?
 - What are the signal words?
 - What are the hazard statements?
 - What are the precautionary statements?
- Emergency procedures to follow if an employee is exposed to these chemical.

5.3 Chemical Hazards

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.

Container Labeling

All containers received onsite 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
 - "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.

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.

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 11 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 onsite 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 (μ g/m³), averaged over an 8-hour workday. The required OSHA PEL AL for lead in general industry and the construction industry is an airborne concentration of 30 μ g/m³, averaged over an 8-hour workday. 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 3 presents the affected media, known concentration, the PEL or Threshold Limit Value (TLV), and the Action Level for inorganic Lead. In addition, Table 4 contains specific hazardous property information for commonly encountered chemical hazards.

Table 3 Chemical of Concern										
Highest Measured Site Chemical Environmental Media ¹ Concentrations PEL/TLV										
Lood (Dh) increania		15,000 mg/kg (non-airborne solid)	FO	20						
Lead (PD), inorganic	A	220 mg/L (non-airborne TCLP)	50 µg/m ^o	30 µg/m ³						

Notes:

¹ Codes for environmental media: A=Air

 $\mu g/m^3$ = milligrams per cubic meter

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

				Table Hazardous Prope	e 4 rty Informatior	ı			
Check if Present	Material (CAS #)	Water Solubility ^a	Specific Gravity	Flash Point (°F)	Vapor Pressure ^d	LEL UEL	Cal/OSHA PEL — TWA ^f	IDLH Level ^h	Odor Threshold Geometric mean ⁱ (ppm)
			v	olatile Organic Co	mpounds (VOC	s)			
	Acetic acid (64-19-7)	Miscible	1.05	103	11 mm	4.0% 19.9%	10 ppm	50 ppm	0.074 (d)
	Acetone (67-64-1)	Miscible	0.79	0	180 mm	2.5% 12.8%	250 ppm	2,500 ppm	62 (d) 130 (r)
	Acrolein (107-02-8)	40%	0.84	-15	210 mm	2.8% 31%	C 0.1 ppm Skin	2 ppm	1.8 (d)
	Acrylonitrile (107-13-1)	7%	0.81	30	83 mm	3% 17%	2 ppm Skin	85 ppm Ca	1.6 (d)
	Benzene (71-43-2)	0.07%	0.88	12	75 mm	1.2% 7.8%	1 ppm Skin	500 ppm Ca	61 (d) 97 (r)
	Bromodichloro-methane (75-27-4)	4500 mg/l	1.98		50 mm	Non-flam	None established	None determined	
	Bromoform (75-25-2)	0.10%	2.89		5 mm	Non-flam	0.5 ppm Skin	850 ppm	1.3 ^j
	Bromomethane (74-83-9)	2%	1.73		1.9 atm	10% 16.0%	1 ppm Skin	250 ppm Ca	80 ^j
	Carbon Tetrachloride (56-23-5)	0.05%	1.59		91 mm	Non-flam	2 ppm Skin	200 ppm Ca	252 (d)
	Chlorobenzene (108-90-7)	0.05%	1.11	82	9 mm	1.3% 9.6%	10 ppm	1000 ppm	1.3 (d)
	2-Chloroethyl-vinyl Ether (110-75-8)	0.02%	1.05	61	27 mm		None established	None determined	
	Chloroethane (75-00-3)	0.60%	0.92	-58	1000 mm	3.8% 15.4%	100 ppm Skin	3800 ppm	4.2 ^j
	Chloroform (67-66-3)	0.50%	1.48		160 mm	Non-flam	2 ppm	500 ppm Ca	192 (d)
	Chloromethane (74-87-3)	0.50%	0.92		5 ATM	8.1% 17.4%	50 ppm	2000 ppm Ca	10 ^j
	Dibromo-chloromethane (124-48-1)	2700 mg/l	2.5		76 mm		None established	None Determined	
	Dibutyl phthalate (84-74-2)	0.001% (77ºF)	1.05	315	0.00007 mm	0.5%	5 mg/m ³	4,000 mg/m ³	
	1,2-Dichlorobenzene (95-50-1)	0.01%	1.3	151	1 mm	2.2% 9.2%	25 ppm Skin	200 ppm	
	1,1-Dichloroethane (75-34-3)	0.60%	1.18	2	182 mm	5.4% 11.40%	100 ppm	3,000 ppm	

Appendix C Site Specific Physical Hazards

				Table Hazardous Prope	e 4 rty Information)			
Check if Present	Material (CAS #)	Water Solubility ^a	Specific Gravity	Flash Point (°F)	Vapor Pressure ^d	LEL UEL	Cal/OSHA PEL — TWA ^f	IDLH Level ^h	Odor Threshold Geometric mean ⁱ (ppm)
	1,1-Dichloroethylene (DCE) (75-35-4)	0.04%	1.21	-2	500 mm	6.5% 15.5%	1 ppm	None determined	190 ^j
	1,2-Dichloroethane (107-06-2)	0.90%	1.24	56	64 mm	6.2% 16%	1 ppm	50 ppm Ca	26 (d) 87 (r)
	1,2-Dichloroethylene (540-59-0)	0.40%	1.27	36-39	180-265 mm	5.6% 12.8%	200 ppm	1,000 ppm	17 - 170 ^k
	1,2-Dichloropropane (78-87-5)	0.30%	1.16	60	40 mm	3.4% 14.5%	75 ppm	400 ppm Ca	0.26 (d) 0.52 (r)
	1,3-Dichloropropene (542-75-6)	0.20%	1.21	77	28 mm	5.3% 14.5%	1 ppm Skin	None Determined Ca	1 ^j
	Bis-(2-Ethylhexyl)-phthalate (DEHP) (117-81-7)	0.00%	0.99	420	<0.01 mm	0.3% 	5 mg/m³	5,000 mg/m ³ Ca	
	Diethyl phthalate (84-66-2)	0.10%	1.12	322	0.002 mm	0.7% 	5 mg/m ³	None Determined	
	Dinitrotoluene (DNT) (25321-14-6)	Insoluble	1.32	404	1 mm		0.15 mg/m ³ Skin	50 mg/m ³ Ca	
	Endrin (72-20-8)	Insoluble	1.7		0.00001 mm Low		0.1 mg/m ³ Skin	2 mg/m ³	
	Ethyl benzene (100-41-4)	0.01%	0.87	55	7 mm	0.8% 6.7%	100 ppm	800 ppm	2.3 ^j
	Hydrazine (302-01-2)	Miscible	1.01	99	10 mm	2.9% 98%	0.01 ppm Skin	50 ppm Ca	3.7 (d)
	Methyl ethyl ketone (MEK) (78-93-3)	28%	0.81	16	78 mm	1.4% 11.4%	200 ppm	3000 ppm	16 (d) 17 (r)
	Methyl tert-butyl ether (MTBE) (1634-04-4)	5.1 g/100ml	0.7	-18	245 mm	1.6% 8.4%	40 ppm	None determined	0.32 – 0.47mg/m ³¹
	Methylene chloride (75-09-2)	2%	1.33		350 mm	13% 23%	25 ppm	2,300 ppm Ca	160 (d) 230 (r)
	Phenol (108-95-2)	9% (77ºF)	1.06	175	0.4 mm	1.8% 8.6%	5 ppm Skin	250 ppm	0.06 (d)
	1,1,2,2-Tetrachloroethane (79-34-5)	0.30%	1.59		5 mm	Non-flam	1 ppm Skin	100ppm Ca	7.3 (d)
	Tetrachloroethylene (PCE) (127-18-4)	0.02%	1.62		14 mm	Non-flam	25 ppm	150 ppm Ca	47 (d) 71 (r)

Appendix C Site Specific Physical Hazards

				Table Hazardous Propei	e 4 rty Informatior	<u>ו</u>			
Check if Present	Material (CAS #)	Water Solubility ^a	Specific Gravity	Flash Point (°F)	Vapor Pressure ^d	LEL UEL	Cal/OSHA PEL — TWA ^f	IDLH Level ^h	Odor Threshold Geometric mean ⁱ (ppm)
	Toluene (108-88-3)	0.07% (74ºF)	0.87	40	21 mm	1.1% 7.1%	10 ppm Skin	500 ppm	1.6 (d) 11 (r)
	1,1,1-Trichloroethane (71-55-6)	0.40%	1.34		100 mm	7.5% 12.5%	350 ppm	700 ppm	390 (d) 710 (r)
	1,1,2-Trichloro-ethane (79-00-5)	0.40%	1.44		19 mm	6% 15.5%	10 ppm Skin	100 ppm Ca	
	1,2,4-Trichlorobenzene (120-82-1)	0.003%	1.45	222	1 mm	2.5% 6.6% (302 °F)	C 5 ppm	None Determined	3 ^j
	Trichloroethylene (TCE) (79-01-6)	0.1% (77ºF)	1.46		58 mm	8% 10.5%	25 ppm	1,000 ppm Ca	82 (d) 110 (r)
	Trichlorofluoromethane (75-69-4)	0.1% (75°F)	1.47		690 mm	Non-flam	C 1,000 ppm	2000 ppm	
	1,1,2-Trichloro-1,2,2- trifluoroethane (76-13-1)	0.02%	1.56		285 mm		1,000 ppm	2,000 ppm	
	1,2,4-Trimethylbenzene (95-63-6)	0.006%	0.88	112	1 mm	0.9% 6.4%	25 ppm	None determined	2.4 (d)
	Vinyl Chloride (75-01-4)	0.1% (77ºF)	0.91		3.3 atm	3.6% 33%	1 ppm Skin	None Determined Ca	
	Xylene (o, p, m, mix) (1330-20-7)	Slightly soluble	0.86-0.88	81-90	7-9 mm	0.9% 7%	100 ppm	900 ppm	20 (d) 40 (r)
				Meta	als				
	Aluminum metal and oxide (as Al)	b	2.7		0 mm	e	10 mg/m ³ (respirable)	None determined	
	Antimony (7440-36-0)	b	6.69		0 mm	e	0.5 mg/m ³	50 mg/m ³	
	Arsenic (inorganic compounds, as As)	b	5.73		0 mm	e	0.010mg/m ³	5 mg/m ³ Ca	
	Arsenic (organic compounds, as As)	Properties var	y depending u	upon the specific org	ganic arsenic con	npound.	0.2mg/m ³	None determined	
	Barium chloride (as Ba) (10361-37-2)	38%	3.86		low	Non-flam	0.5 mg/m ³	50 mg/m ³	
	Barium nitrate (as Ba) (10022-31-8)	9%	3.24		Low	e	0.5 mg/m ³	50 mg/m ³	
	Beryllium and compounds (as Be)	b	1.85		0 mm	e	0.0002 mg/m ³	4 mg/m ³ Ca	
	Cadmium dust (as Cd)	b	8.65			e	0.005 mg/m ³	9 mg/m ³ Ca	

Appendix C Site Specific Physical Hazards

				Table Hazardous Prope	e 4 ty Information	1			
Check if Present	Material (CAS #)	Water Solubility ^a	Specific Gravity	Flash Point (°F)	Vapor Pressure ^d	LEL UEL	Cal/OSHA PEL — TWA ^f	IDLH Level ^h	Odor Threshold Geometric mean ⁱ (ppm)
	Chromium (III) compounds (as Cr)	b	Properties	vary depending upo	on the specific co	mpound.	0.5 mg/m ³	25 mg/m ³	
	Cobalt metal dust and fume (as Co) (7440-48-4)	Insoluble	8.92	8.92		е	0.02 mg/m ³	20 mg/m ³	
	Copper dust and mist (as Cu)	b	8.94		0 mm	е	1 mg/m ³	100 mg/m ³	
\boxtimes	Lead	Insoluble	11.34		0 mm	е	0.05 mg/m ³	100 mg/m ³	
	Manganese, Fume and compounds (as Mn) (7439-96-5)	Insoluble	7.2		0 mm	Comb- ustible	0.2 mg/m ³	500 mg/m ³	
	Mercury compounds (as Hg) Except alkyl compound	b	13.6		0.0012 mm	е	0.025 mg/m ³ Skin	10 mg/m ³	
	Molybdenum (7439-98-7)	Insoluble	10.28		0 mm	Comb- ustible	10 mg/m ³ 3 mg/m ³ (resp.)	5,000 mg/m ³	
	Nickel and other compounds (as Ni)	Insoluble	8.9		0 mm	е	1 mg/m ³	10 mg/m ³ Ca	
	Selenium (7782-49-2)	Insoluble	4.28		0 mm	Comb- ustible	0.2 mg/m ³	1 mg/m ³	
	Silver, metal dust, and soluble compounds (as Ag)	b	10.49		0 mm	е	0.01 mg/m ³	10 mg/m ³	
	Thallium (soluble compounds, as Ti)	b	Properties	vary depending upo	on the specific co	mpound.	0.1 mg/m ³ Skin	15 mg/m ³	
	Vanadium pentoxide dust and Fume (1314-62-1)	0.8%	3.36		0 mm	е	0.05 mg/m ³ (Respirable)	35 mg/m ³	
	Zinc oxide (1314-13-2)	b	5.61		0 mm	e	5 mg/m ³	500 mg/m ³	
				Miscella	neous				
	Ammonia (7664-41-7)	34%			8.5 atm	15% 28%	25 ppm	300 ppm	17 (d)
	Asbestos (1332-21-4)	Insoluble			0 mm	Non-flam	0.1 fibers/cc	None determined	
	Chromic Acid and chromates (1333-82-0)	63%	2.7		Very low	Non-flam	0.005 mg/m ³	15 mg/m ³ Ca	
	Cyanide (as CN)					Non-flam	5 mg/m ³ Skin		

		Table 4										
				Hazardous Prope	rty Information	n						
Check if Present	Material (CAS #)	Water Solubility ^a	Specific Gravity	Flash Point (°F)	Vapor Pressure ^d	LEL UEL	Cal/OSHA PEL — TWA ^f	IDLH Level ^h	Odor Threshold Geometric mean ⁱ (ppm)			
	DDT (50-29-3)	Insoluble	0.99	162-171	0.0000002 mm		1 mg/m ³ Skin	500 mg/m ³ Ca				
	Diesel Fuel #2 (68476-34-6)	Insoluble	0.81-0.90	130		0.6-1.3 6-7.5	None established	None determined				
	Fluorides, as F						2.5 mg/m ³	None determined				
	Gasoline (8006-61-9)	Insoluble	0.72-0.76	-45	38-300 mm	1.4% 7.6%	300 ppm	Ca None determined				
	Kerosene (8008-20-6)	Insoluble	0.81	100-162	5 (100°F)	0.7% 5.0%	200 mg/m ^{3g} Skin	None determined				
	Naphthalene (91-20-3)	0.003%	1.15	174	0.08 mm	0.9% 5.9%	10 ppm	250 ppm	0.038 (d)			
	PCB (42% chlorine) (53469-21-9)	Insoluble	1.39		0.001 mm	Non-flam	1 mg/m³ Skin	5 mg/m ³ Ca				
	PCB (54% chlorine) (11097-69-1)	Insoluble	1.38		0.00006 mm	Non-flam	0.5 mg/m ³ Skin	5 mg/m ³ Ca				
	Phosphorus (yellow) (7723-14-0)	0.0003%	1.82		0.03 mm		0.1 mg/m ³	5 mg/m ³				
	Polycyclic Aromatic Hydrocarbons (PAH)	Prope		0.2 mg/m ³	80 mg/m ³ Ca							
SITE-SPECIFI	C SUBSTANCES	w substances that	are of concorr	at the site but are	not listed above	\ \						

Notes:

- ^a 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.
- ^e 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.
- ^h The substances with a "Ca" notation in the IDLH column are considered to be potential occupational carcinogens by NIOSH.
- ¹ 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.

- ^j Values extracted from the U.S. Environmental Protection Agency Technology Transfer Network, Air Toxics website. URL: www.epa.gov/ttn/atw/, 2006
- ^k 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
- ¹ 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
- NIOSH = National Institute for Occupational Safety and Health
- TLV = Threshold limit value
- = Lower explosive limit LEL
- = Chemical Abstract Service CAS
- milligrams per liter mg/l =
- ml = milliliter
- mm = millimeter
- Hg mercury =
- atmosphere atm = --
- = No applicable value = Upper explosive limit
- UEL
- CAL/OSHA = California Occ
- PEL Permissible Exposure Limit = TWA Time-weighted Average
- = parts per million
- ppm =
- mg/m³ milligrams per cubic meter =
- = cubic centimeter СС
- = Immediately Dangerous to Health or Life IDHL
- American Conference of Governmental Industrial Hygienist ACGIH =
- VOCs = Volatile Organic Compounds

5.4 Safety Data Sheets

List SDS of any chemical planned to be used onsite and in Attachment C-11.

1. Simple Green

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6.0 COMMON HAZARDS TO THE WORKPLACE

6.1 Slips Trips and Falls

Workers are always required to walk as running greatly increases the probability of slips, trips, and falls. Hazards such as uneven terrain, curbs, deteriorating foundations, tangled vegetation within the wetlands, and fallen branches can result in an incident if not identified and controlled. Avoiding these areas may not be possible based on the need to access certain areas. To reduce the risk, workers must have proper footwear (e.g., work boots, rubber boots, and waders), continually scan the area while walking, face the direction of travel, and avoid distractions.

6.2 Underground Utilities

The Project Manager (or designated representative) shall contact the required state, county, or local utility companies to locate all underground utilities before conducting any invasive activities. All underground utility markers will be maintained throughout the length of the project and exercise extreme caution when digging around all utilities. Specifically, the Project Manager shall utilize the *EnSafe Subsurface Utility Checklist* (Appendix G) to document the subsurface utility location activities.

6.3 Dust Control

EnSafe will implement appropriate procedures to control the generation of airborne dusts during soil excavation activities. Dust control measures will be implemented under the direction and supervision of the SSHO. Such procedures will include but will not be limited to the following:

- Spraying soil with water prior to daily work and during excavation.
- Covering any soil stockpiles or open excavation areas with plastic as needed.
- Restricting or stopping soil excavation and/or loading activities in times of very high winds, and visible offsite migration of dust particulate.

If engineering controls are ineffective, the SSHO will determine what personal protective equipment will be required. Examples of personal protective equipment that may be required are:

- 1. Goggles
- 2. Respiratory Protection (Dust Mask)
- 3. Disposable outer wear (Tyvek suit)
- 4. Gloves

Workers must follow good hygiene practices including the rinsing of exposed skin areas.

6.4 Ergonomic Injuries

Musculoskeletal disorders (MSDs) affect the muscles, nerves, blood vessels, ligaments, and tendons. Workers in many different industries and occupations can be exposed to risk factors at work, such as lifting heavy items, bending, reaching overhead, pushing, and pulling heavy loads, working in awkward body postures, and performing the same or similar tasks repetitively. Exposure to these known risk factors for MSDs increases a worker's risk of injury.

The risk of MSD injury depends on work positions and postures, how often the task is performed, the level of required effort and how long the task lasts. Risk factors that may lead to the development of MSDs include:

- Exerting excessive force. Examples include lifting heavy objects or people, pushing or pulling heavy loads, manually pouring materials, or maintaining control of equipment or tools.
- Performing the same or similar tasks repetitively. Performing the same motion or series of motions continually or frequently for an extended period of time.
- Working in awkward postures or being in the same posture for long periods of time. Using positions that place stress on the body, such as prolonged or repetitive reaching above shoulder height, kneeling, squatting, leaning over a counter, using a knife with wrists bent, or twisting the torso while lifting.
- Localized pressure into the body part. Pressing the body or part of the body (such as the hand) against hard or sharp edges or using the hand as a hammer.
- Cold temperatures. In combination with any one of the above risk factors may also increase the potential for MSDs to develop. For example, many of the operations in meatpacking and poultry processing occur with a chilled product or in a cold environment.
- Vibration, both whole body and hand-arm, can cause a number of health effects. Hand-arm vibration can damage small capillaries that supply nutrients and can make hand tools more difficult to control. Hand-arm vibration may cause a worker to lose feeling in the hands and arms resulting in increased force exertion to control hand-powered tools (e.g., hammer drills, portable grinders, chainsaws) in much the same way gloves limit feeling in the hands.

The effects of vibration can damage the body and greatly increase the force which must be exerted for a task.

• Combined exposure to several risk factors. May place workers at a higher risk for MSDs than does exposure to any one risk factor.

To reduce the chance of injury, work tasks should be designed to limit exposure to ergonomic risk factors. Engineering controls are the most desirable, where possible. Administrative or work practice controls may be appropriate in some cases where engineering controls cannot be implemented or when different procedures are needed after implementation of the new engineering controls. Personal protection solutions have only limited effectiveness when dealing with ergonomic hazards.¹

Type of Control	Workplace Examples
Engineering Controls (implement physical change to the workplace, which eliminates/reduces the hazard on the job/task)	 Use a device to lift and reposition heavy objects to limit force exertion Reduce the weight of a load to limit force exertion Reposition a work table to eliminate a long/excessive reach and enable working in neutral postures Use diverging conveyors off a main line so that tasks are less repetitive Install diverters on conveyors to direct materials toward the worker to eliminate excessive leaning or reaching Redesign tools to enable neutral postures
Administrative and Work Practice Controls (establish efficient processes or procedures)	 Require that heavy loads are only lifted by two people to limit force exertion Establish systems so workers are rotated away from tasks to minimize the duration of continual exertion, repetitive motions, and awkward postures. Design a job rotation system in which employees rotate between jobs that use different muscle groups Staff "floaters" to provide periodic breaks between scheduled breaks Properly use and maintain pneumatic and power tools
Personal Protective Equipment (use protection to reduce exposure to ergonomics-related risk factors)	 Use padding to reduce direct contact with hard, sharp, or vibrating surfaces Wear good fitting thermal gloves to help with cold conditions while maintaining the ability to grasp items easily

6.5 Environmental Hazards (Weather/Climate)

The Site Safety and Health Officer (SSHO) will evaluate the expected weather and air temperatures for the day before arriving at the Site. Below are common weather hazards in the workplace.

6.6 Cold Stress

Workers who are exposed to extreme cold or work in cold environments may be at risk of cold stress. Extreme cold weather is a dangerous situation that can bring on health emergencies in susceptible people, such as those without shelter, outdoor workers, and those who work in an area that is poorly insulated or without heat. What constitutes cold stress and its effects can vary across different areas

¹ https://www.osha.gov/SLTC/ergonomics/controlhazards.html

of the country. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered factors for cold stress. Whenever temperatures drop decidedly below normal and as wind speed increases, heat can more rapidly leave your body. These weather-related conditions may lead to serious health problems.

National Weather Service Wind Chill Calculator: With this tool, one may input the air temperature and wind speed, and it will calculate the wind chill temperature. Outdoor workers exposed to cold and windy conditions are at risk of cold stress, both air temperature and wind speed affect how cold they feel. Wind Chill is the term used to describe the rate of heat loss from the human body, resulting from the combined effect of low air temperature, and wind speed. The Wind Chill Temperature is a single value that takes both air temperature, and wind speed into account. For example, when the air temperature is 40°F, and the wind speed is 35 miles per hour, the wind chill temperature is 28°F; this measurement is the actual effect of the environmental cold on the exposed skin. This tool can be found at: https://www.weather.gov/epz/wxcalc_windchill.²

The American Conference of Governmental Industrial Hygienists (ACGIH) developed the following Work/Warm-up Schedule for a 4-Hour Shift takes both air temperature and wind speed into account, to provide recommendations on scheduling work breaks and ceasing non-emergency work.

Air Temperature	Sunny Sky	No Noticeab	le Wind	5 mph	Wind	10 mph	Wind	15 mph	15 mph Wind		h Wind
^o C (approximate)	⁰ F (approxi mate)	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks
-26 to -28	-15 to - 19	(Normal Bre	eaks) 1	(Normal E	Breaks) 1	75 min	2	55 min	3	40 min	4
-29 to -31	-20 to - 24	(Normal Bre	eaks) 1	75 min	2	55 min	3	40 min	4	30 min	5
-32 to -34	-25 to - 29	75 min	2	55 min	3	40 min	4	30 min	5	Non-emerg should	gency work
-35 to -37	-30 to - 34	55 min	3	40 min	4	30 min	5	Non-emerg should	Non-emergency work should cease		
-38 to -39	-35 to - 39	40 min	4	30 min	5	Non-emerg should	ency work cease				
-40 to -42	-40 to - 44	30 min	5	Non-emerg should	gency work I cease						
-13 & below	-45 &	Non-emerger	ncy work						Ļ		-

Work/Warm-up Schedule for a 4-Hour Shift

Schedule applies to any 4-hour work period with moderate to heavy work activity; with warm-up periods of ten (10) minutes in a warm location and with an extended break (e.g. lunch) at the end of the 4-hour work period in a warm location.

² https://www.osha.gov/dts/weather/winter_weather/windchill.html

6.7 Types of Cold Stress Immersion/Trench Foot

Trench foot is a non-freezing injury of the feet caused by prolonged exposure to wet and cold conditions. It can occur in temperatures as high as 60 degrees Fahrenheit (°F) if feet are constantly wet. Injury occurs because wet feet lose heat 25-times faster than dry feet³.

The symptoms of trench foot include reddening skin, tingling, pain, swelling, leg cramps, numbness, and blisters.

First Aid

- Call 911 immediately in an emergency; otherwise seek medical assistance as soon as possible
- Remove wet shoes/boots and wet socks
- Dry the feet and avoid walking on them
- Keep affected feet elevated and avoid walking; get medical attention

Frostbite

Frostbite is caused by the freezing of the skin and tissues. Frostbite can cause permanent damage to the body, and in severe cases can lead to amputation. The risk of frostbite is increased in people with reduced blood circulation and among people who are not dressed properly for extremely cold temperatures.

What are the symptoms of frostbite?

Reddened skin develops gray/white patches in the fingers, toes, nose, or ear lobes; tingling, aching, a loss of feeling, firm/hard, and blisters may occur in the affected areas.

First Aid

- Follow the recommendations described below for hypothermia
- Protect the frostbitten area, (e.g., by wrapping loosely in a dry cloth and protect the area from contact until medical help arrives)
- DO NOT rub the affected area, because rubbing causes damage to the skin and tissue
- Do not apply snow or water. Do not break blisters

³ https://www.cdc.gov/niosh/topics/coldstress/coldrelatedillnesses.html

- DO NOT try to re-warm the frostbitten area before getting medical help, for example, do not use heating pads or place in warm water. If a frostbitten area is rewarmed and gets frozen again, more tissue damage will occur. It is safer for the frostbitten area to be rewarmed by medical professionals.
- Give warm sweetened drinks if alert (no alcohol)

Hypothermia

Hypothermia occurs when the normal body temperature (98.6°F) drops to less than 95°F. Exposure to cold temperatures causes the body to lose heat faster than it can be produced. Prolonged exposure to cold will eventually use up the body's stored energy. The result is hypothermia, or abnormally low body temperature. Hypothermia is most likely at very cold temperatures, but it can occur even at cool temperatures (above 40°F) if a person becomes chilled from rain, sweat, or immersion in cold water.

What are the symptoms of hypothermia?

An important mild symptom of hypothermia is uncontrollable shivering, which should not be ignored. Although shivering indicates that the body is losing heat, it also helps the body to rewarm itself. Moderate to severe symptoms of hypothermia are loss of coordination, confusion, slurred speech, heart rate/breathing slow, unconsciousness and possibly death. Body temperature that is too low affects the brain, making the worker unable to think clearly or move well. This makes hypothermia particularly dangerous because a person may not know what is happening and won't be able to do anything about it.

First Aid

Call 911 immediately in an emergency.

- Move the worker to a warm, dry area.
- Remove any wet clothing and replace with dry clothing. Wrap the entire body (including the head and neck) in layers of blankets; and with a vapor barrier (e.g., tarp, garbage bag). Do not cover the face.
- If medical help is more than 30 minutes away:
 - Give warm sweetened drinks if alert (no alcohol), to help increase the body temperature. Never try to give a drink to an unconscious person.

 Place warm bottles or hot packs in armpits, sides of chest, and groin. Call 911 for additional rewarming instructions.

Heat Stress

Heat stress is a major hazard, especially for workers wearing protective clothing. The same protective materials that shield the body from chemical exposure also limit the dissipation of body heat and moisture. Personal protective clothing can therefore create a hazardous condition. Depending on the ambient conditions and the work being performed, heat stress can occur very rapidly — within as little as 15 minutes. It can pose as great a danger to worker health as chemical exposure. In its early stages, heat stress can cause rashes, cramps, discomfort, and drowsiness, resulting in impaired functional ability that threatens the safety of both the individual and coworkers. Continued heat stress can lead to heat stroke and death. Avoiding overprotection, careful training, and frequent monitoring of workers who wear protective clothing, judicious 2-6 hours scheduling of work and rest periods, and frequent replacement of fluids can protect against this hazard.

Heat-related fatality cases show that workplaces with temperatures above 70°F may have a heat hazard present when work activities are at or above a moderate workload. Assessing worker exposure in conditions that may present a heat hazard is critical for knowing when to implement a heat-related illness prevention program.

A heat-related illness occurs when there is an increase in the worker's core body temperature above healthy levels. As core temperature rises, the body is less able to perform normal functions. As core temperature continues to increase, the body releases inflammatory agents associated with damage to the liver and muscles. This process may become self-sustaining and generate a run-away inflammatory response, the "systemic inflammatory response" syndrome that often leads to death.

The SSHO shall consider the following for work schedules and the work being performed:

- **Number and Duration of Exposures:** Rather than be exposed to heat for extended periods of time during the course of a job, workers should, wherever possible, be permitted to distribute the workload evenly over the day and incorporate work-rest cycles.
- Scheduling/Work Rotation: When possible, do the most demanding tasks in cooler parts of the day, morning, and evening. Also, begin work shifts earlier in the day, or start later in the afternoon. Labor-intensive tasks may be spread out over a greater number of days. Use less intensive tasks to fill in the rest of the day.

- **Rest Areas:** Providing cool rest areas in hot work environments considerably reduces the stress of working there. Shaded or air-conditioned areas should be as close to the work area as possible. Individual work periods should not be lengthened in favor of prolonged rest periods. Shorter but frequent work-rest cycles benefit the worker most.
- **Drinking Water:** In the course of a day a worker may produce as much as 2 to 3 gallons of sweat. Because so many heat disorders involve excessive dehydration of the body, it is essential that water intake be about equal to the amount of sweat produced. Most workers exposed to hot conditions drink less fluid than needed due to an insufficient thirst drive.

Definitions

- **Heat Stress** The net heat load to which a worker is exposed. Physical exertion, environmental factors, and clothing worn all contribute to heat stress.
- Heat Strain The body's physiological response to heat stress (e.g., sweating). The body's natural way to keep the core body temperature from rising to unhealthy levels is through an increase in heart rate and sweating. When these are not enough to keep the core body temperature from rising, the result is heat-related illness or death. Elevated core body temperatures may cause the following illnesses:
 - Heat Stroke
 - Heat Exhaustion
 - Heat Cramps
 - Heat Syncope
 - Heat Rash
 - Rhabdomyolysis
- Heat Stroke is the most serious heat-related illness and should be treated as a medical emergency. Heat stroke occurs when the body becomes unable to adequately dissipate heat, losing the ability to regulate core body temperature. The core body temperature rises rapidly, the sweating mechanism may fail, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 41 degrees Celsius (°C) (106°F) or higher within 10 to 15 minutes. Thinking clearly, perception, planning, and other mental processes become impaired, and the worker may be unable to recognize dangerous situations. Heat stroke can cause death or permanent disability if emergency medical treatment is not given. Symptoms include confusion, clumsiness, slurred speech, fainting/unconsciousness, hot dry skin, profuse sweating, seizures, and high body temperature.

- **Heat Exhaustion** is often a precursor to heat stroke. It is often accompanied by elevated core body temperatures around 38°C 39°C (100.4°F 102.2°F). Symptoms may include headache, nausea, dizziness, fatigue, weakness, thirst, heavy sweating, irritability, and a decreased urine output.
- Heat Cramps are caused by the body's depleted salt and water levels from excessive sweating resulting in muscle cramps or spasms. They usually occur in the muscles used during work. The symptoms include spastic contractions and pain in voluntary muscles mainly in the arms, legs, or torso.
- **Heat Syncope** usually occurs after prolonged standing or sudden rising from a sitting or supine position. Heat syncope symptoms include light-headedness, dizziness, and fainting. Dehydration and inadequate acclimatization often contribute to heat syncope.
- Heat Rash is skin irritation caused by excessive sweating. Excessive moisture and sweat obstructs sweat ducts and forms itchy and painful red pimple/blister clusters and skin lesions. It is exacerbated in hot and humid weather and common on the neck, chest, groin, armpits, elbow creases, and behind the knees.
- **Rhabdomyolysis** is a medical condition, sometimes caused by heat stress and prolonged physical exertion, in which muscle fibers rapidly break down, die, and release electrolytes and proteins into the bloodstream. Left untreated, this can lead to kidney damage, seizures, irregular heart rhythms, and death. Symptoms include muscle cramps, muscle pain, dark urine, weakness, inability, or decreased ability to perform physical exercise at the normally expected level or duration (i.e., exercise intolerance), and joint pain/stiffness.

Rhabdomyolysis is usually diagnosed when hospitalized using a test that measures elevated levels of a muscle protein called creatine kinase in the blood, abbreviated CK or CPK.

Heat Index

The heat index can be used to help determine the risk of heat-related illness for outdoor workers, what actions are needed to protect workers, and when those actions are triggered. Depending on the heat index value, the risk for heat-related illness can range from lower to very high to extreme. As the heat index value goes up, more preventive measures are needed to protect workers. Heat index values are divided into four bands associated with four risk levels. These bands differ

from those appearing in the National Oceanic and Atmospheric Administration (NOAA) Heat Index chart, which was developed for the public. The NOAA bands have been modified for use at worksites.

		n	•	2	î	Γ	n	ſ	()	77
HOW TO USE	Air Temp. Belative	70 [°]	75 [°]	80°	85 [°]	90°	95 [°]	100°	105 [°]	110°
HEAT INDEA.	Humidity	Appare	nt Tempe	rature @	egrees Fa	hrenheit)	-			-
Across top (Air temperature) locate today's predicted high	0%	64°	69°	73 [°]	78 [°]	83°	87°	91°	95 [°]	99°
temperature.	10%	65°	70°	75°	80°	85°	90°	95°	100°	105°
Down left side (Relative	20%	66°	72°	77°	82°	87°	93 [°]	99°	105°	112°
Humidity) locate today's	30%	67°	73 [°]	78°	84°	90°	96°	104°	113°	123°
predicted numbury.	40%	68°	74°	79°	86°	93 [°]	/101°	110°	122°	137°
Follow across and down to find "APPARENT TEMPERATURE" or	50 %	69°	75°	81°	88°	96 [°]	107°	120 [°]	135 [°]	150 [°]
"WHAT IT FEELS LIKE".	60%	70 [°]	76 [°]	82°	90°	100 [°]	114°	132 [°]	149 [°]	
Heat Index Values were devised for	70%	70°	77°	85°	93 [°]	/106°	124°	144°		
shady, light wind conditions. Exposure to full sun can increase values by up to	80%	71°	78°	86°	97 [°]	113°	136 [°]	157°		
15°. Strong winds, particularly with hot,	90%	71°	79 [°]	88°	/102°	122°	150°	170°		
dry an can be externely hazardous.	100%	72°	80°	91°	108 [°]	133 [°]	166 [°]			

Important consideration: NOAA devised the heat index values for shaded conditions and light winds. Full sunshine can increase heat index values by up to 15°F. Strenuous work and the use of heavy or specialized protective clothing also have an additive effect. As a result, the risk at a specific heat index could be higher than that listed in Table 5 if the work is in direct sunlight without a light breeze, or if work involves strenuous tasks or the use of heavy or specialized protective clothing. Extra measures, including implementing precautions at the next risk level, are necessary under these circumstances.

	Table 5 Heat Index Action Levels								
Heat Index	Risk Level	Protective Measures							
Less than 91°F	Lower (Caution)	Basic heat safety and planning							
91°F to 103°F	Moderate	Implement precautions and heighten awareness							
103°F to 115°F	High	Additional precautions to protect workers							
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures							

Heat Hazard Assessment

Environmental factors (e.g., humidity, wind, temperature, and radiant heat), clothing, and workload (i.e., metabolic rate) are considered when determining if there is a heat hazard present in an indoor or outdoor workplace. After the Wet Bulb Globe Temperature (WBGT) is measured, clothing adjustment factor added, and workload translated into metabolic rate; use the ACGIH Threshold Limit Value (TLV) and Heat Index Action Levels (Table 5) to determine the risk for exposure to heat stress above the action level for un-acclimatized workers or the TLV for acclimatized workers.

Step 1: Determine WetBulb Globe Temperature

A WBGT meter (see Figure 1 and Figure 2 below) is the most accurate tool for adjusting the temperature for heat stress factors including humidity, air movement (i.e., wind), radiant heat, and temperature. If a WBGT meter is not available or if the assessment is for hazards that may have been present in the past (e.g., heat hazard determination after a heat incident), the Argonne National Laboratory calculator uses an algorithm to adjust the temperature for heat stress factors using weather data available online.



Figure 1 Quest Wet Bulb Globe Temperature Meter with Natural Wet-Bulb Sensor



Figure 2 Quest Waterless Wet-Bulb Meter

An effective heat-related illness prevention program will describe the employer's policy for when and how often in the workday to measure WBGT. National Institute for Occupational Safety and Health recommends, in the 2016 Criteria for a Recommended Standard, taking environmental heat measurements at least hourly, during the hottest portion of each work shift, during the hottest months of the year, and when a heat wave occurs or is predicted.

WBGT measurements are most reliable when taken at, or as close as possible to, the work area. When a worker moves between two or more areas with different environmental conditions, or when the conditions vary substantially in the work area, assess the heat hazard using representative measurements for the different conditions.

Step 1 Option A: Using a WetBulb Globe Temperature Meter

WBGT meters have three sensors that input data into a calculation that adjusts the temperature to represent the impact humidity, wind, and radiant heat have on heat strain cooling effectiveness.

Dry-bulb thermometer: Thermometer that measures temperature without impact from other factors.

Natural (static) Wet-Bulb Thermometer: Wetted thermometer used to measure sweat's effectiveness in cooling the body. It represents increased sweat evaporation potential when wind speed increases and decreased sweat evaporation potential when there is more moisture in the air.

Black Globe Thermometer: Thermometer with hollow copper sphere painted on the outside with a matte black finish to measure the radiant energy from direct sunlight or other sources (e.g., machinery and hot structures near the workplace).

Some meters will also measure WBGT without the need to wet a bulb to determine wind and humidity adjustments (see Figure 2.). The waterless wet-bulb meter is a tested and validated alternative to the traditional natural wet-bulb sensor. The meter uses a mathematical model to determine the waterless wet-bulb calculation through a combination of dry-bulb temperature, globe temperature, relative humidity, and air flow sensors.⁴

Step 1 Option B: Calculating WetBulb Globe Temperature Using Weather Data

Check with the National Weather Service⁵ to get the current or predicted heat index values and see a map of areas under excessive heat warning across the United States. The heat index has also announced by television and radio stations as part of the local weather. Monitor weather reports daily to remain prepared for high heat index levels. Use OSHA's Heat Smartphone App⁶ to check the heat index for your worksite and see reminders about the protective measures for the specified risk level.

An online experimental calculator is available at https://www.weather.gov/arx/wbgt and is summarized in Table 6. The WBGT is an indicator of heat related stress on the human body at work (or play) in direct sunlight. It takes into account multiple atmospheric variables, including temperature, humidity, wind speed, sun angle, and cloud cover.

	Table 6 Suggested Actions and Impact Prevention ⁷											
WBGT(F)	Effects	Precautionary Actions										
< 80												
80-85	Working or exercising in direct sunlight will stress your body after 45 minutes.	Take at least 15 minutes of breaks each hour if working or exercising in direct sunlight										
85-88	Working or exercising in direct sunlight will stress your body after 30 minutes.	Take at least 30 minutes of breaks each hour if working or exercising in direct sunlight										
88-90	Working or exercising in direct sunlight will stress your body after 20 minutes.	Take at least 40 minutes of breaks each hour if working or exercising in direct sunlight										
>90	Working or exercising in direct sunlight will stress your body after 15 minutes.	Take at least 45 minutes of breaks each hour if working or exercising in direct sunlight										

Notes:

WBGT = Wet Bulb Globe Temperature

= Fahrenheit

⁴ OSHA Technical Manual (OTM) https://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_4.html

⁵ https://www.weather.gov/

⁶ https://www.osha.gov/SLTC/heatillness/heat_index/heat_app.html

⁷ https://www.weather.gov/tsa/wbgt

6.8 Suggested Actions and Impact Prevention

The ACGIH publication "2020 TLVs® and BEIs®" (or the most current booklet) provides recommended screening criteria for heat stress exposure for workers (Table 7). This publication and the "Documentation of TLVs® and BEIs®" should be consulted for more detailed information on these screening criteria, categories of work demands, guidelines for limiting heat strain, and heat strain management.

	Table 7 Recommended Screening Criteria for Heat Stress Exposure for Workers											
Allocation of Work in		TLV (WBGT va	alues in °F)		Act	Action Limit (WBGT values in °F)						
a Cycle of Work and Recovery	Light	Moderate	Heavy	Very Heavy	Light	Moderate	Heavy	Very Heavy				
75 to 100%	87.8	82.4	—	—	82.4	77.0	—	_				
50 to 75%	87.8	84.2	81,5	—	83.3	78.8	93.2	_				
25 to 50%	89.6	86.0	84.2	82.4	84.2	80.6	77.9	76.1				
0 to 25%	90.5	88.7	86.9	86.0	86.0	84.2	82.4	80.6				

Notes:

WBGT = Wet Bulb Globe Temperature

TLV **Threshold Limit Value** = °F

degrees Fahrenheit =

Permissible Heat Exposure Threshold Limit Values based on WBGT Measurements	Workload		
Work/Rest Regimen	Light	Moderate	Heavy
75% to 100% Work	87.8°F	82.4°F	—
50% to 75% Work	87.8°F	84.2°F	81.5°F
25% to 50% Work	89.6°F	86°F	84.2°F
0% to 25% Work	90.5°F	88.7°F	86.9°F

Notes:

WBGT = Wet Bulb Globe Temperature

°F degrees Fahrenheit

These figures are the maximum allowable levels permitted.

TLVs assume that nearly all workers are acclimatized, fully clothed with adequate water and salt intake.

TLVs are to be applied to physically fit and acclimatized individuals wearing light summer clothing. If heavier clothing that impedes sweat evaporation then a correction factor must be applied. For double layered clothing, add 37.4°F, for polypropylene coverall add 32.9°F, for limited-use vapor-barrier coveralls add 51.8°F. (Table 9)

The ACGIH exposure limits are intended to protect most workers from heat-related illnesses. The limits are higher than they would have been if they had been developed to prevent discomfort. If you are wearing heavier clothing, then the exposure limit should be lowered. ACGIH recommendations for such situations are suggested in Tables 8 and 9.

Table 8 Recommended Heat Stress Workload Action Levels				
Action Level used as a screening tool to determine if heat stress could exist. Not intended to set work/rest regimen, see table above for required work/rest regimens.	Workload			
Work/Rest Regimen	Light	Moderate	Heavy	
75% to 100% Work	82.4°F	77°F	—	
50% to 75% Work	83.3°F	78.8°F	75.2°F	
25% to 50% Work	85.1°F	80.6	77.9°F	
00/ 1 050/ 14/ 1	0/ 0°F	04.2%	02.4%5	

Notes:

These figures are action levels which may indicate a need for more frequent monitoring and or implementation of control measures. Assumes 8-hour workdays in a 5-day workweek with conventional breaks.

TLVs assume that workers exposed to these conditions are adequately hydrated, are not taking medication, are wearing lightweight clothing, and are in generally good health.

Rest Regimen — sitting (quietly or with moderate arm movements)

Light work — sitting or standing to control machines; performing light hand or arm work (e.g., using a table saw); occasional walking; driving

Moderate work — walking about with moderate lifting and pushing or pulling; walking at moderate pace; e.g., scrubbing in a standing position

Heavy work — pick and shovel work, digging, carrying, pushing/pulling heavy loads; walking at fast pace; e.g., carpenter sawing by hand **Very Heavy** — very intense activity at fast to maximum pace; e.g., shoveling wet sand

Adapted from: 2020 TLVs and BEIs — Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists (ACGIH), 2020.

°F = degrees Fahrenheit

Table 9 Correction of Threshold Limit Value for Clothing (Values cannot be added when wearing multiple layers)				
Clothing Type	WBGT Correction (°F)			
Work clothes (long sleeve shirt and pants)	32			
Cloth (woven material) coveralls	32			
SMS (Spunbonded — Meltdown — Spunbonded) polypropylene coveralls	+ 32.9			
Polyolefin coveralls	+ 33.8			
Double-layer woven clothing	+ 37.4			
Limited-use vapor-barrier coveralls	+ 51.8			

Notes:

These values are not to be used for completely encapsulating suits. Coveralls assume only modest clothing is underneath, not a second layer of clothing.

For example, an acclimatized worker wearing double-layer woven clothing doing moderate work would have a corrected exposure level of 80.6 + 37.4 = 118°F, which would lower his or her allowable exposure to 0-25% work (from 25-50% work)

Adopted from: 2020 TLVs and BEIs: Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati, Ohio: American Conference of Governmental Industrial Hygienists, 2020.

°F = degrees Fahrenheit

WBGT = Wet Bulb Globe Temperature

Care should be taken to provide adequate hydration supplies (water and electrolyte replacement) for all Sites. Team members should observe each other and watch for the onset of heat related illnesses.

The use of tents (shade), and air conditioning (field trucks), or fans should be used to help mitigate the risk of heat injury or illness. In addition, a schedule of electrolyte replacement and water shall be implemented. Sunscreen shall be used to combat ultraviolet rays and sun burn.

- Water. Rest. Shade. Employers should encourage workers to drink water every 15 minutes, and take frequent rest breaks in shaded or air-conditioned areas;
- New and temporary workers are most at risk to the hazards of excessive heat. Monitor new employees and offer them extra protections from elevated heat conditions until they are fully acclimatized. Create a plan to protect new workers from heat illness;
- Strenuous physical exertion increases body heat and workers' risk of heat-related illness. Evaluate the combination of body heat and environmental heat to determine if heat stress is a potential hazard. OSHA recommends assessment tools that are based on levels of physical activity and WBGT readings;
- Recognize that serious heat-related illnesses can occur on normal summer days when temperatures are not extreme. A good rule of thumb is that workers need additional protective measures whenever the Heat Index is 80°F or above;
- Indoor industries, such as kitchens, laundries, and warehouses, can also become dangerously hot. OSHA offers a list of those industries at high risk;
- Increase ventilation, use cooling fans, and whenever possible schedule work at a cooler time of the day. OSHA's heat index page includes a list of best practices;
- Ensure adequate planning and supervision to keep workers safe in the heat; and
- Train workers on the hazards of heat exposure and how to prevent illness.

The following are symptoms of heat stress and action should be taken immediately if any signs are exhibited:

- Hot, dry skin (usually red or mottled) or clammy, moist skin (with pale complexion)
- Confusion
- Loss of consciousness, fainting
- Nausea

- Fatigue
- Giddiness
- Mood changes
- Body temperatures in excess of 101°F

Any Site worker exhibiting one or more of these symptoms will be withdrawn from the Site to a cool, sheltered area for further evaluation. If symptoms persist, the worker will be transported to the hospital. Also, any Site worker who loses consciousness will immediately be transported to the hospital.

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7.0 BIOLOGICAL HAZARDS

Biological hazards that may be present at hazardous work sites include poisonous plants, insects, animals, and indigenous pathogens. Venomous snakes and reptiles may be a nuisance in any investigation area. When working in areas that support habitat for poisonous snakes or reptiles, personnel shall wear protective chaps made of heavy puncture-resistant material designed to prevent snake bites to the legs. Any time personnel are required to work in an area that supports habitat for snakes or reptiles, the buddy system will be employed: no less than two people may work in an area and they must remain in eye or radio contact with each other.

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8.0 SNAKES

If a snake or reptile is encountered, at no time should personnel attempt to confront it. If the snake or reptile does not leave the immediate work area, work shall be shifted to another area until the snake or reptile leaves.

If personnel are bitten by a snake or reptile, the buddy must keep the victim calm and keep the bitten area below the level of the heart. The buddy will then contact emergency services and prepare for transportation to the nearest emergency room. It would be advisable to have a list of hospitals that carry antivenom. In the U.S., 98% of reported snake bites are attributable to crotaline snakes or pit vipers — i.e., rattlesnakes, copperheads and cottonmouths. The primary pit viper anti-venom distributed in the U.S. is **Crotalidae polyvalent immune fab**. Though there is absolutely no manufacturing shortage of Crotalidae polyvalent immune fab, which is currently the only Food and Drug Administration-approved and available antivenom for U.S. pit viper bites, some hospitals choose not to carry antivenom for various reasons.

If someone is bitten by a snake or reptile, do the following:

- Call 911 immediately to be evaluated.
- Take off anything that is constricting the affected area, such as a ring or watch.
- Position the affected area at or above heart level. This means if you are bitten on the hand, bring it to heart level and if you're bitten on the leg or foot, elevate it if possible. This minimizes the amount of local tissue swelling, which is the most common finding following pit viper bites.

Before initiating work in an area that supports habitat for snakes, tall grasses, and scrub brush should be mowed or cleared to decrease the possibility of snake or reptile encounters if possible.

Types of Venomous Snakes

https://www.cdc.gov/niosh/topics/snakes/types.html

Rattlesnakes







Photos courtesy of Sean P. Bush

There are many species of rattlesnakes in the United States. Rattlesnakes are the largest of the venomous snakes in the United States. They can quickly and accurately strike one-third or more of their body length from any position, whether coiled or stretched out. Rattlesnakes may use their rattles as a warning when they feel threatened, although they do not always rattle before biting. Rattlesnakes may be found sunning themselves near logs, boulders, or open areas. These snakes may be found in most work habitats including the mountains, prairies, deserts, and beaches. Antivenom is recommended for the treatment of signs of progressive envenomation (e.g., worsening of local tissue injury, systemic symptoms).

U.S. Geographic Region: Across the U.S.
Copperheads







Photos courtesy of Sean P. Bush

Copperheads vary in color from reddish to golden tan. The colored bands on their body are typically hourglass-shaped. They have a deep facial pit between each eye and their nostril. Most adults are about 18–36 inches long. They are not usually aggressive but will often freeze when frightened and will strike in defense if threatened, contacted or interacted with. Workers are more likely to be bitten when they unknowingly step on or near a copperhead. Copperheads are often found in forests, rocky areas, swamps, or near sources of water like rivers. Early administration of antivenom results in faster limb recovery and reduced limb disability after copperhead snake envenomation.

U.S. Geographic Region: Eastern states, extending as far west as Texas

Cottonmouths/Water Moccasins







Photos courtesy of Sean P. Bush and Frederick S. Boyce

Cottonmouth snakes average 50–55 inches long. The adult snake's skin is dark tan, brown, or nearly black, with vague black or dark brown cross-bands. Juveniles have a bold cross-banded pattern of brown or orange with a yellow tail. Cottonmouths are frequently found in or around water.

U.S. Geographic Region: Wetland areas, rivers, lakes, etc., in the southeastern states

Coral Snakes





Photos courtesy of Mike Cardwell and Elda Sánchez. Other venomous snakes display warning coloration.

These snakes are sometimes confused with nonvenomous king snakes, which have similar colored bands although in a different arrangement. Coral snakes tend to hide in leaf piles or burrow into the ground.

U.S. Geographic Region: Wooded, sandy, or marshy areas of the Southern U.S.

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9.0 VENOMOUS SPIDERS

Taken from: https://www.cdc.gov/niosh/topics/spiders/default.html

Venomous spiders found in the United States include the black widow and the brown recluse. These spiders can be dangerous to outdoor workers. These spiders occasionally find their way inside structures or buildings.

Spiders are usually not aggressive, and most bites occur because a spider is trapped or unintentionally contacted. It is important for employers to educate their workers about their risk of exposure to venomous spiders, how they can prevent and protect themselves from spider bites, and what they should do if they are bitten.

Black Widows



Photo courtesy of University of Missouri

Black widow spiders are found throughout North America but are most common in the southern and western areas of the U.S. They are identified by the pattern of red coloration on the underside of their abdomen. They are usually found in workplaces containing undisturbed areas such as woodpiles, under eaves, fences, and other areas where debris has accumulated. They may also be found living in outdoor toilets where flies are plentiful.

Black widow spiders build webs between objects, and bites usually occur when humans come into direct contact with these webs. A bite from a black widow can be distinguished from other insect bites by the two puncture marks it makes in the skin. The venom is a neurotoxin that produces pain at the bite area and then spreads to the chest, abdomen, or the entire body.

Brown Recluse Spiders



Photo courtesy of Ohio State University

The brown recluse spider, also known as the violin spider, is most commonly found in the Midwestern and southern states of the U.S. It is brown in color with a characteristic dark violin-shaped (or fiddle shaped) marking on its head and has six equal-sized eyes (most spiders have eight eyes). Brown recluse spiders are usually found in workplaces with secluded, dry, sheltered areas such as underneath structures logs, or in piles of rocks or leaves. If a brown recluse spider wanders indoors, they may be found in dark closets, shoes, or attics.

The brown recluse spider cannot bite humans without some form of counter pressure, for example, through unintentional contact that traps the spider against the skin. Bites may cause a stinging sensation with localized pain. A small white blister usually develops at the site of the bite. The venom of a brown recluse can cause a severe lesion by destroying skin tissue (skin necrosis). This skin lesion will require professional medical attention.

9.1 Symptoms

Symptoms associated with spider bites can vary from minor to severe. Although extremely rare, death can occur in the most severe cases. Possible symptoms resulting from a spider bite include the following:

- Itching or rash
- Pain radiating from the site of the bite
- Muscle pain or cramping
- Reddish to purplish color or blister
- Increased sweating
- Difficulty breathing
- Headache

- Nausea and vomiting
- Fever
- Chills
- Anxiety or restlessness
- High blood pressure

9.2 First Aid

Workers should take the following steps if they are bitten by a spider:

- Stay calm. Identify the type of spider if it is possible to do so safely. Identification will aid in medical treatment.
- Wash the bite area with soap and water.
- Apply a cloth dampened with cold water or filled with ice to the bite area to reduce swelling.
- Elevate bite area if possible.
- Do not attempt to remove venom.
- Notify your supervisor.
- Immediately seek professional medical attention.

9.3 Worker Recommendations

Workers can take the following preventive steps:

- Inspect or shake out any clothing, shoes, towels, or equipment before use.
- Wear protective clothing such as a long-sleeved shirt and long pants, hat, gloves, and boots when handling stacked or undisturbed piles of materials.
- Minimize the empty spaces between stacked materials.
- Remove and reduce debris and rubble from around the outdoor work areas.
- Trim or eliminate tall grasses from around outdoor work areas.

- Store apparel and outdoor equipment in tightly closed plastic bags.
- Keep your tetanus boosters up-to-date (every 10 years). Spider bites can become infected with tetanus spores.

10.0 POISONOUS PLANTS

https://www.cdc.gov/niosh/topics/plants/default.html



Many native and exotic plants are poisonous to humans when ingested or if there is skin contact with plant chemicals. However, the most common problems with poisonous plants arise from contact with the sap oil of several native plants that cause an allergic skin reaction — poison ivy, poison oak, and poison sumac.

Poison ivy, poison oak, and poison sumac grow in wooded or marshy areas throughout North America. The plants aren't really poisonous. They have a sticky, long-lasting oil called urushiol that causes an itchy, blistering rash after it touches your skin. Even slight contact, like brushing up against the leaves, can leave the oil behind. Poison ivy and poison oak grow as vines or shrubs. Poison sumac is a shrub or tree.

Outdoor workers may be exposed to poisonous plants. Outdoor workers at risk include farmers, foresters, landscapers, groundskeepers, gardeners, painters, roofers, pavers, construction workers, laborers, mechanics, and any other workers who spend time outside. Forestry workers and firefighters who battle forest fires are at additional risk because they could potentially develop rashes and lung irritation from contact with damaged or burning poisonous plants.

10.1 Poison Ivy



Western poison ivy (left); Eastern poison ivy (right): Maps courtesy of U.S. Department of Agriculture



10.2 Poison Oak



Pacific poison oak (left); Atlantic poison oak (right): Maps courtesy of U.S. Department of Agriculture



10.3 Poison Sumac



Poison Sumac: Maps courtesy of U.S. Department of Agriculture



10.4 Symptoms and First Aid

Symptoms

Signs or symptoms associated with dermal contact with poisonous plants may include:

- Red rash within a few days of contact
- Possible bumps, patches, streaking, or weeping blisters (blister fluids are not contagious)
- Swelling
- Itching

First Aid

Workers who have come in contact with poisonous plants should:

- Immediately rinse skin with rubbing alcohol, specialized poison plant washes, degreasing soap (such as dishwashing soap) or detergent, and lots of water.
 - Rinse frequently so that wash solutions do not dry on the skin and further spread the urushiol.
- Scrub under nails with a brush.
- Apply wet compresses, calamine lotion, or hydrocortisone cream to the skin to reduce itching and blistering.
 - Follow the directions on any creams and lotions. Do not apply to broken skin, such as open blisters.
 - Oatmeal baths may relieve itching.
- An antihistamine such as diphenhydramine (Benadryl) can be taken to help relieve itching.
 - Follow directions on the package
 - Drowsiness may occur
 - If children come in contact with work clothing contaminated with urushiol, a pediatrician should be contacted to determine appropriate dosage
- In severe cases or if the rash is on the face or genitals, seek professional medical attention.

• Call 911 or go to a hospital emergency room if the worker is suffering a severe allergic reaction, such as swelling or difficulty breathing, or has had a severe reaction in the past.

10.5 Prevention

Wearing protective clothing (i.e., long-sleeve Tyvek), use of protective creams, use of post-exposure emulsifying lifting agents and using good personal hygiene practices will reduce the potential suffering from contact with poisonous plants such as Poison Ivy, Poison Oak, and Poison Sumac. Even if you have never suffered a reaction to these items previously, you can suffer a reaction upon continued exposure.

Personal hygiene practices can reduce the chances of a reaction to poison plants. Personnel should wash all exposed skin surfaces as soon as possible after coming in contact with a poisonous plant.

11.0 TICKS

https://www.cdc.gov/ticks/index.html

Tick exposure can occur year-round, but ticks are most active during warmer months (April-September).

Before You Go Outdoors

- Know where to expect ticks. Ticks live in grassy, brushy, or wooded areas, or even on animals. Spending time outside walking your dog, camping, gardening, or hunting could bring you in close contact with ticks. Many people get ticks in their own yard or neighborhood.
- Treat clothing and gear with products containing 0.5% permethrin. Permethrin can be used to treat boots, clothing and camping gear and remain protective through several washings. Alternatively, you can buy permethrin-treated clothing and gear.
- Use Environmental Protection Agency (EPA) registered insect repellents containing DEET, picaridin, IR3535, Oil of Lemon Eucalyptus (OLE), para-menthane-diol (PMD), or 2-undecanone. EPA's helpful search tool can help you find the product that best suits your needs. Always follow product instructions. Do not use products containing OLE or PMD on children under 3 years old.
- Avoid Contact with Ticks
 - Avoid wooded and brushy areas with high grass and leaf litter
 - Walk in the center of trails

After You Come Indoors

Check your clothing for ticks. Ticks may be carried into the house on clothing. Any ticks that are found should be removed. Tumble dry clothes in a dryer on high heat for 10 minutes to kill ticks on dry clothing after you come indoors. If the clothes are damp, additional time may be needed. If the clothes require washing first, hot water is recommended. Cold and medium temperature water will not kill ticks.

Examine gear and pets. Ticks can ride into the home on clothing and pets, then attach to a person later, so carefully examine pets, coats, and daypacks.

Shower soon after being outdoors. Showering within 2 hours of coming indoors has been shown to reduce your risk of getting Lyme disease and may be effective in reducing the risk of other tickborne

diseases. Showering may help wash off unattached ticks and it is a good opportunity to do a tick check.

Check your body for ticks after being outdoors. Conduct a full body check upon return from potentially tick-infested areas, including your own backyard. Use a hand-held or full-length mirror to view all parts of your body. Check these parts of your body and your child's body for ticks:

- Under the arms
- In and around the ears
- Inside belly button
- Back of the knees
- In and around the hair
- Between the legs
- Around the waist



11.1 Symptoms of Tickborne Illness

Many tickborne diseases can have similar signs and symptoms. If you have been bitten by a tick and develop the symptoms below within a few weeks, a health care provider should evaluate the following before deciding on a course of treatment:

- Your symptoms
- The geographic region in which you were bitten
- Diagnostic tests, if indicated by the symptoms and the region where you were bitten

The most common symptoms of tick-related illnesses are:

- Fever/chills: With all tickborne diseases, patients can experience fever at varying degrees and time of onset.
- Aches and pains: Tickborne disease symptoms include headache, fatigue, and muscle aches. With Lyme disease you may also experience joint pain. The severity and time of onset of these symptoms can depend on the disease and the patient's personal tolerance level.
- Rash: Lyme disease, southern tick-associated rash illness (STARI), Rocky Mountain spotted fever (RMSF), ehrlichiosis, and tularemia can result in distinctive rashes:
 - In Lyme disease, the rash may appear within 3-30 days, typically before the onset of fever. The Lyme disease rash is the first sign of infection and is usually a circular rash called erythema migrans. This rash occurs in approximately 70-80% of infected persons and begins at the site of a tick bite. It may be warm but is not usually painful. Some patients develop additional erythema migrans lesions in other areas of the body several days later.
 - The rash of (STARI) is nearly identical to that of Lyme disease, with a red, expanding "bull's eye" lesion that develops around the site of a lone star tick bite. Unlike Lyme disease, STARI has not been linked to any arthritic or neurologic symptoms.
 - The rash seen with RMSF varies greatly from person to person in appearance, location, and time of onset. About 10% of people with RMSF never develop a rash. Most often, the rash begins 2-5 days after the onset of fever as small, flat, pink, non-itchy spots (macules) on the wrists, forearms, and ankles and spreads to the trunk. It sometimes involves the palms and soles. The red to purple, spotted (petechial) rash of RMSF is

usually not seen until the sixth day or later after onset of symptoms and occurs in 35-60% of patients with the infection.

- In the most common form of tularemia, a skin ulcer appears at the site where the organism entered the body. The ulcer is accompanied by swelling of regional lymph glands, usually in the armpit or groin.
- In about 30% of patients (and up to 60% of children), ehrlichiosis can cause a rash.
 The appearance of the rash ranges from macular to maculopapular to petechial and may appear after the onset of fever.

Tickborne diseases can result in mild symptoms treatable at home to severe infections requiring hospitalization. Although easily treated with antibiotics, these diseases can be difficult for physicians to diagnose. However, early recognition and treatment of the infection decreases the risk of serious complications. So see your doctor immediately if you have been bitten by a tick and experience any of the symptoms described here.



"Target" lesion on patient with Lyme disease.



Patient with STARI.

- 1. Site of tick bite
- 2. Red, radial, expanding edge of rash
- 3. Central clearing

Photograph used with permission from the Journal of Infectious Diseases.



Late (petechial) rash on hand and forearm in patient with Rocky Mountain spotted fever.



An ulcer caused by tularemia.



Tick paralysis is a rare disease thought to be caused by a toxin in tick saliva. The symptoms include acute, ascending, flaccid paralysis that is often confused with other neurologic disorders or diseases (e.g., Guillain-Barré syndrome or botulism). Within 24 hours of removing the tick, the paralysis typically subsides.

11.2 Mosquitos and West Nile Virus

https://www.cdc.gov/westnile/index.html

West Nile virus (WNV) is the leading cause of mosquito-borne disease in the continental U.S. It is most commonly spread to people by the bite of an infected mosquito. Cases of WNV occur during mosquito season, which starts in the summer and continues through fall. There are no vaccines to prevent or medications to treat WNV in people. Fortunately, most people infected with WNV do not feel sick. About 1 in 5 people who are infected develop a fever and other symptoms. About 1 out of 150 infected people develop a serious, sometimes fatal, illness. You can reduce your risk of WNV by using insect repellent and wearing long-sleeved shirts and long pants to prevent mosquito bites.

The most effective way to prevent infection from — West Nile virus is to prevent mosquito bites. Mosquitoes bite during the day and night. Use insect repellent, wear long-sleeved shirts and pants, treat clothing and gear, and take steps to control mosquitoes indoors and outdoors.

11.3 Use Insect Repellent

Use EPA-registered insect repellents with one of the active ingredients below. When used as directed, EPA-registered insect repellents are proven safe and effective, even for pregnant and breastfeeding women.

- DEET
- Picaridin (known as KBR 3023 and icaridin outside the U.S.)
- IR3535
- OLE
- PMD
- 2-undecanone

Find the right insect repellent for you by using EPA's search tool

Wear long-sleeved shirts and long pants.

Treat Clothing and Gear

- Use permethrin to treat clothing and gear (such as boots, pants, socks, and tents) or buy permethrin-treated clothing and gear.
 - Permethrin is an insecticide that kills or repels mosquitoes
 - Permethrin-treated clothing provides protection after multiple washings
 - Read product information to find out how long the protection will last

If treating items yourself, follow the product instructions.

• Do not use permethrin products directly on skin.

Attachment C1 Air Monitoring This page intentionally left blank.

AIR MONITORING

Air Monitoring Overview

Airborne contaminants can present a significant threat to worker health and safety. Thus, identification and quantification of these contaminants through air monitoring is an essential component of a health and safety program. Reliable measurements of airborne contaminants are useful for:

- Selecting personal protective equipment
- Delineating areas where protection is needed
- Assessing the potential health effects of exposure
- Determining the need for specific medical monitoring

Many industrial and construction sites have the potential to expose their occupants to harmful dusts, vapors, or gases. Inhalation of these airborne contaminants is a significant route of entry into the body. Air monitoring is performed to quantify occupational exposures to airborne contaminants. An air monitoring strategy may be developed for select projects. The air monitoring strategy will address contaminants of concern, sampling techniques, frequency of sampling, types of samples (i.e., personal or area) and other details.

Monitoring for Immediately Dangerous to Life and Health and Other Dangerous Conditions:

As a first step, air monitoring should be conducted to identify any immediate dangers to life and health and other dangerous conditions, such as flammable or explosive atmospheres, oxygen-deficient environments, and acutely toxic concentrations of airborne contaminants. Direct-reading monitoring instruments may be used for this assessment and may include combustible gas indicators, oxygen meters, colorimetric indicator tubes, and organic vapor monitors. Other monitoring instruments may be necessary based on the initial site characterization. When time permits, personal and area air samples may be collected for laboratory analysis. Extreme caution should be exercised in continuing a site survey when atmospheric hazards are indicated. Monitoring personnel should be aware that conditions can suddenly change from nonhazardous to hazardous.

Perimeter or Area Monitoring:

Fixed-location monitoring at the "fenceline" or perimeter, where personal protective equipment is no longer required, measures contaminant migration away from the site. With this data, the Site Safety Officer is able to determine if air contaminants are moving into clean areas adjacent to hazardous areas. Since the fixed-location samples may reflect exposures either upwind or downwind from the site, wind speed and direction data are needed to interpret the sample results.

Air Monitoring/Sampling Procedures

The selective monitoring of high-risk workers, i.e., those who are closest to the source of contaminant generation, is highly recommended. This approach is based on the rationale that the probability of significant exposure varies directly with distance from the source. If workers closest to the source are not significantly exposed, then all other workers are, presumably, also not significantly exposed and probably do not need to be monitored.

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 onsite 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.

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"

Monitoring Devices Available					
Α	Photo Ionization Detector (10.6 eV)	G	Dust Monitoring		
В	Photo Ionization Detector (11.7 eV)	Н	Summa Canister		
С	Flame Ionization Detector	I	Heat Stress Monitor		
D	Organic Vapor Analyzer	J	Radiation Detector		
E	Combustible Gas Indicator/Lower Explosive Limit	К	Gas Multimeter		
F	Colorimetric Indicator Tubes	L	Other Device:		

Air Monitoring Plan

Monitoring Information							
Monitoring Scenarios	Constituent	Task(s)	Trigger (Action Level)	Monitoring Instrument Required			
	Oxygen	NA	NA	NA			
	Carbon Monoxide	NA	NA	NA			
If monitoring is necessary to	H ₂ S	NA	NA	NA			
identify that a risk is at or above	C ₂ S	NA	NA	NA			
controlling a risk onsite,	CH ₄	NA	NA	NA			
document the task and the	VOCs: Total	NA	NA	NA			
maximum allowable exposure or trigger, and the monitoring	Semi-VOCs:	NA	NA	NA			
instrument required to be used.	Lead	1 to 11*	25 µg/m³	Dust Monitor			
	Others: Total Dust	1 to 11	0.2 mg/m ³	Dust Monitor			
	Others:	NA	NA	NA			

Notes:

* See Sections 8.2.2.1 and 8.2.2.2 below

NA = Not anticipated at this time

 $H_2S = Hydrogen sulfide$

 $C_2S = Carbon disulfide$

 $CH_4 = Methane$

VOC = volatile organic compound

 $\mu g/m^3 =$ micrograms per cubic meter

In general, this HASP addresses site-specific chemicals as noted in Appendix C1. 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 ₄	0.5% maximum or 5000 ppm			
CO ₂	0.25% or 2500 ppm maximum			
СО	25 ppm maximum			
H ₂ S	5 ppm maximum			
O ₂	19% minimum — 23.5% maximum			

Notes:

 VOC
 =
 volatile organic compound

 CH4
 =
 Methane

 CO2
 =
 Carbon dioxide

 CO
 =
 Carbon monoxide

 $H_2S = Hydrogen sulfide$

O₂ = Oxygen ppm = parts per million

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/m³ 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 $(mg/m^3) = (10^6 mg/kg) (EL mg/m^3)/(Conc. of contaminant mg/kg) (SF).$

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 10. 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. If dust monitoring exceeds 0.2 mg/m³ engineering controls will be evaluated. If dust monitoring exceeds 2.0 mg/m³ then work will stop and PPE will be reevaluated.

Phase I and Phase II — Removal of Cathode Ray Tube 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

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 2 months throughout the completion of the contractor's or subcontractor's duties for the project.

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 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.

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

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 2 months throughout the completion of the contractor's or subcontractor's duties for the project.

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 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 regularly to the SMs or HSC.

Attachment C2 Decontamination Procedures This page intentionally left blank.

DECONTAMINATION PROCEDURE

Overview

Job tasks associated with this project may require the implementation of full decontamination protocol. However, care shall be taken to use acceptable washing/decontamination techniques to preserve all equipment and personnel on the Site.

The Site decontamination procedures are designed to achieve an orderly, controlled removal, or neutralization of contaminants that may accumulate on personnel or equipment. These procedures minimize worker contact with contaminants and protect against the transfer of contaminants to clean areas of the Site and offsite. They also extend the useful life of PPE by reducing the amount of time that contaminants contact and can permeate PPE surfaces.

Health and Safety Hazards

While decontamination is performed to protect health and safety, it can pose hazards under certain circumstances. Decontamination methods may:

- Be incompatible with the hazardous substances being removed (i.e., a decontamination method may react with contaminants to produce an explosion, heat, or toxic products).
- Be incompatible with the clothing or equipment being decontaminated (e.g., some organic solvents can permeate and/or degrade protective clothing).
- Pose a direct health hazard to workers (e.g., vapors from chemical decontamination solutions may be hazardous if inhaled, or they may be flammable).

Recommended Equipment for Decontamination of Personnel and Personal Protective Clothing and Equipment:

- Drop cloths of plastic or other suitable materials on which heavily contaminated equipment and outer protective clothing may be deposited.
- Collection containers, such as drums or suitably lined trash cans, for storing disposable clothing and heavily contaminated personal protective clothing or equipment that must be discarded.

- Lined box with absorbents for wiping or rinsing off gross contaminants and liquid contaminants.
- Large galvanized tubs, stock tanks, or children's wading pools to hold wash and rinse solutions. These should be at least large enough for a worker to place a booted foot in and should have either no drain or a drain connected to a collection tank or appropriate treatment system.
- Wash solutions selected to wash off and reduce the hazards associated with the contaminants.
- Rinse solutions selected to wash off and reduce the hazards associated with the contaminants.
- Long-handled, soft-bristled brushes to help wash and rinse off contaminants.
- Paper or cloth towels for drying protective clothing and equipment.
- Lockers and cabinets for storage of decontaminated clothing and equipment.
- Metal or plastic cans or drums for contaminated wash and rinse solutions.
- Plastic sheeting, sealed pads with drains, or other appropriate methods for containing and collecting contaminated wash and rinse solutions spilled during decontamination.
- Shower facilities for full body wash or, at a minimum, personal wash sinks (with drains connected to a collection tank or appropriate treatment system).
- Soap or wash solution, wash cloths, and towels for personnel.
- Lockers or closets for clean clothing and personal item storage.

General Procedures

All decontamination activities shall be completed in accordance with the Closure Plan for this project and all applicable federal, state, and local regulations.



Cathode Ray Tube Materials, Building, and Equipment Decontamination

Decontamination involves the orderly controlled removal of contaminants.

Phase I and Phase II — Removal of Cathode Ray Tube 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 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 onsite 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 onsite 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.

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 offsite 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 offsite 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 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 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 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 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 onsite 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 onsite 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.

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 offsite 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.
- Un-tape 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.

Attachment C3 COVID 19 Prevention Plan

SARS-CoV-2 (COVID-19) PLAN, PREVENTION, PROTECTION AND WORKPLACE CONTROLS

The scientific name of the new strain of coronavirus is SARS-CoV-2. In people, the disease caused by the virus is called Coronavirus Disease 2019, also known as COVID-19. On February 11, 2020 the World Health Organization announced an official name for the disease that is causing the 2019 novel coronavirus outbreak, first identified in Wuhan China. The new name of this disease is coronavirus disease 2019, abbreviated as COVID-19. In COVID-19, 'CO' stands for 'corona,' 'VI' for 'virus,' and 'D' for disease. Formerly, this disease was referred to as "2019 novel coronavirus" or "2019-nCoV".

There are many types of human coronaviruses including some that commonly cause mild upper-respiratory tract illnesses. COVID-19 is a new disease, caused by a novel (or new) coronavirus that has not previously been seen in humans.

A novel coronavirus is a new coronavirus that has not been previously identified. The virus causing coronavirus disease 2019 (COVID-19), is not the same as the coronaviruses that commonly circulate among humans and cause mild illness, like the common cold.

EnSafe has acknowledged and are following all Center for Disease Control (CDC) guidelines pertaining to the C-19 pandemic outlined for preventative and active measures. Corporate entities, such as Human Resources and Corporate Health and Safety have implemented several programs, training, and procedures which include (not limited to) a dedicated internal C-19 Informational website, updates to Health and Safety Plan actions (pre-mobilization, Safe Work Permits, Job Hazard Analysis/ Job Safety Analysis, etc.) updates to Department of Labor, CDC, Occupational Safety and Health Administration pertaining to Human Resources and personnel, and internal/external communication procedures to employees, clients, subcontractors and vendors.

Several documents address procedures concerning COVID-19 and various tasks that apply to this Health and Safety Plan:

 EnSafe Verification Letter — All internal policies and procedures adhere specifically to the most current Department of Labor, CDC, Occupational Safety and Health Administration concerning COVID-19 safety in the workplace as well as Human Resources and personnel. Documents not contained within this Health and Safety plan are internal to EnSafe and are not applicable here.

- 2. EnSafe COVID-19 Travel Guidance Travel Protocols for employees in the COVID-19 environment
- 3. C-19 Safe Work Authorization Permit Addendum specifically for COVID 19 pre-site mobilization and on-site mobilized environments
- 4. IH Equipment Decontamination Protocol Decontamination procedures for field equipment
- 5. Guidance and Usage of face coverings multiple documents
- 6. Removal of nitrile gloves

These documents are either contained within this section, or elsewhere in appropriate sections of the Health and Safety Plan.

Attachment C4 Verification COVID

May 4, 2020



To Whom It May Concern:

Re: COVID-19 Grading Criteria Preparedness and Response

In response to your request for a company specific written program outlining your company's response to COVID-19 (C-19) — please see the following.

We have acknowledged and are following all Center for Disease Control (CDC) guidelines pertaining to the C-19 pandemic outlined for preventative and active measures. Corporate entities, such as Human Resources and Corporate Health and Safety have implemented several programs and procedures which include (not limited to) a dedicated internal C-19 Informational website, updates to Health and Safety Plan actions (pre-mobilization, Safe Work Permits, JHA/JSA, etc.) updates to Department of Labor, CDC, Occupational Safety and Health Administration (OSHA) pertaining to Human Resources and personnel, and internal/external communication procedures to employees, clients, subcontractors and vendors.

- Signs and Symptoms Informed employees, and incorporated procedures based on the most current guidance from the Centers for Disease Control (not limited to):
 - Have had Close Contact exposure to a person with symptoms of COVID-19 during period from 48 hours before symptoms onset until the person meets criteria for discontinuing home isolation. (laboratory-confirmed disease or a clinically compatible illness).
 - Experiencing fever (A measured temperature of 100.4 °F [38 °C] or greater, or feel warm to the touch, or a history of feeling feverish) accompanied by one or more of the following: Difficulty breathing (shortness of breath), tiredness, persistent cough.
 - Self-Quarantine procedures for those that believe that they may have been exposed.
 - Travel restrictions/quarantine procedures if any symptoms of C-19 are discovered.
- Prevention and Precautions
 - Implemented companywide Work from Home procedures.
 - Implemented companywide information concerning Federal, State, Local restrictions, and special advisories for travel during essential business.
 - Implemented companywide travel restriction for non-essential travel.
 - Implemented companywide procedures for social distancing when working with clients, or working at company offices.
 - Implemented companywide office cleaning procedures.
 - Implemented companywide exposure investigation protocol for those that have been or may have been exposed to the C-19 virus.

- Any or all additional measures as described by the CDC Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19).
- Any or all additional measures as described by OSHA *Guidance on Preparing Workplaces for COVID-19.*
- Communication
 - Internal Accomplished through combinations of emails, intranet postings, flyers/ posters, leader talking points, FAQs and an internal dedicated web site. All identify simple, key messages, designed as reliable process and provide vehicles for continual updates and collecting feedback from employees.
 - External
 - Client notification processes concerning workforce readiness if employees are (or potentially have been) exposed to the C-19 virus.
 - Client notification procedures if an employee becomes symptomatic with C-19.
 - Contractor or supplier requirements asking that necessary action to ensure their personnel working for EnSafe (its clients or locations) adhere to the CDC, recognized world health organizations, Federal, State, and Local policies, procedures, or regulations are followed prior to working for EnSafe Inc.
- Recovery and Response
 - Any or all additional measures as described by the CDC Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19).
 - Any or all additional measures as described by OSHA *Guidance on Preparing Workplaces for COVID-19.*
 - Implemented companywide Work from Home procedures.
 - Implemented companywide information concerning Federal, State, Local restrictions, and special advisories for travel during essential business.
 - Implemented companywide travel restriction for non-essential travel.
 - Implemented companywide procedures for social distancing when working with clients, or working at company offices.
 - Implemented companywide office cleaning procedures.
 - Implemented companywide exposure investigation protocol for those that have been or may have been exposed to the C-19 virus.



- Implemented companywide precautionary measures for personal protective equipment, or non-personal protective equipment (such as facecloth coverings) when working with clients as recommended by the CDC, or other leading and recognized organizations.
- Return to Work
 - Implemented companywide guidance is based on U.S. federal employment law and the current medical assessment of COVID-19, include State and local laws that may apply, and medical assessments by qualified medical professionals.
 - Following all measures concerning the CDC guidance on *Discontinuation of Isolation for Persons with COVID-19 Not in Healthcare Settings (Interim Guidance).*
 - Any or all additional measures as described by OSHA *Guidance on Preparing Workplaces for COVID-19.*
 - Any or all Department of Labor resources pertaining to guidelines, policy, or regulation.

Sincerely,

EnSafe Inc.

By: Scott Campbell EnSafe Inc Corporate Health and Safety Manager



Attachment C5

CDC Use of Cloth Face Coverings Instructions

Use of Cloth Face Coverings to Help Slow the Spread of COVID-19

How to Wear Cloth Face Coverings

Cloth face coverings should—

- fit snugly but comfortably against the side of the face
- be secured with ties or ear loops
- include multiple layers of fabric
- allow for breathing without restriction
- be able to be laundered and machine dried without damage or change to shape

CDC on Homemade Cloth Face Coverings

CDC recommends wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain (e.g., grocery stores and pharmacies), **especially** in areas of significant community-based transmission.

CDC also advises the use of simple cloth face coverings to slow the spread of the virus and help people who may have the virus and do not know it from transmitting it to others. Cloth face coverings fashioned from household items or made at home from common materials at low cost can be used as an additional, voluntary public health measure.

Cloth face coverings should not be placed on young children under age 2, anyone who has trouble breathing, or is unconscious, incapacitated or otherwise unable to remove the cloth face covering without assistance.

The cloth face coverings recommended are not surgical masks or N-95 respirators. Those are critical supplies that must continue to be reserved for healthcare workers and other medical first responders, as recommended by current CDC guidance.

Should cloth face coverings be washed or otherwise cleaned regularly? How regularly?

Yes. They should be routinely washed depending on the frequency of use.

How does one safely sterilize/clean a cloth face covering?

A washing machine should suffice in properly washing a cloth face covering.

How does one safely remove a used cloth face covering?

Individuals should be careful not to touch their eyes, nose, and mouth when removing their cloth face covering and wash hands immediately after removing.







cdc.gov/coronavirus

CS316353B 04/04/2020, 12:22 PM

Sewn Cloth Face Covering

Materials

- Two 10"x6" rectangles of cotton fabric
- Two 6" pieces of elastic (or rubber bands, string, cloth strips, or hair ties)

- Needle and thread (or bobby pin)
- Scissors
- Sewing machine



Tutorial

1. Cut out two 10-by-6-inch rectangles of cotton fabric. Use tightly woven cotton, such as quilting fabric or cotton sheets. T-shirt fabric will work in a pinch. Stack the two rectangles; you will sew the cloth face covering as if it was a single piece of fabric.



2. Fold over the long sides ¼ inch and hem. Then fold the double layer of fabric over ½ inch along the short sides and stitch down.



3. Run a 6-inch length of 1/8-inch wide elastic through the wider hem on each side of the cloth face covering. These will be the ear loops. Use a large needle or a bobby pin to thread it through. Tie the ends tight.

Don't have elastic? Use hair ties or elastic head bands. If you only have string, you can make the ties longer and tie the cloth face covering behind your head.



 Gently pull on the elastic so that the knots are tucked inside the hem.
Gather the sides of the cloth face covering on the elastic and adjust so the cloth face covering fits your face. Then securely stitch the elastic in place to keep it from slipping.



Quick Cut T-shirt Cloth Face Covering (no sew method)

Materials

- T-shirt
- Scissors

Tutorial



Bandana Cloth Face Covering (no sew method)

Materials

Coffee filter

- Bandana (or square cotton cloth approximately 20"x20")
- Rubber bands (or hair ties)
- Scissors (if you are cutting your own cloth)

Tutorial



Attachment C6 Guidance on Cloth Face Coverings

ENSAFE GUIDANCE ON CLOTH FACE COVERINGS

The Centers for Disease Control and Prevention (CDC) recommends wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain, especially in areas of significant community-based transmission.

It is critical to emphasize that maintaining 6-feet social distancing remains important to slowing the spread of the virus. CDC is additionally advising the use of simple cloth face coverings to slow the spread of the virus and help people who may have the virus and do not know it from transmitting it to others. Cloth face coverings fashioned from household items or made at home from common materials at low cost can be used as an additional, voluntary public health measure.

The cloth face coverings recommended are not surgical masks or N-95 respirators. Cloth face coverings are not considered personal protective equipment as an occupational workplace safety item.

Therefore, they should not supplant use of official personal protective equipment where required.

There are likely scenarios where social distance minimum requirements can be met and face masks do not have to be worn. However, we should be prepared for situations where we can't maintain the social distancing minimum scenario, such as interacting with client contacts or each other due to vehicles/travel, when working in tandem, or where clients require us to wear cloth face coverings.

When appearing in public on behalf of EnSafe, face coverings should be professional (conservative in appearance and not offensive) and conform to CDC guidance.

The covering should fit snugly but comfortably against the face, extend from nose to chin, and be secured with ties or ear loops. Full face coverings (such as ski masks) are not authorized for use when in a professional capacity.

Most importantly, the masks shall allow for breathing without restriction.

Cloth face coverings shall be washed regularly depending on frequency of use and for hygienic measures. When removing cloth face coverings, individuals should be careful not to touch their eyes, nose, or mouth, and hands should be washed immediately after removing.

The accompanying document to this guidance is CDC Use of Cloth Face Coverings Instructions.

Attachment C7 Face Covering Overview



FACE COVERING OVERVIEW

Many worksites, and cities are now requiring the use of "masks" to prevent the spread of COVID-19. Some have indicated that N95 masks are to be used for social distancing. However, that is a misnomer in most cases. The term "N95 mask" has now become synonymous with any type of face covering, including cloth. This includes non-National Institute for Occupational Safety and Health (NIOSH) approved masks such as "Nuisance Dust Masks" or "Dust Masks".

This information is intended to provide additional guidance on the use of face coverings in the workplace. This information can be used in a personal setting but is aimed at situations where occupational (Occupational Safety and Health Administration), client, or local jurisdictional directives, regulations, or policy apply for work related instances. While the use of face coverings may be a method to minimize the spread of COVID-19, social distancing, personal hygiene, and cleaning requirements must continue to be followed.

As we learn more about the COVID-19 virus, studies are confirming that a person can be infectious without having any symptoms of illness. While social distancing and frequent hand washing are the most effective measures to reduce risk of exposure, government health agencies are starting to recognize that face coverings may also help to reduce transmission. For the general public, a simple cloth face covering has been recommended by the CDC to be sufficient to minimize the spread of respiratory droplets that could carry the virus.

A cloth face covering is not intended to protect the wearer but may prevent the spread of virus from the wearer to others. This is especially important if someone is infected but does not have symptoms. Overall the intent is that loose-fitting, disposable masks, might be helpful because if someone who is sick is wearing one, their infectious droplets could be trapped in the mask. Researchers also suspect the novel coronavirus, SARS-CoV-2, can linger in the air in very small droplets known as aerosols, which can be inhaled by people nearby¹ (CDC.gov 2019).

It must be stressed that non-NIOSH approved masks such as "Nuisance Dust Masks" (dust mask) and cloth face coverings are not considered personal protective equipment (PPE) in an occupational sense for the COVID-19 pandemic and should not be treated as such in the workplace. In instances where these types of coverings must be worn at a worksite, additional safety considerations must be taken. A dust mask, that is voluntarily being used for COVID-19 purposes, is the same as a cloth face covering.

Lastly, the use of N95 respirators requires special precautions as well. The use of N95 respirators places a physiological burden on the user. Some conditions that could prevent you from using a respirator include heart conditions, lung disease, and psychological conditions like claustrophobia.

¹ https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html



DIFFERENCES

The differences in these masks must be fully understood. Below are examples and descriptions of the types of masks and their use.

Cloth Face Coverings

- Centers for Disease Control and Prevention (CDC) recommends wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain (e.g., grocery stores and pharmacies), especially in areas of significant community-based transmission.
- Cloth face coverings are not surgical masks or N95 respirators. Cloth face coverings are not considered PPE as an occupational workplace safety item. Therefore, they should not supplant use of official PPE where required.



• Cloth face coverings are made of regular material found anywhere — tight woven cotton (e.g., tee-shirt) in multiple layers is the recommended material by the CDC.

Surgical Mask Coverings

Surgical mask coverings are not N95 respirators (or any type of respirator). Surgical face coverings are not normally considered PPE as an occupational workplace safety item. Therefore, they should not supplant use of official PPE where required.

• Surgical masks and respirators serve different purposes, so they are designed differently. Health care providers commonly wear surgical masks in the operating room to prevent large particles from contaminating the surgical sites.



• Surgical masks are not intended to provide protection against aerosols. As the CDC has stated, surgical masks "are designed to provide barrier protection against droplets, however, they are not regulated for particulate filtration efficiency and they do not form an adequate seal to the wearer's face to be relied upon for respiratory protection".

Nuisance Dust Masks (Dust Mask) Coverings

Dust masks are not NIOSH* approved disposable filtering facepiece respirators. They can be worn for comfort against non-toxic nuisance dusts during activities like mowing, gardening, sweeping, and dusting. They may be considered PPE when used for these activities.





- Dust masks can be mistaken as NIOSH approved N95 respirators.
 - How can you tell the difference? N95s will have a "NIOSH"* label printed on the box and/or mask. Also, the use of the word "respirator" on the box may indicate it is a NIOSH approved respirator. If these are absent, then it is a dust mask.

* NIOSH of the United States Department of Health and Human Services certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

RESPIRATORS



Respirator N95 masks, which are disposable, tight-fitting masks that create a seal on the face and include a specialized filter that blocks at least 95% of very small (0.3 micron) particles.

Note: To avoid confusion, from here on out, reference will not be made to any respirator as a mask.

For a respirator to provide protection, it must form a tight seal around the mouth and nose. Facial hair doesn't allow a tight fit; so, wearers should be clean-shaven. Respirators can increase risk for other medical conditions because it is more difficult to breathe through them. In an occupational setting, respirators must have medical clearance provided by a medical health provider. Further, "fit testing", and specialized training must be conducted to wear such items at the workplace. Respirators may be "voluntarily used" but come with precautions and training as well in the workplace.

N95 Respirator and P100 Respirator



Non-Vented and Vented N95 Respirator





P100 Respirator

- These respirators have two sets of straps and form a tight seal to the face. The entire respirator is made of filtering material. N95s are the most common, with P100s having increased filtration efficacy and generally more protective.
- These respirators are certified by NIOSH, so look for "NIOSH" and the designation "N95" or "P100" on the respirator.
- When worn correctly, these respirators are effective at filtering small respirable particles. However, they do not filter out vapors and gases.

SAFETY CONSIDERATIONS FOR MASKS

When using masks, safety considerations still must be taken while wearing them.

- Due to the hazards in the workplace, any face coverings need to be secured using ear loops or, if around the neck, with Velcro (e.g., break away strap). Tied face coverings should be evaluated for risk.
- Face coverings that slip over the head, such as neck gaiters or neck tubes, could be a choking hazard if caught up in machinery, and are not allowed.
- Face coverings should fit tight to the face without any hanging ties or cords that could get caught in machinery.
- Face coverings should not be worn under required PPE such as a respirator or a face shield.
- Face coverings should not be worn where hot work is being performed.
- Face coverings are not a replacement for required PPE. At all times, the PPE required for any operation must be worn.
- Face coverings must not be placed on any Electrical Static Discharge (ESD) protected work surfaces (personal items are not allowed on ESD-safe work surfaces, to avoid any potential for a charged isolated item to come in contact with ESD-sensitive products).



Usage of Masks

- Before putting on a face covering, employees should wash hands with soap and water or hand sanitizer that contains greater than 60% alcohol.
- Inspect the face covering to ensure there are no tears in the fabric.
- The face covering should completely cover the mouth and nose. There should be no gaps between the face and the face covering (e.g., ensue a tight fit, and forming of the nose wire if present).
- Avoid touching the face covering while using it; if you do, immediately clean your hands with soap and water or hand sanitizer that contains greater than 60% alcohol.
- To remove the face covering: wash hands with soap and water or hand sanitizer that contains greater than 60% alcohol and remove it from behind (**do not touch the front of face covering**).
- If disposable, the face covering should be disposed of in accordance with Site procedures; wash hands with soap and water or hand sanitizer.
- The employee is responsible for cleaning their own cloth face covering.
- When removed during the day, the face covering should be stored in a bag to keep it from being contaminated.
- If reusable, the face covering, once cleaned and dried, should be stored in a bag to avoid contamination.
- Face coverings should be cleaned in accordance with manufacturer instructions. If no instructions are available or the face covering is "homemade", then the face covering should be washed at least daily when used.
- To wash the face covering, put it in soapy, warm water, and gently hand wash. Rinse with clean water and allow to thoroughly dry.
- Reusable cloth face coverings should be cleaned daily.

Attachment C8 EnSafe COVID 19 Travel Guidance


ENSAFE INC. COVID-19 TRAVEL GUIDANCE

Cases of novel coronavirus disease (COVID-19) have been reported in all states, and some areas are experiencing community-wide spread of the disease. Crowded travel settings, like airports and highway rest-stops, may increase your exposure risk to COVID-19, especially if there are other travelers with COVID-19 infection¹. However, business travel remains an integral part of EnSafe services in order to meet the needs of our clients. The following general guidance pertains to practices such as social distancing, personal hygiene, cleaning and disinfecting, and respiratory protection to mitigate risk toward potential COVID-19 exposure and infection while traveling. There may also be state, local, or client-based restrictions that must be followed, such as the mandatory use of face masks while in public or on the jobsite.

Further, consideration of what happens when you arrive at or return from a project site must also be factored into travel decisions. For example, you may be asked to self-quarantine for up to 14 days after travel. This depends on many factors such as close contact to those suspected or confirmed to have COVID-19; travel to or from an area that is a "Hot Spot" for community transmission; as well as travel-related mandates within state and/or local Executive Orders.

In conjunction with the above — business travelers should consider the following guidelines and enact general safety precautions during various modes of travel and accommodation.

PLANNING

Considerations should be taken when planning travel for work at client sites. One of the first things you should do before a business trip, is to plan by collecting information about emergency resources and physicians, in case you get sick or injured. Have the EnSafe Occupational Injury Management provider information on hand for work injuries. If you become ill, many hotels keep a list of local doctors and urgent care facilities handy. If the illness restricts you from travelling, ensure that your Supervisor is notified, and contact Human Resources. The EnSafe Employee Handbook discusses travel insurance for employees which includes travel and medical assistance.

In situations such as an epidemic, or pandemic, the Centers for Disease Control and Prevention (CDC) does not generally issue travel advisories or restrictions for travel within the United States. Therefore, you should plan and gather information concerning your destination. If you have questions about your destination, you should check your destination's local health department website for more information, as well any travel restrictions (addressed below). Discuss with the

¹ https://www.cdc.gov/coronavirus/2019-ncov/travelers/travel-in-the-us.html

ENSAFE

client if there are any additional risks locally that should be considered. Once information has been gathered, the traveler should Think Things Through (T_3) and incorporate risk management into travel. Confer as necessary with Health and Safety, Human Resources, your Project Manager, your Supervisor, or your Business Lead on the potential risks and decide if the travel can or should be accomplished.

Also, have an accountability plan in the event of an emergency or other situation. Employees should provide information as to their whereabouts, as well as confirm their personal safety. This applies to employees who were scheduled to work as well as those out of the office on paid time off. Keep a list of your emergency contacts handy and create a communication plan with your Supervisor in the event of a crisis.

All travel should be booked through Travel Leaders. In the event of an urgent need, Travel Leaders can provide information regarding the travel plans of employees. The traveler should communicate the overall travel plan to their Supervisor. This includes information pertaining to itineraries (i.e., flight, car, and accommodations) and any specific information about your destination. Your Microsoft Outlook calendar should be updated with all pertinent information, so it can be viewed, in cases of emergency.

AIR-TRAVEL

Air-travel is an acceptable transportation method. While in the airport, travelers are reminded to follow the CDCs travel and prevention guidance regarding COVID-19. This includes practicing good hygiene, such as washing your hands regularly. In addition to the CDC recommendations, Transportation Security Administration is also recommending that you wash your hands directly before and after completing the security screening process, and that you place personal items such as wallets, keys, or phone in your carry-on property that will be screened through the X-ray system. You may wear a facemask during the screening process, but a Transportation Security Administration officer may ask you to adjust the mask to visually confirm your identity².

While on the airplane, the air handling systems use high-efficiency particulate air filters; hence, airborne viruses are unlikely to be spread thru the air handling systems. Although the risk of infection on an airplane is low, standard precautions include: avoid contact with sick passengers, avoid touching your eyes, nose, or mouth with unwashed hands, and wash your hands often with soap and water for at least 20 seconds or use hand sanitizer that contains at least 60% alcohol. Other precautions should be considered:

² https://www.tsa.gov/coronavirus



- Wear a face mask to protect yourself and others.
- If you wear gloves ensure that they are removed and replaced after the flight. Do not touch eyes or face with gloved hands.
- Many airlines have announced enhanced plane cleaning procedures; however, there is no guarantee that every surface has been disinfected. If possible, the use of anti-microbial wipes to clean your seat armrest, tray table, seat-back pocket, air vent, seat touch screen, headrest, and window blind can also provide an additional measure of disinfection. (Consider packing anti-microbial wipes for your trip if the airline does not provide them to you.)

DRIVING

Driving may be a suitable alternative to air-travel and may lower the risk of COVID-19 exposure by lessening community interaction; however, there are still precautions to take. You may stop at rest-areas, gas stations, or other travel convenience areas where the potential for COVID-19 exposure from close contact or physical surfaces still exists. Fuel pump handles and credit card keypads can be contaminated, so take precautions, and perform hand hygiene immediately after touching surfaces — or if wearing gloves, ensure that you do not touch your face or eyes and discard the gloves after use. Practice social distancing at these public places.

EnSafers can travel in a multiple passenger configuration, if they are wearing face coverings and perform basic cleaning procedures (with disinfectant wipes, etc.) of touch points within the vehicle. If an employee is uncomfortable with being in the same car as someone else — A T_3 must be performed between the worker(s), Supervisor, and Business Lead concerning multiple vehicle travel.

Supplanting air travel will incur much further distances driven than before COVID-19. Therefore, several safety considerations must take precedence as well. COVID-19 has reduced the number of drivers considerably throughout the United States. Defensive driving techniques shall also be employed, regardless of volume of traffic, at any given time.

- No driver shall operate a vehicle when his/her ability to do so safely has been impaired by illness, fatigue, injury, or prescription medication.
- Ensure that plenty of sleep (7 to 9 hours) has been attained before driving. Employees are to be well rested, alert, and sober on the road so that they are able to defend themselves from drivers who do not make the same choice.

- Though there are no official recommendations from Occupational Safety and Health Administration, National Institute for Occupational Safety and Health, or other regulatory and professional bodies concerning personal drive time; the Federal Motor Carrier Safety Administration driving limits for commercial carriers will be used as a guideline and shall be followed:
 - 10-Hour Driving Limit: May drive a maximum of 10 hours after 8 consecutive hours off duty³. Consider driving no more than 500 miles per day, if a single driver.
 - Breaks should amount to approximately 45 minutes for every 4.5 hours of drive time.
 Monitor self and take further breaks or stop driving if ability to focus is inhibiting driving.

HOTELS AND RENTAL PROPERTIES

Most major brands of hotels (e.g., Marriott, Hilton, Best Western, Choice, etc.) have stated that their hotels around the world are working to ensure that they meet the latest guidance on hygiene and cleaning on a daily basis and have dedicated websites pertaining to COVID-19 customer safety. As such, preferences should be given to these hotels when possible. Lower brands of hotels may or may not be performing to the same standards as the larger ones; therefore, caution should be taken when purchasing a hotel room from a small-brand facility. As with other public situations, proper precautions to COVID-19 in public spaces should be followed. Some general precautions to take at *any hotel:*

- Ask them about laundering frequency; many hotels do not wash heavy bed spreads. Consider bringing your own blankets.
- If possible, bring or acquire disinfectants to wipe down all of the touch points within a hotel room, and clean all hard surfaces. This includes bathrooms, handles and light switches, desks, cabinets, TV remotes, etc. Avoid glassware until you have cleaned it.

Rental properties (e.g., Airbnb) have their own risks. Several jurisdictions have restricted their use, and others are using them only for medical and first responders. Further, there is no guarantee that the rental property owner has followed recommended protocols concerning cleaning for COVID-19 and protection of their customers. Rental properties should be considered if a hotel from a major hotel brand is not available.

³ https://www.fmcsa.dot.gov/regulations/hours-service/summary-hours-service-regulations

ENS/IFE

RESTAURANTS (TAKE OUT), CONVENIENCE STORES, ETC.

Is takeout food safe? Yes. The United States Department of Agriculture, CDC, and Food and Drug Administration all say that there is no evidence that COVID-19 is transmitted through food or food packaging. If restaurants follow proper COVID-19 procedures and industry-standard sanitizing practices, it should be safe to obtain take-out and/or delivery meals during business travel.

- Call ahead to the restaurant, or on arrival, ask them about how you should obtain and pay for your meal while maintaining practical social distancing protocols.
- If possible, transfer the food to another container and wash your hands.
- If driving to a client site, also consider preparing food at home and bringing it along. This reduces the need to stop at public places.

TRAVEL RESTRICTIONS

EnSafe Senior Leadership is continuing to monitor state and municipal stay-at-home orders and travel related restrictions, including updates to those orders, which may impact our ability to perform services at our client facilities and project sites. Although the requirements under these orders vary by location and can be solely restrictive based on the type of project work, we are more often than not finding favorable application of the associated exemptions to interpret and justify the continuance of EnSafe services as "essential". The newest wave of COVID-19 related orders we are seeing are state travel restrictions that dictate individuals self-quarantine (typically for 14 days) if they are entering or returning home from another state and/or city, as specified in the order. However, we are also finding essential service exemptions in the travel restrictions that are relevant to EnSafe. But with that said, there are some state orders (e.g., Pennsylvania and New York) that do indeed impact our ability to perform site related project work as we are typically accustomed to. Therefore, we must T_3 and be diligent in our communications to ensure that we have appropriately assessed these restrictions and discussed accordingly with our clients; including innovative ways to navigate through COVID-19 related challenges to meet client requests and exceed expectations to the best of our ability. Please contact Mr. Kip Barnett and/or the COVID-19 Response Team (covid19team@ensafe.com) directly or through your immediate Supervisor, Project Manager, and/or Business Leader so that we can thoroughly evaluate applicable state/municipal orders and restrictions for the purpose of project related decisions.

When EnSafe services are deemed "essential" and travel restrictions do not apply to said essential services (with reference to the above evaluation process), we should still carry the attached EnSafe essential services letter to document our position and help alleviate concerns associated with



out-of-state travel and/or local mobilization to our client sites. If you need a version addressed to a specific client, facility, or agency, again, please reach out to Mr. Barnett and/or the COVID-19 Response Team.



Attachment C9 IH Equipment Cleaning Protocol This page intentionally left blank.

EQUIPMENT CLEANING IN RESPONSE TO THE COVID-19 PANDEMIC

EnSafe employees should regularly clean and disinfect clean equipment between uses in order to minimize the potential spread of COVID-19 and minimize its impact to our employees and clients.

ENSAFE OWNED EQUIPMENT

The designated person assigned to maintaining the industrial hygiene equipment in each office shall ensure that the equipment is disinfected prior to use. This person needs to ensure that all employees using the IH equipment are aware of the cleaning and disinfecting requirement and disinfection materials are available. The United States Environmental Protection Agency (US EPA) has identified a list of disinfectants to use against COVID-19 (https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2).

It is important to perform routine cleaning and disinfecting by wiping equipment down after each use with an US EPA-registered disinfectant that is appropriate for the surface, following label instructions.

Ensure that the cleaning agents will not negatively impact the equipment. Care must be taken when cleaning electronics. Use only agents approved for the types of surfaces being cleaned and disinfected.

Chemical labels contain instructions for the safe and effective use of the cleaning product, including precautions EnSafe employees should take, such as wearing gloves and making sure areas are well ventilated during use of the product. For basic cleaning and disinfection tasks, a pair of disposable latex, nitrile, or vinyl gloves are suitable protection.

RENTAL EQUIPMENT

When retrieving rental equipment from a supplier, it is important to ask the supplier their preferred methods of disinfection. If the supplier does not have a preferred method, or the supplies of the preferred method are not accessible, use the best appropriate cleaning and disinfection materials available to you as you would with equipment from EnSafe.

STEPS FOR CLEANING AND DISINFECTING:

- 1. Assess the type of surface: Upon retrieval of the equipment, assess the equipment to determine the manufacturer approved method of cleaning/disinfecting, if available.
- Determine the appropriate disinfectant: Determine which disinfectant would serve best and follow label instructions on all containers. Diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and most common U.S. EPA-registered household disinfectants should be effective. Never mix household bleach with ammonia or any other cleanser.
- 3. If employee is traveling for the IH survey, the employee needs to bring required PPE and disinfectants with them to use before and after each day of monitoring.
- 4. If equipment is powered, ensure all power sources to equipment are disconnected, if possible.
- 5. Determine if additional personal protective equipment is required based on the cleaning/disinfectant products being used and whether there is a risk of splash.
- 6. Apply the disinfectant: Following the manufacturer's recommended method of cleaning, apply the disinfectant and wait the recommended period of time before wiping down the equipment with a clean towel.
- 7. Properly dispose of waste cleaning solutions per the label instructions.
- 8. Remove gloves and place in a trash bag and discard.
- 9. Wash hands after removing gloves and handling any contaminated material, trash, or waste.
- 10. Ensure equipment has been properly dried before reconnecting power sources, if applicable.
- 11. For consecutive day IH surveys, repeat steps 1-10 before and after each testing day to ensure cleanliness.

Follow these steps before and after using equipment for the health and safety of yourself and others.



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Attachment C10 Poster-How-to-Remove-Gloves This page intentionally left blank.

How to Remove Gloves

To protect yourself, use the following steps to take off gloves



Grasp the outside of one glove at the wrist. Do not touch your bare skin.



Peel the glove away from your body, pulling it inside out.



Hold the glove you just removed in your gloved hand.



Peel off the second glove by putting your fingers inside the glove at the top of your wrist.



Turn the second glove inside out while pulling it away from your body, leaving the first glove inside the second.



Dispose of the gloves safely. Do not reuse the gloves.



Clean your hands immediately after removing gloves.

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Attachment C11 Guidance on Return to Work This page intentionally left blank.



Guidance on Returning to Work

OSHA 4045-06 2020



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 Returning to Work

U.S. Department of Labor Occupational Safety and Health Administration

OSHA 4045-06 2020



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Overview

The Occupational Safety and Health Administration (OSHA) has developed the following guidance to assist employers and workers in safely returning to work and reopening businesses deemed by local authorities as "non-essential businesses" during the evolving Coronavirus Disease 2019 (COVID-19) pandemic. Employers can use this guidance to develop policies and procedures to ensure the safety and health of their employees.

This guidance is intended to supplement the U.S. Department of Labor and U.S. Department of Health and Human Services' previously developed Guidance on Preparing Workplaces for COVID-19 and the White House's Guidelines for Opening up America Again. It focuses on the need for employers to develop and implement strategies for basic hygiene (e.g., hand hygiene, cleaning and disinfection), social distancing, identification and isolation of sick employees, workplace controls and flexibilities, and employee training. This guidance is based on the application of traditional infection prevention and industrial hygiene practices to a phased approach for reopening, as the White House guidelines describe.

Reopening should align with the lifting of stay-at-home or shelter-in-place orders and other specific requirements of the Federal Government and state, local, tribal, and/or territorial (SLTT) governments across the United States, as well as with public health recommendations from the Centers for Disease Control and Prevention (CDC) and other federal requirements or guidelines. Employers should continually monitor federal, State, territorial, tribal, and local government guidelines for updated information about ongoing community transmission and mitigation measures, as well as for evolving guidance on disinfection and other best practices for worker protection. Where applicable, these guidelines may supplement state- or locality-specific information and re-opening requirements.

The CDC provides the latest information about the COVID-19 pandemic at: www.cdc.gov/coronavirus/2019-ncov.

OSHA provides specific information for workers and employers about the COVID-19 pandemic at: www.osha.gov/coronavirus.

The National Governors Association provides a state-bystate summary of public health criteria in reopening plans at: www.nga.org/coronavirus-reopening-plans.

Planning for Reopening

All employers should monitor SLTT health department communications to understand how the communities in which their workplaces are located are progressing through the reopening phases identified in the Guidelines for Opening up America Again. The guidelines provide general principles for relaxing restrictions that were put in place to slow the spread of COVID-19. Employers should continue to consider ways to utilize workplace flexibilities, such as remote work (i.e., telework), and alternative business operations to provide goods (e.g., curbside pickup) and services to customers.

During all phases of reopening, employers should implement strategies for basic hygiene (e.g., hand hygiene; cleaning and disinfection), social distancing, identification and isolation of sick employees, workplace controls and flexibilities, and employee training that are appropriate for the particular phase.

In general, during:

Phase 1: Businesses should consider making telework available, when possible and feasible with business operations. For employees who return to the workplace, consider limiting the number of people in the workplace in order to maintain strict social distancing practices. Where feasible, accommodations (i.e., flexibilities based on individual needs) should be considered for workers at higher risk of severe illness, including elderly individuals and those with serious underlying health conditions. Businesses should also consider extending special accommodations to workers with household members at higher risk of severe illness. Non-essential business travel should be limited.

- Phase 2: Businesses continue to make telework available where possible, but non-essential business travel can resume. Limitations on the number of people in the workplace can be eased, but continue to maintain moderate to strict social distancing practices, depending on the type of business. Continue to accommodate vulnerable workers as identified above in Phase 1.
- Phase 3: Businesses resume unrestricted staffing of work sites.

Changing outbreak conditions in each community will directly affect workers' exposure risks to SARS-CoV-2, the virus that causes COVID-19. For all phases of reopening, employers should develop and implement policies and procedures that address preventing, monitoring for, and responding to any emergence or resurgence of COVID-19 in the workplace or community. Employers should continue these practices to the extent possible to help prevent COVID-19 from emerging or resurging in their workplace. Such a resurgence could lead to increases in infected and sick employees, the increased need for contact tracing of individuals who visited a workplace, enhanced cleaning and disinfection practices, or even a temporary closure of the business.

Based on evolving conditions, employers' reopening plans should address:

Guiding Principle	Examples of How to Implement
Hazard assessment, including practices to determine when, where, how, and to what sources of SARS-CoV-2 workers are likely to be exposed in the course of their job duties.	 Assess all job tasks performed by or job categories held by employees to determine which job tasks or job categories involve occupational exposure. This can be a desktop assessment to maintain social distancing practices. Consider, among other things, exposures from members of the public (e.g., customers, visitors) with whom workers interact, as well as exposures from close contact with coworkers in the workplace. Consider current outbreak conditions in the community.
Hygiene , including practices for hand hygiene, respiratory etiquette, and cleaning and disinfection.	 Provide soap, water, and paper towels for workers, customers, and visitors to wash their hands, and encourage frequent and proper (for at least 20 seconds) handwashing. Provide hand sanitizer with at least 60% alcohol and encourage workers to use it frequently when they cannot readily wash their hands. Identify high-traffic areas, as well as surfaces or items that are shared or frequently touched, that could become contaminated. Target them for enhanced cleaning and disinfectants and adherence to CDC guidance for controlling the spread of COVID-19.

Guiding Principle

Social distancing,

including practices for maximizing to the extent feasible and maintaining distance between all people, including workers, customers, and visitors. Six feet of distance is a general rule of thumb. though social distancing practices may change as changes in community transmission of SARS-CoV-2 and other criteria prompt communities to move through the reopening phases.

Identification and isolation of sick

employees, including practices for worker self-monitoring or screening, and isolating and excluding from the workplace any employees with signs or symptoms of COVID-19.

Examples of How to Implement

- Limit business occupancy to a number of workers/customers that can safely be accommodated to allow for social distancing.
- Demarcate flooring in six-feet zones in key areas where workers, customers, or visitors would ordinarily congregate (i.e., restrooms, check-out lines, areas with time clocks) to encourage people to keep appropriate social distance between themselves and others.
- Post signage reminding workers, customers, and visitors to maintain at least six feet between one another.
- Post directional signs in hallways/ corridors where the width restricts movement and limits social distancing.
- Ask employees to evaluate themselves for signs/symptoms of COVID-19 before coming to work, and to stay home if they are not well. (See the "Employer Frequently Asked Questions" on page 11.)
- Establish a protocol for managing people who become ill in the workplace, including details about how and where a sick person will be isolated (in the event they are unable to leave immediately) while awaiting transportation from the workplace, to their home or to a health care facility, and cleaning and disinfecting spaces the ill person has occupied to prevent exposure to other workers, customers, or visitors. Employers may need to collaborate with SLTT health officials to facilitate contact tracing and notification related to COVID-19 cases or possible exposures.

Guiding Principle Examples of How to Implement Return to work after Follow CDC guidance for discontinuing self-isolation and returning to work after illness or exposure. including after workers illness, or discontinuing self-quarantine recover from COVID-19 or and monitoring after exposure, as complete recommended appropriate for the workplace. self-quarantine after Ensure workers who have been exposure to a person with exposed to someone with COVID-19 COVID-19. routinely monitor themselves or receive monitoring, including for signs and/or symptoms of potential illness, at work, in accordance with CDC guidance. **Controls**, including Select and implement appropriate engineering and engineering controls (e.g., physical barriers/shields to separate administrative controls. safe work practices. workers, enhanced ventilation), and and personal protective administrative controls (e.g., staggering equipment (PPE) work shifts, limiting breakroom

equipment (PPE) selected as a result of an employer's hazard assessment.

capacity, practicing social distancing, replacing in-person meetings with video-conference calls, ensuring workers wear appropriate face coverings, such as cloth face masks, to contain respiratory secretions), and providing and ensuring workers use appropriate PPE, identified through hazard assessments and in accordance with OSHA's standards at 29 CFR 1910. Subpart I, and OSHA and CDC guidance on use of PPE. (Note: cloth face coverings are not PPE, because they protect other people from the wearer's respiratory secretions, rather than protecting the wearer).

Guiding Principle	Examples of How to Implement
Workplace flexibilities, including those concerning remote work (i.e., telework) and sick leave.	 Evaluate existing policies and, if needed, consider new ones that facilitate appropriate use of telework, sick or other types of leave, and other options that help minimize workers' exposure risks. Communicate about workplace flexibilities, and ensure workers understand how to make use of available options (e.g., fatigue management).
Training , including practices for ensuring employees receive training on the signs, symptoms, and risk factors associated with COVID-19; where, how, and to what sources of SARS-CoV-2 employees might be exposed in the workplace; and how to prevent the spread of	 Train workers in the appropriate language and literacy level about their risks of exposure to SARS-CoV-2, what the employer is doing to protect them, including site-specific measures, and how they can protect themselves. Train workers about wearing cloth face coverings in the workplace, including any employer policies related to their use and considerations for when cloth face coverings could cause or contribute to a workplace safety and

SARS-CoV-2 at work.

health hazard.
As required by OSHA standards for PPE, including respiratory protection, and consistent with OSHA and CDC guidance, train workers how to put on, use, and take off PPE; how to clean, maintain, store, and dispose of PPE; and what the limitations of the PPE are. (Note: As described above, cloth face coverings are not PPE, because they protect other people from the wearer's respiratory secretions, rather than protecting the wearer).

Guiding Principle

Anti-retaliation, including practices for ensuring that no adverse or retaliatory action is taken against an employee who adheres to these guidelines or raises workplace safety and health concerns.

Examples of How to Implement

- Ensure workers understand their rights to a safe and healthful work environment, who to contact with questions or concerns about workplace safety and health, and prohibitions against retaliation for raising workplace safety and health concerns.
- Ensure workers understand their right to raise workplace safety and health concerns and seek an OSHA inspection under the Occupational Safety and Health Act.
- Ensure supervisors are familiar with workplace flexibilities and other human resources policies and procedures, as well as with workers' rights in general.

The examples presented in the table are intended to help employers understand each of the guiding principles that should go into their plans for resuming operations and reopening facilities. However, these examples are not an exhaustive list of controls that may be appropriate, necessary, or feasible, nor do all examples apply to every employer. The interagency Guidance on Preparing Workplaces for COVID-19 and the OSHA COVID-19 webpage provide additional recommendations for addressing and implementing these guiding principles within the workplace, including how the implementation of the principles varies by workers' exposure risk levels. Regardless of the types of infection prevention and control measures employers incorporate into their reopening plans, they should consider ways to communicate about those measures to workers, including through training (as described above) and providing a point of contact for any worker questions or concerns.

Applicable OSHA Standards and Required Protections in the Workplace

All of OSHA's standards that apply to protecting workers from infection remain in place as employers and workers return to work.

While covered employers are always responsible for complying with all applicable OSHA requirements, the agency's standards for PPE (29 CFR 1910.132), respiratory protection (29 CFR 1910.134), and sanitation (29 CFR 1910.141) may be especially relevant for preventing the spread of COVID-19. Where there is no OSHA standard specific to SARS-CoV-2, employers have the responsibility to provide a safe and healthful workplace that is free from serious recognized hazards under the General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health (OSH) Act of 1970.

Appendix A of this booklet outlines some of OSHA's general industry rules for hazard and exposure assessment, implementation programs, workplace controls, training, and recordkeeping, as well as prohibitions on retaliation, applicable to protecting workers from occupational exposure to SARS-CoV-2. Consult OSHA resources for other sectors not covered by the appendix, including construction, shipyard employment, and longshoring and marine terminals.

Employer Frequently Asked Questions¹

Can employers conduct work site SARS-CoV-2 testing?

Yes. Employers may consider implementing strategies to reduce risks to the safety and health of workers and workplaces from COVID-19 that include conducting SARS-CoV-2 testing. Neither the OSH Act nor OSHA standards prohibit employer testing for SARS-CoV-2, if applied in a transparent manner applicable to all employees (i.e., non-retaliatory).

^{1.} Note that these FAQs speak to Federal OSHA standards. Other federal and SLTT laws may apply.

Because of the limitations of current testing capabilities, employers should act cautiously on negative SARS-CoV-2 test results. Employers should not presume that individuals who test negative for SARS-CoV-2 infection (i.e., the virus that causes COVID-19) present no hazard to others in the workplace. Employers should continue to implement the basic hygiene, social distancing, workplace controls and flexibilities, and employee training described in this guidance in ways that reduce the risk of workplace spread of SARS-CoV-2, including by asymptomatic and pre-symptomatic individuals.

Can employers conduct work site temperature checks or other health screening?

Yes. Neither the OSH Act nor OSHA standards prohibits employer screening for COVID-19, if applied in a transparent manner applicable to all employees (i.e., non-retaliatory). Employers may consider implementing strategies to reduce risks to the safety and health of workers and workplaces from COVID-19 that include conducting daily in-person or virtual health checks (e.g., symptom and/or temperature screening, questionnaires, self-checks and self-questionnaires). Any such screening should consider ways to maintain confidentiality, as required by the Americans with Disabilities Act.

Because people infected with SARS-CoV-2 can spread the virus even if they do not have signs or symptoms of infection, temperature screening may play a part in a comprehensive program to monitor worker health during the pandemic, but may have limited utility on its own. In many workplaces, temperature screening efforts are likely to be most beneficial when conducted at home by individual workers, with employers' temperature screening plans relying on workers' self-monitoring and staying home if they have a fever or other signs or symptoms of illness, rather than employers directly measuring temperatures after workers arrive at the work site. Consider implementing such programs in conjunction with sick leave policies that encourage sick workers, including those whose self-monitoring efforts reveal a fever or other signs or symptoms of illness, to stay at home.

Regardless of whether or how employers ultimately decide to implement temperature checks or other health screening measures, they should act cautiously on results. Employers should not presume that individuals who do not have a fever or report experiencing other symptoms of COVID-19 do not have SARS-CoV-2, the virus that causes COVID-19. Employers should continue to implement the basic hygiene, social distancing, workplace controls and flexibilities, and employee training described in this guidance in ways that reflect the risk of community spread of COVID-19, including from asymptomatic and pre-symptomatic individuals, in the geographical area where the workplace is located.

What OSHA requirements must an employer follow when conducting health screening, temperature checking, or COVID-19 testing?

If an employer implements health screening or temperature checks and chooses to create records of this information, those records might qualify as medical records under the Access to Employee Exposure and Medical Records standard (29 CFR 1910.1020). The employer would then be required to retain these records for the duration of each worker's employment plus 30 years and follow confidentiality requirements. As explained above, employers need not make a record of temperatures when they screen workers, but instead may acknowledge a temperature reading in real-time. In addition, temperature records do not qualify as medical records under the Access to Employee Exposure and Medical Records standard unless they are made or maintained by a physician, nurse, or other health care personnel, or technician.

Additionally, personnel administering COVID-19 tests, inperson temperature checks, or other in-person health screening must be protected from exposure to sources of SARS-CoV-2, including asymptomatic and pre-symptomatic workers who might be infected but not know it. Protection of screening and testing workers should incorporate standard and appropriate transmission-based precautions and should follow the hierarchy of controls, including appropriate engineering and administrative controls, safe work practices, and PPE. See the CDC's General Business Frequently Asked Questions for more information about protecting screening workers. While diagnostic testing that involves saliva or nasal/ oral cavity swabbing would not typically fall under the scope of the Bloodborne Pathogens standard (29 CFR 1910.1030), any testing that involves drawing blood would.

Is there guidance on how to address the various health screening and medical issues associated with COVID-19 to avoid violating other labor, disability, and employment laws?

The U.S. Equal Employment Opportunity Commission (EEOC) has established guidance regarding What You Should Know About COVID-19 and the ADA, the Rehabilitation Act, and Other EEO Laws. Employers are encouraged to review this guidance as they develop the health screening, workplace policies, return to work plans, and consider other issues that may arise as they reopen their workplaces and plan to continue operations during the COVID 19 public health emergency. Additional information about labor, disability, and employment laws is available on the Summary of the Major Laws of the Department of Labor webpage.

When can employees who have had COVID-19, or illness consistent with COVID-19, return to work?

The CDC provides guidance about the discontinuation of isolation for people with COVID-19 who are not in healthcare settings. This guidance may be adapted by state and local health departments to respond to rapidly changing local circumstances.

How do I know if employees need personal protective equipment (PPE)?

Employers must conduct a hazard assessment in accordance with OSHA's PPE standard (29 CFR 1910.132), if applicable, to determine the PPE requirements for their unique work site. Employers subject to this standard must determine if PPE (such as gloves, surgical masks, and face shields) is necessary for employees to work safely after considering whether engineering and administrative controls and safe work practices (such as social distancing or the use of cloth face coverings) can effectively mitigate identified hazards.

Employers should consider modifying worker interactionboth among coworkers and with customers, visitors, or other members of the general public—in order to reduce the need for PPE, especially in light of potential equipment shortages. If PPE is necessary to protect workers from exposure to SARS-CoV-2 during particular work tasks when other controls are insufficient or infeasible, or in the process of being implemented, employers should either consider delaying those work tasks until the risk of SARS-CoV-2 exposure subsides or utilize alternative means to accomplish business needs and provide goods and services to customers. If PPE is needed, but not available, and employers cannot identify alternative means to accomplish business needs safely, the work tasks must be discontinued. Consider CDC guidance for conserving and extending filtering facepiece respirator supplies in nonhealthcare sectors.

Cloth face coverings are not PPE. However, they can be worn to reduce the spread of potentially infectious respiratory droplets from the wearer to others, including when the wearer has the virus but does not know it. This is known as source control. Employers may consider requiring cloth face coverings to be worn in the workplace as an administrative control. More information about cloth face coverings is available from OSHA's COVID-19 Frequently Asked Questions webpage. OSHA's PPE Safety and Health Topics page provides additional information about PPE selection, provision, use, and other related topics: www.osha.gov/SLTC/personalprotectiveequipment.

For More Information

Federal, State, territorial, tribal, 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 conditions in the geographic area where the business is located.

Below are several recommended websites to access the most current and accurate information:

- OSHA website: www.osha.gov
- Whistleblower Protection Program website: www.whistleblowers.gov
- U.S. Department of Labor COVID-19 webpage: www.dol.gov/coronavirus
- CDC website: www.cdc.gov/coronavirus
- 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.
OSHA Regional Offices

Region 1

Boston Regional Office (CT*, ME*, MA, NH, RI, VT*) JFK Federal Building 25 New Sudbury Street, Room E340 Boston, MA 02203 (617) 565-9860 (617) 565-9827 Fax

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

Chicago Regional Office (IL*, IN*, MI*, MN*, OH, WI) John C. Kluczynski Federal Building 230 South Dearborn Street, Room 3244 Chicago, IL 60604 (312) 353-2220 (312) 353-7774 Fax

Region 6

Dallas Regional Office (AR, LA, NM*, OK, TX) A. Maceo Smith Federal Building 525 Griffin Street, Room 602 Dallas, TX 75202 (972) 850-4145 (972) 850-4149 Fax

Region 7

Kansas City Regional Office (IA*, KS, MO, NE) Two Pershing Square Building 2300 Main Street, Suite 1010 Kansas City, MO 64108-2416 (816) 283-8745 (816) 283-0547 Fax

Region 8

Denver Regional Office (CO, MT, ND, SD, UT*, WY*) Cesar Chavez Memorial Building 1244 Speer Boulevard, Suite 551 Denver, CO 80204 (720) 264-6550 (720) 264-6585 Fax

Region 9

San Francisco Regional Office (AZ*, CA*, HI*, NV*, and American Samoa, Guam and the Northern Mariana Islands) San Francisco Federal Building 90 7th Street, Suite 2650 San Francisco, CA 94103 (415) 625-2547 (415) 625-2534 Fax

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 *These states and territories operate their own OSHA-approved job safety and health plans and cover state and local government employees as well as private sector employees. The Connecticut, Illinois, Maine, New Jersey, New York and Virgin Islands programs cover public employees only. (Private sector workers in these states are covered by Federal OSHA). 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-OSHA (6742).

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.



Appendix A — **Applicable OSHA Standards and Requirements**

Note: Specific paragraphs referenced in the table refer to the main provisions of the listed OSHA standards with which employers should be familiar. Other parts of these standards and additional standards not mentioned in the table may apply.		Personal Protective Equipment General Requirements, 29 CFR 1910.132	Respiratory Protection 29 CFR 1910.134	Sanitation, 29 CFR 1910.141	Hazard Communication 29 CFR 1910.1200	Access to Employee Exposure & Medical Records 29 CFR 1910.1020	Recording and Reporting Occupational Injuries & Illnesses, 29 CFR Part 1904
Applies generally to potential and actual	SARS-CoV-2 virus	(a)	(a)			(b), (c)(13)	29 CFR 1904.4(a)-(b)
exposure(s) to	Chemical hazards (e.g., cleaning and disinfection)	(a)	(a)		(b)	(b), (c)(13)	29 CFR 1904.4(a)-(b)
Hazard/exposure assessment	Required, generally	(d)(1)	(d)(1)(i), (iii)		(d)		
	Written requirements	(d)(2)			(e)		
Implementation program	Required, generally	(d)(1), (2)	(c)		(e)		
	Written requirements	(d)(2)	(c)		(e)		
	Worker involvement		(1)				29 CFR 1904.35
Controls	Engineering controls		(a)(1)				

Note: Specific paragraphs referenced in the table refer to the main provisions of the listed OSHA standards with which employers should be familiar. Other parts of these standards and additional standards not mentioned in the table may apply.		Personal Protective Equipment General Requirements, 29 CFR 1910.132	Respiratory Protection 29 CFR 1910.134	Sanitation, 29 CFR 1910.141	Hazard Communication 29 CFR 1910.1200	Access to Employee Exposure & Medical Records 29 CFR 1910.1020	Recording and Reporting Occupational Injuries & Illnesses, 29 CFR Part 1904
Controls	Administrative controls and safe work practices				(f)		
	PPE	(a)	(a), (d), (f), (g)				
Housekeeping	General cleaning			(a)(3)			
	Handwashing facilities with soap and running water			(d)			
Training	Required, generally	(f)(1)	(c), (k)		(h)		
	Initial training	(f)(1)	(k)(3)		(h)(1)		
	Periodic training	(f)(3)	(k)(5)		(h)(1)		
	In a language and format worker(s) can understand		(k)(2)				
	Covers use of PPE (e.g., donning and doffing)	(f)(1)(iii)	(c)		(h)(3)(iii)		

Note: Specific paragraphs referenced in the table refer to the main provisions of the listed OSHA standards with which employers should be familiar. Other parts of these standards and additional standards not mentioned in the table may apply.		Personal Protective Equipment General Requirements, 29 CFR 1910.132	Respiratory Protection 29 CFR 1910.134	Sanitation, 29 CFR 1910.141	Hazard Communication 29 CFR 1910.1200	Access to Employee Exposure & Medical Records 29 CFR 1910.1020	Recording and Reporting Occupational Injuries & Illnesses, 29 CFR Part 1904
Training	Training must be effective (e.g., workers must demonstrate competency)	(f)(2)	(k)		(h)(1)		
Recordkeeping	Maintenance of medical records		(m)			(b), (d)*	
	Respirator fit testing		(m)				
	Access by OSHA and/or NIOSH					(e)(3)	
Retaliation**	Prohibitions against employer retaliation						29 CFR 1904.36

* Note that 29 CFR 1910.1020 may apply to temperature records. Employers should evaluate the burdens and benefits of maintaining temperature records or asking workers to complete written questionnaires, as both will qualify as medical records if maintained by a physician, nurse, or other health care personnel, or technician. If employers do not record workers' temperatures, or if workers' temperatures are recorded but not made or maintained by a physician, nurse, or other health care personnel, or technician. If employers do not record workers' temperatures, or if workers' temperatures are recorded but not made or maintained by a physician, nurse, or other health care personnel or technician, the mere taking of a temperature would not amount to a record that must be retained.

** Section 11(c) of the OSH Act states:

(1) No person shall discharge or in any manner discriminate against any employee because such employee has filed any complaint or instituted or caused to be instituted any proceeding under or related to this Act or has testified or is about to testify in any such proceeding or because of the exercise by such employee on behalf of himself or others of any right afforded by this Act.

(2) Any employee who believes that he has been discharged or otherwise discriminated against by any person in violation of this subsection may, within thirty days after such violation occurs, file a complaint with the Secretary alleging such discrimination. Upon receipt of such complaint, the Secretary shall cause such investigation to be made as he deems appropriate. If upon such investigation, the Secretary shall cause such investigation to be made as he deems appropriate. If upon such investigation, the Secretary and perporpriate United States district court against such person. In any such action the United States district courts shall have jurisdiction, for cause shown to restrain violations of paragraph (1) of this subsection and order all appropriate relief including rehiring or reinstatement of the employee to his former position with back pay.

(3) Within 90 days of the receipt of a complaint filed under this subsection the Secretary shall notify the complainant of his determination under paragraph 2 of this subsection.



U.S. Department of Labor



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Attachment C12

Preparing Workplaces for COVID 19 OSHA 4045

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Guidance on Preparing Workplaces for COVID-19

OSHA 3990-03 2020



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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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-toperson 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 drivethrough 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:
 - 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/2019ncov/specific-groups/guidance-business-response.html.

Engineering Controls

Engineering controls involve isolating employees from workrelated 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 levels.



Occupational Risk Pyramid for COVID-19

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/2019ncov/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.

OSHA Regional Offices

Region 1

Boston Regional Office (CT*, ME*, MA, NH, RI, VT*) JFK Federal Building 25 New Sudbury Street, Room E340 Boston, MA 02203 (617) 565-9860 (617) 565-9827 Fax

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

Chicago Regional Office (IL*, IN*, MI*, MN*, OH, WI) John C. Kluczynski Federal Building 230 South Dearborn Street, Room 3244 Chicago, IL 60604 (312) 353-2220 (312) 353-7774 Fax

Region 6

Dallas Regional Office (AR, LA, NM*, OK, TX) A. Maceo Smith Federal Building 525 Griffin Street, Room 602 Dallas, TX 75202 (972) 850-4145 (972) 850-4149 Fax

Region 7

Kansas City Regional Office (IA*, KS, MO, NE) Two Pershing Square Building 2300 Main Street, Suite 1010 Kansas City, MO 64108-2416 (816) 283-8745 (816) 283-0547 Fax

Region 8

Denver Regional Office (CO, MT, ND, SD, UT*, WY*) Cesar Chavez Memorial Building 1244 Speer Boulevard, Suite 551 Denver, CO 80204 (720) 264-6550 (720) 264-6585 Fax

Region 9

San Francisco Regional Office (AZ*, CA*, HI*, NV*, and American Samoa, Guam and the Northern Mariana Islands) San Francisco Federal Building 90 7th Street, Suite 2650 San Francisco, CA 94103 (415) 625-2547 (415) 625-2534 Fax

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

*These states and territories operate their own OSHA-approved job safety and health plans and cover state and local government employees as well as private sector employees. The Connecticut, Illinois, Maine, New Jersey, New York and Virgin Islands programs cover public employees only. (Private sector workers in these states are covered by Federal OSHA). 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-OSHA (6742).

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: OCCUpational Safety and Health Administration www.osha.gov (800) 321-OSHA (6742) This page intentionally left blank.

Attachment C13

Interim Guidance Businesses and Employers CDC

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Coronavirus Disease 2019 (COVID-19)



Plan, Prepare and Respond to Coronavirus Disease 2019

Updated May 6, 2020

Print

Summary of Changes to the Guidance:

Below are changes as of May 6, 2020

- Updated strategies and recommendations for employers responding to COVID-19, including those seeking to resume normal or phased business operations:
 - Conducting daily health checks
 - $\circ\,$ Conducting a hazard assessment of the workplace
 - Encouraging employees to wear cloth face coverings in the workplace, if appropriate
 - Implementing policies and practices for social distancing in the workplace
 - $\circ\,$ Improving the building ventilation system
- A table outlining the engineering controls, administrative controls, and personal protective equipment (PPE) that employers may use to help prevent the spread of COVID-19 in the workplace

More Changes

CDC Industry Guidance

• Resources for Airlines

- Resources for the Ship Industry
- Employers with Workers at High Risk

OSHA/HHS Guidance

• Guidance on Preparing Workplaces for COVID-19 📐 🖸

Resuming Business Toolkit



Purpose

This interim guidance is based on what is currently known about the coronavirus disease 2019 (COVID-19). CO 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. There is much more to learn about the transmiss severity, and other characteristics of COVID-19 and investigations are ongoing. Updates are available on CDC's page at https://www.cdc.gov/coronavirus/2019-ncov/. CDC will update this interim guidance as additional information becomes available.

This interim guidance may help prevent workplace exposures to COVID-19 in non-healthcare settings (separate guidance is available for healthcare settings). CDC has also provided guidance for critical infrastructure worker may have had exposure to a person known or suspected to have COVID-19. Unless otherwise specified, this in guidance for businesses and employers applies to critical infrastructure workplaces as well.

Role of Businesses and Employers in Responding to COVID-19

Businesses and employers can prevent and slow the spread of COVID-19 within the workplace. Employers sho respond in a way that takes into account the level of disease transmission in their communities and revise the business response plans as needed. Employers should follow the White House Guidelines for Opening Up Amagain a phased approach based on current levels of transmission and healthcare capacity at the state or lo level, as part of resuming business operations. Business operation decisions should be based on both the leve disease transmission in the community and your readiness to protect the safety and health of your employees customers.

Businesses and employers are encouraged to coordinate with state 🗹 and local 🗹 health officials to obtain ti

and accurate information to inform appropriate responses. Local conditions will influence the decisions that p health officials make regarding community-level strategies. CDC has guidance for mitigation strategies A accc to the level of community transmission or impact of COVID-19.

As an employer, if your business operations were interrupted, resuming normal or phased activities presents a opportunity to update your COVID-19 preparedness, response, and control plans. All employers should impler and update as necessary a plan that:

- Is specific to your workplace,
- identifies all areas and job tasks with potential exposures to COVID-19, and
- includes control measures to eliminate or reduce such exposures.

Talk with your employees about planned changes and seek their input. Additionally, collaborate with employee unions to effectively communicate important COVID-19 information.

See the OSHA COVID-19 guidance P C for more information on how to protect workers from potential exposition according to their exposure risk. Plans should consider that employees may be able to spread COVID-19 even do not show symptoms.

All employers need to consider how best to decrease the spread of COVID-19 and lower the impact in your workplace. This should include activities to:

- prevent and reduce transmission among employees,
- maintain healthy business operations, and
- maintain a healthy work environment.

Prevent and Reduce Transmission Among Employees

Monitor federal, state, and local public health communications about COVID-19 regulations, guidance, and recommendations and ensure that workers have access to that information. Frequently check the CDC COVID-website.

Actively encourage sick employees to stay home:

- Employees who have symptoms should notify their supervisor and stay home.
- Sick employees should follow CDC-recommended steps. Employees should not return to work until the crit discontinue home isolation are met, in consultation with healthcare providers.
- Employees who are well but who have a sick family member at home with COVID-19 should notify their sug and follow CDC recommended precautions.

Consider conducting daily in-person or virtual health checks (e.g., symptom and/or temperature screening) (employees before they enter the facility, in accordance with state and local public health authorities and, if ava your occupational health services:

- If implementing in-person health checks, conduct them safely and respectfully. Employers may use social distancing, barrier or partition controls, or personal protective equipment (PPE) to protect the screener. Ho reliance on PPE alone is a less effective control and is more difficult to implement, given PPE shortages and training requirements.
 - See the "Should we be screening employees for COVID-19 symptoms?" section of General Business Frequently Asked Questions as a guide.
- Complete the health checks in a way that helps maintain social distancing guidelines, such as providing mu screening entries into the building.
- Follow guidance from the Equal Employment Opportunity Commission 🖸 regarding confidentiality of mec records from health checks.
- To prevent stigma and discrimination in the workplace, make employee health screenings as private as pos Do not make determinations of risk based on race or country of origin and be sure to maintain confidential each individual's medical status and history.

Identify where and how workers might be exposed to COVID-19 at work. Employers are responsible for prove safe and healthy workplace 2. Conduct a thorough hazard assessment 2 of the workplace to identify potent workplace hazards related to COVID-19. Use appropriate combinations of controls from the hierarchy of control limit the spread of COVID-19, including engineering controls, workplace administrative policies, and personal protective equipment (PPE) to protect workers from the identified hazards (see table below):

- Conduct a thorough hazard assessment to determine if workplace hazards are present, or are likely to be p and determine what type of controls or PPE are needed for specific job duties.
- When engineering and administrative controls cannot be implemented or are not fully protective, employe required by OSHA standards to:
 - $\circ\,$ Determine what PPE is needed for their workers' specific job duties,
 - $\circ\,$ Select and provide appropriate PPE to the workers at no cost, and
 - $\circ\,$ Train their workers on its correct use.
- Encourage workers to wear a cloth face covering at work if the hazard assessment has determined that the not require PPE, such as a respirator or medical facemask for protection.
 - CDC recommends wearing a cloth face covering as a measure to contain the wearer's respiratory drop and help protect their co-workers and members of the general public.
 - Cloth face coverings are not considered PPE. They may prevent workers, including those who don't kn they have the virus, from spreading it to others but may not protect the wearers from exposure to the that causes COVID-19.
- Remind employees and customers that CDC recommends wearing cloth face coverings in public settings w other social distancing measures are difficult to maintain, **especially** in areas of significant community-base transmission. Wearing a cloth face covering, however, does not replace the need to practice social distancir
- See the OSHA COVID-19 🖸 webpage for more information on how to protect workers from potential COVI exposures and guidance for employers 🔎 🖸 , including steps to take for jobs according to exposure risk.

Separate sick employees:

• Employees who appear to have symptoms upon arrival at work or who become sick during the day should immediately be separated from other employees, customers, and visitors, and sent home.

• Have a procedure in place for the safe transport of an employee who becomes sick while at work. The emp may need to be transported home or to a healthcare provider.

Take action if an employee is suspected or confirmed to have COVID-19 infection:

In most cases, you do not need to shut down your facility. If it has been less than 7 days since the sick employe been in the facility, close off any areas used for prolonged periods of time by the sick person:

- Wait 24 hours before cleaning and disinfecting to minimize potential for other employees being exposed to respiratory droplets. If waiting 24 hours is not feasible, wait as long as possible.
- During this waiting period, open outside doors and windows to increase air circulation in these areas.

If it has been 7 days or more since the sick employee used the facility, additional cleaning and disinfection is necessary. Continue routinely cleaning and disinfecting all high-touch surfaces in the facility.

Follow the CDC cleaning and disinfection recommendations:

- Clean dirty surfaces with soap and water before disinfecting them.
- To disinfect surfaces, use products that meet EPA criteria for use against SARS-Cov-2 🖸 , the virus that cau COVID-19, and are appropriate for the surface.
- Always wear gloves and gowns appropriate for the chemicals being used when you are cleaning and disinfe
- You may need to wear additional PPE depending on the setting and disinfectant product you are using. For product you use, consult and follow the manufacturer's instructions for use.

Determine which employees may have been exposed to the virus and may need to take additional precaution:

- Inform employees of their possible exposure to COVID-19 in the workplace but maintain confidentiality as required by the Americans with Disabilities Act (ADA) 🖸 .
- Most workplaces should follow the Public Health Recommendations for Community-Related Exposure and instruct potentially exposed employees to stay home for 14 days, telework if possible, and self-monitor for symptoms.
- Critical infrastructure 🖸 workplaces should follow the guidance on Implementing Safety Practices for Criti Infrastructure Workers Who May Have Had Exposure to a Person with Suspected or Confirmed COVID-19. Employers in critical infrastructure also have an obligation to manage potentially exposed workers' return t in ways that best protect the health of those workers, their co-workers, and the general public.

Educate employees about steps they can take to protect themselves at work and at home:

- Encourage employees to follow any new policies or procedures related to illness, cleaning and disinfecting, work meetings and travel.
- Advise employees to:
- Stay home if they are sick, except to get medical care, and to learn what to do if they are sick.
- Inform their supervisor if they have a sick family member at home with COVID-19 and to learn what to do if someone in their home is sick.

- Wash their hands often with soap and water for at least 20 seconds or to use hand sanitizer with at least 6(alcohol if soap and water are not available. Inform employees that if their hands are visibly dirty, they shou soap and water over hand sanitizer. Key times for employees to clean their hands include:
 - $\circ\,$ Before and after work shifts
 - Before and after work breaks
 - $\circ\,$ After blowing their nose, coughing, or sneezing
 - After using the restroom
 - $\circ\,$ Before eating or preparing food
 - $\circ\,$ After putting on, touching, or removing cloth face coverings
- Avoid touching their eyes, nose, and mouth with unwashed hands.
- Cover their mouth and nose with a tissue when you cough or sneeze, or use the inside of their elbow. Thro tissues into no-touch trash cans and immediately wash hands with soap and water for at least 20 seconds. and water are not available, use hand sanitizer containing at least 60% alcohol. Learn more about coughing sneezing etiquette on the CDC website.
- Practice routine cleaning and disinfection of frequently touched objects and surfaces such as workstations, keyboards, telephones, handrails, and doorknobs. Dirty surfaces can be cleaned with soap and water prior 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. Cl and disinfect them before and after use.
- Practice social distancing by avoiding large gatherings and maintaining distance (at least 6 feet) from others possible.

For employees who commute to work using public transportation or ride sharing, consider offering the fol support:

- If feasible, offer employees incentives to use forms of transportation that minimize close contact with othe biking, walking, driving or riding by car either alone or with household members).
- Ask employees to follow the CDC guidance on how to protect yourself when using transportation.
- Allow employees to shift their hours so they can commute during less busy times.
- Ask employees to clean their hands as soon as possible after their trip.

Maintain Healthy Business Operations

Identify a workplace coordinator who will be responsible for COVID-19 issues and their impact at the workpla

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 a 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 children due to school and childcare closures. Additional flexibilities might include giving advances on futur leave and allowing employees to donate sick leave to each other.

- The Families First Coronavirus Response Act (FFCRA or Act) requires certain employers 🗹 to provide their employees with paid sick leave or expanded family and medical leave for specified reasons related to COVI
- Employers with fewer than 500 employees are eligible for 100% tax credits 🖸 for Families First Coronaviru Response Act COVID-19 paid leave provided through December 31, 2020, up to certain limits.
- Employers that do not currently offer sick leave to some or all of their employees should consider drafting punitive "emergency sick leave" policies.
- Employers should not require a COVID-19 test result or a healthcare provider's note for employees who are validate their illness, qualify for sick leave, or to return to work.
 - Under the American's with Disabilities Act, employers are permitted to require a doctor's note from yc employees
 If to verify that they are healthy and able to return to work. However, as a practical matter aware that healthcare provider offices and medical facilities may be extremely busy and not able to pr such documentation in a timely manner. Most people with COVID-19 have mild illness and can recove home without medical care and can follow CDC recommendations to determine when to discontinue lisolation and return to work.
 - The U.S. Equal Employment Opportunity Commission (EEOC) has established guidance regarding Pane Preparedness in the Workplace and the Americans with Disabilities Act
 The guidance enables empto take steps to protect workers consistent with CDC guidance, including requiring workers to stay hor when necessary to address the direct threat of spreading COVID-19 to others.
- Review human resources policies to make sure that your policies and practices are consistent with public h recommendations and with existing state and federal workplace laws (for more information on employer responsibilities, visit the Department of Labor's [2] and the Equal Employment Opportunity Commission's websites).
- Connect employees to employee assistance program (EAP) resources, if available, and community resource needed. Employees may need additional social, behavioral, and other services, for example, to help them n stress and cope.

Protect employees at higher risk for severe illness through supportive policies and practices. Older adults a people of any age who have serious underlying medical conditions are at higher risk for severe illness from COVID-19.

- Support and encourage options to telework, if available.
- Consider offering vulnerable workers duties that minimize their contact with customers and other employe (e.g., restocking shelves rather than working as a cashier), if the worker agrees to this.
- Offer flexible options such as telework to employees. This will eliminate the need for employees living in hit transmission areas to travel to workplaces in lower transmission areas and vice versa.
- Ensure that any other businesses and employers sharing the same workspace also follow this guidance.

Communicate supportive workplace polices clearly, frequently, and via multiple methods. Employers may r communicate with non-English speakers in their preferred languages.

- Train workers on how implementing any new policies to reduce the spread of COVID-19 may affect existing and safety practices.
- Communicate to any contractors or on-site visitors about changes that have been made to help control the spread of COVID-19. Ensure that they have the information and capability to comply with those policies.

- Create and test communication systems that employees can use to self-report if they are sick and that you use to notify employees of exposures and closures.
- Consider using a hotline or another method for employees to voice concerns anonymously.

Assess your essential functions and the reliance that others and the community have on your services or pro

- Be prepared to change your business practices, if needed, to maintain critical operations (e.g., identify alter suppliers, prioritize existing customers, or temporarily suspend some of your operations).
- Identify alternate supply chains for critical goods and services. Some goods and services may be in higher c or unavailable.
- If other companies provide your business with contract or temporary employees, talk with them about the importance of sick employees staying home and encourage them to develop non-punitive leave policies.
- Talk with business partners about your response efforts. Share best practices with other businesses in you communities (especially those in your supply chain), chambers of commerce, and associations to improve community response efforts.
- When resuming onsite business operations, identify and prioritize job functions for continuous operations. Minimize the number of workers present at worksites by resuming business operations in phases, balancir need to protect workers with support for continuing operations.

Determine how you will operate if absenteeism spikes from increases in sick employees, those who stay hor care for sick family members, and those who must stay home to watch their children until childcare programs K-12 schools resume.

- 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 absent.

Establish policies and practices for social distancing. Alter your workspace to help workers and customers m social distancing and physically separate employees from each other and from customers, when possible. Her some strategies that businesses can use:

- Implement flexible worksites (e.g., telework).
- Implement flexible work hours (e.g., rotate or stagger shifts to limit the number of employees in the workpl the same time).
- Increase physical space between employees at the worksite by modifying the workspace.
- Increase physical space between employees and customers (e.g., drive-through service, physical barriers su partitions).
- Use signs, tape marks, or other visual cues such as decals or colored tape on the floor, placed 6 feet apart, indicate where to stand when physical barriers are not possible.
- Implement flexible meeting and travel options (e.g., postpone non-essential meetings or events in accordar

with state and local regulations and guidance).

- Close or limit access to common areas where employees are likely to congregate and interact.
- Prohibit handshaking.
- Deliver services remotely (e.g., phone, video, or web).
- Adjust your business practices to reduce close contact with customers for example, by providing drive-th service, click-and-collect online shopping, shop-by-phone, curbside pickup, and delivery options, where fease
- Move the electronic payment terminal/credit card reader farther away from the cashier, if possible, to incre the distance between the customer and the cashier.
- Shift primary stocking activities to off-peak or after hours, when possible, to reduce contact with customers

If you have more than one business location, consider giving local managers the authority to take appropriat actions outlined in their COVID-19 response plans based on their local conditions.

Maintain a healthy work environment

Since COVID-19 may be spread by those with no symptoms, businesses and employers should evaluate and in controls according to the hierarchy of controls to protect their employees and members of the general public.

Consider improving the engineering controls using the building ventilation system. This may include some the following activities:

- Increase ventilation rates.
- Ensure ventilation systems operate properly and provide acceptable indoor air quality for the current occul level for each space.
- Increase outdoor air ventilation, using caution in highly polluted areas. With a lower occupancy level in the building, this increases the effective dilution ventilation per person.
- Disable demand-controlled ventilation (DCV).
- Further open minimum outdoor air dampers (as high as 100%) to reduce or eliminate recirculation. In mild weather, this will not affect thermal comfort or humidity. However, this may be difficult to do in cold or hot weather.
- Improve central air filtration to the MERV-13 or the highest compatible with the filter rack, and seal edges o filter to limit bypass.
- Check filters to ensure they are within service life and appropriately installed.
- Keep systems running longer hours, 24/7 if possible, to enhance air exchanges in the building space.

Note: Some of the above recommendations are based on the American Society of Heating, Refrigerating, and . Conditioning Engineers (ASHRAE) Guidance for Building Operations During the COVID-19 Pandemic 🗹 . Review ASHRAE guidelines for further information on ventilation recommendations.

Ensure the safety of your building water system and devices after a prolonged shutdown:

• Follow the CDC Guidance for Building Water Systems, which describes 8 steps to take before you reopen yc business or building.

Give employees, customers, and visitors what they need to clean their hands and cover their coughs and sneezes:

- Provide tissues and no-touch trash cans.
- Provide soap and water in the workplace. If soap and water are not readily available, use alcohol-based har sanitizer that is at least 60% alcohol. Ensure that adequate supplies are maintained.
- Ideally, place touchless hand sanitizer stations 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 other workplace areas where they are likely to be seen. This should include signs for non-English speakers, needed.
- Discourage handshaking. Encourage employees to use other noncontact methods of greeting.
- Direct employees to visit CDC's coughing and sneezing etiquette and clean hands webpage for more inform

Perform routine cleaning:

- Follow the Guidance for Cleaning and Disinfecting to develop, implement, and maintain a plan to perform r cleanings to reduce the risk of exposure to COVID-19.
- Routinely clean all frequently touched surfaces in the workplace, such as workstations, keyboards, telephor handrails, and doorknobs.
 - $\circ\,$ If surfaces are dirty, clean them using a detergent or soap and water before you disinfect them.
 - 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 on the website. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concen application method, and contact time).
- Discourage workers from using each other's phones, desks, offices, or other work tools and equipment, wh possible.
- Provide disposable disinfecting wipes so that employees can wipe down commonly used surfaces (e.g., doorknobs, keyboards, remote controls, desks, other work tools and equipment) before each use.
- Store and use disinfectants in a responsible and appropriate manner according to the label.
- Do not mix bleach or other cleaning and disinfection products together. This can cause fumes that could be dangerous to breathe in.
- Advise employees to always wear gloves appropriate for the chemicals being used when they are cleaning a disinfecting and that they may need additional PPE based on the setting and product.

Perform enhanced cleaning and disinfection after persons suspected/confirmed to have COVID-19 have be the facility:

• If a sick employee is suspected or confirmed to have COVID-19, follow the CDC cleaning and disinfection recommendations.

Limit travel and advise employees if they must travel to take additional precautions and preparations:

• Minimize non-essential travel and consider resuming non-essential travel in accordance with state and loca

regulations and guidance.

- Check the CDC's Traveler's Health Notices for the latest guidance and recommendations for each country w 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 before starting travel and to notify their supervisor and stay home if they are sick.
- Ensure employees who become sick while traveling or on temporary assignment understand that they show notify their supervisor and promptly call a healthcare provider for advice if needed.
- If they are outside the United States, sick employees should follow company policy for obtaining medical ca contact a healthcare provider or overseas medical assistance company to help them find an appropriate healthcare provider in that country. A U.S. consular officer can help locate healthcare services. However, U. embassies, consulates, and military facilities do not have the legal authority, capability, or resources to evac or give medicines, vaccines, or medical care to private U.S. citizens overseas.

Minimize risk to employees when planning meetings and gatherings:

- Use videoconferencing or teleconferencing when possible for work-related meetings and gatherings.
- Cancel, adjust, or postpone large work-related meetings or gatherings that can only occur in-person in accc with state and local regulations and guidance.
- When videoconferencing or teleconferencing is not possible, hold meetings in open, well-ventilated spaces continuing to maintain a distance of 6 feet apart and wear cloth face coverings.

The table below presents examples of controls to implement in your workplace. The most effective controls ar that rely on engineering solutions, followed by administrative controls, then PPE. PPE is the least effective cont method and the most difficult to implement. Worksites may have to implement multiple complementary control from these columns to effectively control the hazard.

Employers: Use the table below to implement the most appropriate controls for your workplace

TABLE: Example Controls to Prevent the Spread of COVID-19 in Work Environments

Engineering	Administrative	Personal Protective
		Equipment (PPE)

Facilities and Equipment

- Assess job hazards for feasibility of engineering controls
- Ensure ventilation and water systems operate properly
- Alter workspaces to maintain social distancing. Examples include:
 - Configure partitions as a barrier shield
 - Move electronic payment reader away from cashier
 - Use verbal announcements, signage, and visual cues to promote social distancing
 - Remove/rearrange furniture
 - Provide remote shopping alternatives (e.g., delivery, pick-up)

Management and Communications

- Monitor state and local public health communications about COVID-19
- Encourage sick workers to report symptoms, stay home, and follow CDC guidance
- Develop strategies to:
 manage worker concerns
 - $\circ\,$ communicate with workers
- Remind workers of available support services
- Communicate to partners, suppliers, other contractors on policies and practices
- Encourage social distancing and the use of cloth face coverings (if appropriate) in the workplace
- Use technology to promote social distancing (e.g., telework and virtual meetings)
- Cancel group events
- Close/limit use of shared spaces
- Ask customers who are ill to stay home
- Consider policies that encourage flexible sick leave and alternative work schedules.
- Schedule stocking during off-peak hours

Cleaning and Disinfection

- Clean and disinfect frequently touched surfaces, (e.g., counters, shelving, displays)
- Provide employees with disposable disinfectant wipes, cleaner, or sprays that are effective against the virus that causes COVID-19

Training

PPE

- Conduct workplace hazard assessment
- Determine what PPI needed for their wo specific job duties b on hazards and othe controls present
- Select and provide appropriate PPE to t workers at no cost.

Provide employees with training on:

- Policies to reduce the spread of COVID-19
- General hygiene
- Symptoms, what to do if sick
- Cleaning and disinfection

Resources for more information: CDC Guidance

- COVID-19 Website
- Business and Workplaces webpage
- General Business Frequently Asked Questions
- Small Business
- Transportation and Delivery
- What You Need to Know About COVID-19
- What to Do If You Are Sick With COVID-19
- What Workers and Employers Can Do to Manage Workplace Fatigue during COVID-19
- People at Higher Risk of Severe Illness
- Public Health Recommendations for Community-Related Exposures
- Public Health Recommendations after Travel-Associated COVID-19 Exposure
- Health Alert Network
- Travelers' Health Website
- National Institute for Occupational Safety and Health's Small Business International Travel Resource Travel Planner 📐
- Managing Workplace Fatigue

Other Federal Agencies and Partners

- OSHA COVID-19 Website 🖸
- OSHA Guidance for Preparing Workplaces for COVID-19 🔼 🖸

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

Last Updated

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Attachment C14 Control Mechanisms This page intentionally left blank.

The following Control Mechanisms and Methods specific to this site are summarized below and have been identified in appropriate sections of the HASP.

These controls should be implemented for Hazards that were identified as part of the Tasks that will be conducted for this Project.

D1 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 with P100 cartridge (or equivalent). Additional PPE requirements are outlined in this HASP (See Table 1D or 8) and all personnel shall familiarize themselves with the appropriate health and safety responses for exposure to known onsite 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.

D2 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 forklift, 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 U.S. EPA 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.

D3 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.

D4 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 onsite 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 multi-contact 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.

D5 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 onsite (if such activities need to be completed, the contractor shall first consult with the HSC or SM so that an appropriate JHA can be prepared for the work activities);
- 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.

D6 Heat Stress — Care should be taken to provide adequate hydration supplies (water and electrolyte replacement) for our jobsites. Team members should observe each other and watch for the onset of heat related illnesses.

The use of tents (shade) and air conditioning (field trucks) or fans should be used to help mitigate the risk of heat injury or illness. In addition, a schedule of electrolyte replacement and water shall be implemented. Sunscreen shall be used to combat UV rays and sun burn.

The following are symptoms of heat stress and action should be taken immediately if any signs are exhibited:

- Hot, dry skin (usually red or mottled) or clammy, moist skin (with pale complexion)
- Confusion
- Loss of consciousness, fainting
- Nausea
- Fatigue
- Giddiness
- Mood changes
- Body temperatures in excess of 101°F

Any site worker exhibiting one or more of these symptoms will be withdrawn from the site to a cool, sheltered area for further evaluation. If symptoms persist, the subject will be transported to the hospital. Also, any site worker who loses consciousness will immediately be transported to the hospital.
D7 Cold Stress — Care should be taken to remain cognizant of cold stress hazards that can be encountered throughout the year. A large percentage of hypothermia cases occur when the air temperature is from 50-60 degrees Fahrenheit.

Site workers will be actively monitored for the following symptoms of hypothermia, if protracted (i.e., >1 hour in duration) onsite operations are conducted when the air temperature is below 30° F:

- Speech problems (e.g., slurring)
- "Goose bumps" with a bluish or "dead white" appearance
- Vertigo
- Intense shivering

If a worker develops one or more of these symptoms, he/she will immediately be taken to a warm, sheltered area and his/her oral temperature taken. Any worker thus affected will remain in the sheltered area until his/her temperature is measured at 98.6°F and/or the above-mentioned symptoms desist. Any worker exhibiting an oral temperature below 95°F or who loses consciousness will immediately be transported to the hospital for treatment.

If protracted onsite activities are undertaken in air temperatures lower than 40°F, Site workers will be monitored for the following signs of frostbite:

- Extreme pain and cold in exposed area(s) of skin
- Loss of dexterity
- Numbness
- Pale or blotchy skin

Any Site worker exhibiting one or more of these symptoms will be withdrawn from the Site to a warm, sheltered area and his/her affected extremities will be warmed (without rubbing). If symptoms persist or if true frostbite is suspected, the subject will be transported to the hospital immediately.

D8 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.

D9 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

D10 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 drive-bys 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 invoke 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.

D11 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 workday.

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.

D12 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, 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.

D13 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.

D14 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".

D15 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 forklift 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

 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.

Attachment C15 Standard Operating Procedures This page intentionally left blank.

STANDARD OPERATING PROCEDURE

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

EPA ID NO. OHR000167718

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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 cathode-ray tube (CRT) materials and hazardous wastes to be removed from the former Closed Loop facility located at 1655 and 1675 Watkins Road for offsite disposal and/or recycling.

All workers involved with completing these tasks inside the building must comply with the current Health and Safety Plan (HASP) prepared for the project. No workers can enter the warehouse space (Exclusion Zone) without complying with the HASP. Tasks associated with this work shall be completed in accordance with the Closure Plan, associated HASP, and applicable Job Hazard Assessments included in the HASP. CRTs being transported offsite for recycling shall be managed in accordance with 40 Code of Federal Regulations (CFR) Section 261.4(a)(22), 40 CFR Section 261.39, and Ohio Administrative Code (OAC) 3745-51-39. Hazardous waste removed from the facility shall be transported in accordance with 40 CFR Section 263 and OAC 3745-53.

2.0 MOVEMENT AND RELOCATION OF CATHODE-RAY TUBE MATERIALS

2.1 Forklift Operation and Movement of Gaylord Containers

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

Forklifts will be inspected at least once per shift. Additional procedures shall be followed:

- 1. If maintenance work is required, the forklift operator shall notify the shift supervisor. The forklift will be locked out and tagged out until the maintenance work is complete.
- 2. The shift supervisor shall coordinate maintenance work.
- 3. 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 10.3 of this SOP for equipment load out procedures from the Exclusion Zone.

2.1.2 Safe Operation of Forklift

Forklifts will only be utilized by properly trained/qualified operators with a full understanding of the design, stability, controls, and instruments of the forklift. The following procedures will be followed:

- 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. Vehicle wheels should be chocked 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.

2.1.3 Forklift Violations

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:

- 1. If an operator has acquired a total of three violations in a 2-month period
- 2. Failure to report all accidents, injury and property damage to the shift supervisor
- 3. Not being certified on the forklift they are operating
- 4. Forklift operating privileges shall be suspended until retraining requirements are fulfilled

2.2 Relocating Elevated Cathode-Ray Tube Material Containers and Gaylord Containers in Poor Condition or Nearing Collapse

Elevated CRT material containers or Gaylord containers (i.e. containers stacked two or three 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 Gaylord containers with the shift supervisor. If the elevated Gaylord containers cannot be moved or lifted in a safe manner

with a forklift, the elevated Gaylord containers 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 Gaylord containers 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 repackaging instructions.

3.0 EVALUATION OF CATHODE-RAY TUBE MATERIAL CONTAINER CONDITIONS

The purpose of this instruction is to establish guidelines and methods for the inspection of CRT material containers for shipping, re-packaging, and the disposal of emptied unusable Gaylord containers.

3.1 Inspection of Cathode-Ray Tube Material Containers Conditions

Each CRT material container removed from current storage areas shall be inspected by properly trained personnel to determine if the container is in a condition suitable for offsite shipment to a recycling facility or disposal location. The inspection process shall include an evaluation of the structural integrity of the container, inspection of existing stretch film or shrink wrap, inspection of banding, and inspection of the wood pallet.

If a CRT material 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 and 5.

If a CRT material 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.

3.2 Repackaging Cathode-Ray Tube Materials in New Containers and/or Gaylord Containers

Prior to any repairs or re-packaging, the exterior of a damaged material container must be cleaned to remove lead-containing dust residue on the exterior of the container, on the wood pallet or on top of the container's contents. See Section 4 for lead-containing 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 and 5.

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 and 5.

3.3 Disposal of Emptied, Unusable, Cathode-Ray Tube Material Containers

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 container, existing stretch film (if any), interior plastic liner (if any), and wood pallet shall be decontaminated and disposed of as non-hazardous solid waste or properly recycled.

If the materials cannot be decontaminated, the materials will be containerized in appropriate Department of Transportation (DOT) approved containers and considered hazardous for lead (D008) unless analytical testing demonstrates the material does not meet the hazardous characteristic criteria (i.e., a Toxicity Characteristic Leachate Procedure [TCLP] test determines that the material contains less than 5.0 milligrams/liter [mg/L] lead).

If TCLP analytical testing demonstrates the materials are considered hazardous (D008) for lead (i.e., the material contains greater than 5.0 mg/L lead), the materials must be recleaned and resampled, or transported offsite as a hazardous waste.

4.0 DECONTAMINATION OF CATHODE-RAY TUBE 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 offsite for disposal or recycling. The inspection and cleaning of accumulated lead-containing dust on containers shall be completed in designated processing areas for cleaning and re-packaging.

4.1 Inspection for Accumulated Dust on Cathode-Ray Tube Material Containers and Their Contents

Each CRT material container or palletized CRT materials wrapped in stretch film shall be inspected by properly trained personnel for the presence of bulk lead-containing dust contamination on the exterior of the cardboard Gaylord container, wood pallet, exterior of palletized stretched film materials, and on the contents of CRT materials in open-top containers. Observed accumulations of lead-containing dust shall be cleaned per Section 4.2.

4.2 High-Efficiency Particulate Air Vacuuming Lead-Containing Dust

Accumulated lead-containing dust on the exterior of CRT material containers, including the exterior of stretch film wrapped CRT materials and 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 lead-containing 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 lead-containing 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.

4.3 High-Efficiency Particulate Air 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 vacuums and filters shall be checked on a regular basis to ensure they are operating correctly. Spent filters and collected lead-containing 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., TCLP testing determines that the material contains less than 5.0 mg/L lead).

If TCLP analytical testing demonstrates the materials are considered hazardous (D008) for lead (i.e., the material contains greater than 5.0 mg/L lead), the materials must be recleaned and resampled, or transported offsite as a hazardous waste.

5.0 PREPARATION OF CATHODE-RAY TUBE 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 offsite 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 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.

5.2 Weighing and Labeling Cathode-Ray Tube 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. Prior to offsite shipment, containers of CRT-related materials will be labeled as follows.

6.0 TRANSFERRING CATHODE-RAY TUBE MATERIALS TO DESIGNATED LOADING ZONE FOR SHIPPING

The purpose of this instruction is to establish guidelines and methods for transferring Gaylord container 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 offsite shipping.

6.1 Loading Trucks Through Contaminant Reduction Zone and Clean Loading Zone 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 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 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 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 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 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 (or similar) 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 lead-containing 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.

CRT materials are to be loaded into trucks safely. Trucks shall not be loaded beyond the truck' maximum carrying capacity per DOT regulations.

6.2 Double Stacking of Cathode-Ray Tube 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 OSHA and DOT regulations.

7.0 CATHODE-RAY TUBE MATERIAL SHIPMENT RECORDKEEPING

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 Cathode-Ray Tube Materials Shipped for Recycling

In accordance with applicable United States Environmental Protection Agency (U.S. EPA) and DOT regulations, accurate shipping records will be prepared for all CRT materials removed from the buildings and transported offsite 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 workday, additional copies of all BOLs will be provided to the third-party vendor providing project monitoring and project coordination services.

Recordkeeping procedures will be completed in accordance with applicable portions of 40 CFR Section 261 and OAC 3745-51-39.

7.2 Cathode-Ray Tube Materials 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 offsite, 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 truckload 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.

A copy of each hazardous waste manifest and BOL will remain with the shift supervisor. At the end of each workday, 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 Section 263.

7.3 Cathode-Ray Tube Materials Exported for Recycling

In the event that CRT materials will be exported for recycling, the relevant procedures relevant to exporting CRT materials detailed in Attachment B (Applicable or Relevant and Appropriate Requirements) of Appendix A of the Closure Plan to which this HASP is associated will be followed.

7.4 Hazardous Wastes Shipped for Disposal

Other materials determined to be hazardous wastes (items including, but not limited to, containers of lead-containing dust, lead-contaminated unusable Gaylord containers, lead contaminated unusable stretch wrap, lead contaminated PPE, lead contaminated floor sweepings, etc.) shall be placed in clean DOT-approved containers suitable for hazardous waste disposal.

Each truckload of material that will be transferred offsite for disposal at a Subtitle C (hazardous waste) landfill will utilize a uniform hazardous waste manifest (U.S. EPA Form 8700 22) and, if necessary,

the continuation sheet (U.S. EPA Form 8700-22A) in accordance with OAC 3745 52 20, OAC 3745 52 21, and 40 CFR 262.21.

Before transporting hazardous waste offsite, 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 workday, 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 Section 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 lead-containing 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 lead-containing 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 lead-containing dust accumulation. Areas with elevated lead-containing dust accumulation shall be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable lead-containing dust control measures. Additionally, on an as needed or daily basis, high traffic areas that contain elevated lead-containing dust accumulation shall be cleaned using wet sweeping methods that utilize acceptable lead-containing dust accumulation shall be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable lead-containing dust accumulation shall be cleaned using wet sweeping methods that utilize acceptable lead-containing dust accumulation shall be cleaned using wet sweeping methods that utilize acceptable lead-containing dust control measures.

On a daily basis, or as needed, the CRZ and CLZ chambers shall be inspected for elevated lead-containing dust accumulation. If elevated lead-containing dust accumulation is observed, the elevated lead-containing dust accumulation shall be cleaned using wet sweeping methods or equivalent sweeping methods that utilize acceptable lead-containing 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

Lead-containing 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., TCLP testing determines that the material contains less than 5.0 mg/L lead).

If TCLP analytical testing demonstrates the materials are considered hazardous (D008) for lead (i.e., the material contains greater than 5.0 mg/L lead), the materials must be recleaned and resampled, or transported offsite as a hazardous waste.

9.0 MEDICAL MONITORING

Throughout the CRT removal process, personnel working in the Exclusion Zone and CLZ chamber shall participate in medical monitoring as detailed in the current HASP for the project. See the HASP for the medical monitoring requirements.

10.0 FINAL DECONTAMINATION OF EQUIPMENT (TOW MOTORS, SWEEPERS, SCALES, HIGH-EFFICIENCY PARTICULATE AIR 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 equipment or tools from the Exclusion Zone, the equipment and tools must be thoroughly decontaminated to remove contaminated lead-containing dust. The specific protocol for decontaminating reusable equipment will depend on the equipment. However, the equipment decontamination process will include the removal of lead-containing 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

Decontamination wastes (i.e. collected lead-containing dust, wipes, water, etc.) generated as part of decontamination activities shall be containerized, labeled, and disposed of properly. Launderable wipes must be transported 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 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., TCLP testing determines that the material contains less than 5.0 mg/L lead).

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., TCLP testing determines that the material contains less than 5.0 mg/L lead). 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, 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 lead-containing dust from the CRZ chamber into the CLZ chamber. During the equipment load out, the shift supervisor and the 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 serve as the on-scene coordinator (OSC) and provide monitoring, coordination, administration, and advisory services. Prior to CRT removal activities occurring at the site, the OSC or designee shall monitor and coordinate the construction of the CRZ and CLZ chambers. Throughout the CRT material removal activities, the OSC or designee 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 HASP;
- 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 offsite 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 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; and
- 14. Provide periodic confirmation of downstream CRT material recycler's receipt of materials and proper recycling of CRT materials removed from the site.

Attachment C16 Safety Data Sheet — Simple Green

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. Do not use on non-rinsable surfaces. **Restrictions on Use:** Sunshine Makers, Inc. Telephone: Company: 800-228-0709 • 562-795-6000 Mon – Fri, 8am – 5pm PST 15922 Pacific Coast Highway Fax: 562-592-3830 Huntington Beach, CA 92649 USA info@simplegreen.com Email: **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

Ingredient	<u>CAS Number</u>	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%*

*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: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: Specific Hazards Arising from Chemical: Special Protective Actions for Fire-Fighters:

Version No. 13000-18C

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. 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:	Gre	Green Liquid		Partition Coefficient: n-octanol/water:			er: Not determined	
Odor:	Add	led s	assafras odor	Autoignition Temperature:			Non-flammable	
Odor Threshold:	Not	dete	ermined	Decomposition Temperature:			42.7°C (109°F)	
pH ASTM D-1293:	8.5	8.5 - 9.2		Viscosity:			Like water	
Freezing Point ASTM D-1177:	g Point ASTM D-1177: 0-3.33°C (32-38°F)		Specific Gravity ASTM D-891: 1.01 – 1.03					
Boiling Point & Range ASTM D-1120: 101°C (213.8°F)		VOCs: <i>**Water & fragrance exemption in calculation</i>						
Flash Point ASTM D-93:	> 22	> 212°F		SCAQMD 304-91 / EPA 24:	0 g/l	L	0 lb/gal	0%
Evaporation Rate ASTM D-1901:	½ B	utyl	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						
Upper/Lower Flammability or Explosive Limits: Not applica		Not applicable	VOC Composite Partial Pressure: Not determined					
Vapor Pressure ASTM D-323: 0.60 PSI @77°F, 2.05 PSI @100°F		Relative Density ASTM D-4017: 8.42 – 8.59 lb/		2 – 8.59 lb/gal				
Vapor Density: Not determined		Solubility: 100% in water						

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Section 10: STABILITY AND REACTIVITY

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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	<u>of Toxicity</u>					
Acute Toxicity:	Oral LD50 (rat)	> 5 g/kg body weight				
	Dermal LD ₅₀ (rabbit)	> 5 g/kg body weight				
		Calculated via OSHA HCS 2012 / Globally Harmonized System of Classification and Labelling of Chemicals				
Skin Corrosion/Irrita	tion: Non-irritant per	Dermal Irritection [®] assay modeling. No animal testing performed.				
Eye Damage/Irritation: Non/Minimal irri		tant per Ocular Irritection [®] assay modeling. No animal testing performed.				
Germ Cell Mutagenicity: Mixture does no		t classify under this category.				
Carcinogenicity:	Mixture does no	t classify under this category.				
Reproductive Toxicit	y: Mixture does no	t classify under this category.				
STOT-Single Exposur	e: Mixture does no	t classify under this category.				
STOT-Repeated Expo	sure: Mixture does no	t classify under this category.				
Aspiration Hazard:	Mixture does no	t classify under this category.				

Section 12: ECOLOGICAL INFORMATION

Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of **Ecotoxicity:** Classification and Labelling of Chemicals. Aquatic Toxicity - Low, based on OECD 201, 202, 203 + Microtox: EC₅₀ & IC₅₀ ≥100 mg/L. Volume of ingredients used Aquatic: does not trigger toxicity classifications under the Globally Harmonized System of Classification and Labelling of Chemicals. **Terrestrial:** Not tested on finished formulation. Readily Biodegradable per OCED 301D, Closed Bottle Test. Reaches 100% biodegradability within Persistence and Degradability: 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

II N. Number:	Notannlicable
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 with transport or conveyance of	r needs to be aware of/comply with, in connection None known. 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.

Sections 311/312 Hazard Categories – Not applicable. SARA Title III: Sections 313 Superfunds Amendments and Reauthorizations Act of 1986 - Not applicable. Sections 302 – Not applicable.

Clean Air Act (CAA): Not applicable Clean Water Act (CWA): Not applicable

State Right To Know List	s: No ingredients	slisted	
California Proposition 65	5: No ingredients	s listed	
Texas ESL:			
Ethoxylated Alcohol	68439-46-3	60 μg/m³ long term	600 μg/m³ short term
Sodium Citrate	68-04-2	5 μg/m³ long term	50 μg/m³ short term
Sodium Carbonate	497-19-8	5 μg/m³ long term	50 μg/m³ short term
Citric Acid	77-92-9	10 μg/m³ long term	100 μg/m³ 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.

★

Section 16: OTHER INFORMATION - continued

NFPA:

Health -	– None	Stability – Stable		
Flamma	ıbility – Non-flammable	Special - None	~	0
Acrony	<u>ms</u>			
NTP	National Toxicology Program		IARC	International Agency for Research on Cancer
OSHA	Occupational Safety and Health Admini	stration	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.

OSHA HCS-2012 / GHS

Appendix D Personal Protective Equipment

PERSONAL PROTECTIVE EQUIPMENT

Hierarchy of Controls Overview

Controlling exposures to occupational hazards is the fundamental method of protecting workers. Traditionally, a hierarchy of controls has been used as a means of determining how to implement feasible and effective control solutions.

Hierarchy of Controls Most effective Physically remove Elimination the hazard Replace Substitution the hazard Engineering Isolate people from the hazard Controls Administrative Change the way people work Controls PPE Protect the worker with Personal Protective Equipment Least effective

One representation of this hierarchy is as follows:

Personal Protective Equipment Overview

Personal protective equipment (PPE) is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. PPE may include items such as gloves, safety glasses, shoes, earplugs or muffs, hard hats, respirators, coveralls, vests and fully encapsulating body suits.

Most work on EnSafe worksites consists of Level D protection. Level D protection is primarily a work uniform and is used for nuisance contamination only. It requires only coveralls and safety shoes/boots. Selection of other PPE is based upon the specific hazards involved.

PPE is addressed in specific Occupational Safety and Health Administration standards for general industry, maritime, and construction. Occupational Safety and Health Administration requires that

many categories of PPE meet or be equivalent to standards developed by the American National Standards Institute. The various levels of protection are described Table 1.

	Table 1 Level of Protection and Criteria								
Level of Protection	Criteria for Use	Equipment							
Level A	 When atmospheres are "immediately dangerous to life and health" (Immediately Dangerous to Life and Health [IDLH] according to the <i>NIOSH/OSHA Pocket Guide to Chemical Hazards</i> or other guides). When known atmospheres or potential situations exist that could affect the skin or eyes or be absorbed into the body through these surfaces. Consult standard references to obtain concentrations hazardous to skin, eyes, or mucous membranes. Potential situations include those where immersion may occur, vapors may be generated, or splashing may occur through site activities. Where atmospheres are oxygen-deficient. When the type(s) and or potential concentration of toxic substances are not known. 	 Positive-pressure, full face piece, self-contained breathing apparatus (SCBA) or supplied air respirator (SAR) with escape SCBA. Fully encapsulating chemical-protective suit. Chemical-resistant inner and outer gloves. Steel toe and steel shank chemical-resistant boots. Hard hat under suit. Two-way radios worn inside suit. Optional: coveralls, long cotton underwear, disposable protective suit, gloves and boots, over fully encapsulating suit. 							
Level B	 When respiratory protection is warranted and cartridge respirators are not appropriate. Examples of these conditions are: When work area may contain less than 19.5% oxygen, When expected contaminants do not have appropriate warning properties, e.g., vinyl chloride, or When cartridges are not available to protect against all chemicals of potential concern. 	 Chemical-resistant coveralls (Saranex or equivalent). Positive-pressure, full-face SCBA or SAR with escape bottle. Hard hat. Chemical-resistant outer and inner gloves. Steel toe and steel shank boots. Chemical-resistant outer boots. 							
Level C	 When respiratory protection is warranted and cartridge respirators are appropriate. When direct reading indicators exceed the action level. When air monitoring indicates sustained airborne concentration of a chemical is 50% or more of the permissible exposure limit (PEL) or Threshold Limit Value (TLV). When the work area contains at least 19.5% oxygen. 	 Chemical-resistant coveralls (Tyvek or equivalent). Full-face, air-purifying respirator equipped with cartridges suitable for the hazard. Hard hat. Chemical-resistant outer and inner gloves. Steel toe and steel shank boots. Disposable outer boots. 							
Modified Level D	 When chemical contamination is known or expected to be present, yet inhalation risk is low and respiratory protection is not required. Site contaminants may be absorbed through the skin. The "default level" of personal protective equipment (PPE) required when the Health and Safety Plan (HASP) does not specify another level of PPE. When minimal or no chemical contamination is expected. When HASP specifies Level D protection is adequate. When the work area has at least 19.5% oxygen. 	 Chemical-resistant coveralls (optional). Chemical-resistant outer gloves; inner gloves or glove liners, optional. Steel toe and steel shank boots. Hard hat. Safety glasses with side shields or safety goggles. Optional: chemical-resistant outer boots. Inner gloves or chemical-resistant gloves needed to handle soil or water samples. Optional: coveralls and disposable outer boots. Work clothes. 							
Level D	 No respiratory protection and minimal skin protection. Note: Voluntary use of dust masks are permitted. 	 Work clothes (shirt, trousers) Safety boots Safety glasses Hearing protection (in noisy environment) 							

For this jobsite, the level of protection with PPE will be:

LEVEL C

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.

Respirator Use

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 onsite 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 onsite 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.

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.

Personal Protective Equipment 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.

			Lev	el of Prote	ection	
Task	Description as Discussed in Section 1.4	А	В	С	Mod D	D
	Task 1 — Construction of Dust Control Containment Structures			\boxtimes		
	Task 2 — Movement and Relocation of CRT Materials			\boxtimes		
Phase I and Phase II	Task 3 — Evaluation of CRT Material Container Condition			\boxtimes		
	Task 4 — Decontamination of CRT Material Containers			\boxtimes		
	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			\boxtimes		
	Task 9 — Closed Loop Equipment Removal			\boxtimes		
Phase III	Task 10 — Building Decontamination					
	Task 11 — Final Equipment Decontamination			\square		

Task Specific Personal Protective Equipment

Notes:

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.

* Clothing made of natural fibers shall be worn when a shock or arc flash hazard exists.

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.

CRT = cathode ray tube

The following table 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.

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	\boxtimes			Full Face Negative Pressure Resp.			\boxtimes
Flame Retardant Coveralls			\boxtimes	Half Face Negative Pressure Respirator with P100 Cartridge (or equivalent)			
Tyvek Suit (or equivalent)	\boxtimes			Powered Air Purifying Resp			\square
Poly-coated Tyvek/Saranex Suit			\boxtimes	First Aid Kit	\square		
Fully Encapsulated Chemical Suit			\square	Fire Extinguisher	\square		
Hearing Protection		\square		Communication (Coll Phonos			
Task Appropriate Gloves Work Gloves, Impact Gloves, etc.	\boxtimes			or Walkie Talkies)			
Inner Chemical Gloves Latex or nitrile		\boxtimes		Eye Wash (e.g., portable bottle)			
Outer Chemical Gloves Latex or Nitrile	\boxtimes			Water or Other Fluid Replenishment			
Hard Hat	\boxtimes			Sunscreen			\boxtimes
Safety Glasses with Side Shields	\square			Insect Repellent			\boxtimes
Vented (Splash proof) Goggles				Personal Fall Arrest System,			
High Visibility Clothing				Full Body Harness with Self- Retracting Lanyard (Task Specific)			

Notes:

Req = Required Rec = Recommended NA = Not Applicable SCBA = Self-contained breathing apparatus

Appendix E Site Control

SITE CONTROL

Site Control Overview

The purpose of site control is to minimize potential contamination of workers, protect the public from the site's hazards, and prevent vandalism. Site control is especially important in emergency situations. This describes the basic components of a program to control the activities and movements of people and equipment at a hazardous waste site. Several site control procedures can be implemented to reduce worker and public exposure to chemical, physical, biologic, and safety hazards:

- Compile a site map
- Prepare the site for subsequent activities
- Establish work zones
- Use the buddy system when necessary
- Establish and strictly enforce decontamination procedures for both personnel and equipment
- Establish site security measures
- Set up communication networks
- Enforce safe work practices

Site Map

A site map showing topographic features, prevailing wind direction, drainage, and the location of buildings, containers, impoundments, pits, ponds, and tanks is helpful in:

- Planning activities
- Assigning personnel
- Identifying access routes, evacuation routes, and problem areas
- Identifying areas of the site that require use of personal protective equipment
- Supplementing the daily safety and health briefings of the field teams

The map should be prepared prior to site entry and updated throughout the course of site operations to reflect:

- Accidents
- Changes in site activities
- Emergencies
- Hazards not previously identified
- New materials introduced on site

- Vandalism
- Weather conditions

Site Preparation

Time and effort must be spent in preparing a site for work activities and overall project operations. go smoothly, and that workers are protected.

Site Work Zones

An essential element of any hazardous substance release site is the establishment of safety or work zones. These zones are established primarily to reduce the accidental spread of hazardous substances by workers or equipment from contaminated areas to clean areas. Safety zones specify:

- The type of operations that will occur in each zone;
- The degree of hazard at different locations within the release site; and
- The areas at the site that should be avoided by unauthorized or unprotected employees.

Contaminated or Hazardous waste sites should be divided into as many different zones as needed to meet operational and safety objectives. There are three frequently used zones: ·

- The exclusion zone (or hot zone) is the area with actual or potential contamination and the highest potential for exposure to hazardous substances.
- The contamination reduction zone (or warm zone) is the transition area between the exclusion and support zones. This area is where responders enter and exit the exclusion zone and where decontamination activities take place.
- The support zone (or cold zone) is the area of the site that is free from contamination and that may be safely used as a planning and staging area.



Three-Zone System

Our work areas will be broken down into three zones:

- Hot Zone This is the area where invasive, physical, or chemical activity is occurring and access to this area will restricted to authorized personnel only.
- Warm Zone This is the area that serves as a buffer between invasive (dirty) activities and support (clean) activities. Decontamination and equipment resupply occurs in the warm zone. This area is restricted to authorized personnel only.
- Support Zone This is the area where support activities can be conducted without concerns for the invasive, physical, or chemical hazards. Although controlled, this area is less restrictive than the work zone.

The Buddy System

Most activities in contaminated or otherwise hazardous areas should be conducted with a buddy who is able to:

- Provide his or her partner with assistance
- Observe his or her partner for signs of chemical or heat exposure
- Periodically check the integrity of his or her partner's protective clothing
- Notify the Command Post Supervisor or others if emergency help is needed

Site Security

Site security is necessary to:

- Prevent the exposure of unauthorized, unprotected people to site hazards.
- Avoid the increased hazards from vandals or persons seeking to abandon other wastes on the site.
- Prevent theft.
- Avoid interference with safe working procedures.

To maintain site security during working hours:

- Maintain security in the Support Zone and at Access Control Points
- Establish an identification system to identify
- authorized persons and limitations to their approved activities
- Assign responsibility for enforcing authority for entry and exit requirements

The Site Safety and Health Officer will approve all visitors to the site; make sure they have a valid purpose for entering the site; and have trained site personnel accompany visitors at all times and provide them with the appropriate protective equipment.

Communication Systems

Two sets of communication systems should be established: internal communication among personnel onsite, and external communication between onsite and offsite personnel.

The primary means of external communication are telephone (i.e., mobile, "landline") and two-way radio equipment. If telephone lines are not installed at a site, all team members should know the location of the nearest telephone and necessary telephone numbers should be readily available in the Support Zone.

Internal communication is used to:

- Alert team members to emergencies
- Pass along safety information, such as the amount of airtime left before the next rest period, air change, heat stress check, etc.
- Communicate changes in the work to be accomplished
- Maintain site control

Verbal communication at a site can be impeded by onsite background noise and the use of personal protective equipment. For example, speech transmission through a respirator can be poor, and hearing can be impaired by protective hoods and respirator air flow. For effective communication, commands must be pre-arranged. In addition, audio or visual cues can help convey the message. The most important thing is that signals are agreed to in advance.

Traffic Control Plan

The contractor's traffic control plan will be reviewed prior to waste shipment and implemented as necessary. This HASP will be updated in future revisions to include that plan.

Appendix F Training

TRAINING DOCUMENTS

Overview

EnSafe Inc. has a comprehensive safety and health training program tailored to the scope of work for this project. All employees receive a project safety orientation upon assignment to the project. Topics may include but are not limited to:

- Correct manual handling procedures
- Working at heights
- Hazardous substances
- Vehicle safety
- Lockout-Tagout
- Personal Protective Equipment
- Ergonomic
- Fall protection
- Power tool safety
- Working in confined spaces

Training records are maintained electronically and/or physically onsite.

"All hands", "Tool-box talks", Job Hazard Analysis/Activity Hazard Analysis safety meetings are scheduled to review safety inspections, findings, and corrective actions taken; critical safety procedures, discuss recent workplace incidents, and to celebrate safety milestones.

The Site Safety and Health Officer, Site Supervisor, or designated party should schedule routine "all hands" meetings in advance or set a regular date/time to be sure that all workers can plan to attend this safety meeting. Records of these meetings are on file within this Health and Safety Plan as well attached attendance sheets.

Personnel Training Requirements

All personnel performing onsite 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 onsite 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.

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.
 - 5. Applicable Qualified/Competent Person certificates (e.g. fall protection and scaffolding)

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 onsite 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.

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.

Onsite Training

Site-specific onsite 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, onsite 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 onsite 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.

Personal Training and Information

Prior to starting work, each person will attend an onsite 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 onsite 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 EnSafe and Garrison of all hazardous chemicals brought onsite to perform site specific duties.

Appendix G Forms, Logs, and Checklists
Jobsite Safety Audit Checklist					
Jobsite Dat	te				
1. Personal Protective Equipment		Points	YES	NO	N/A
A. High visibility hard hat and safety vest					
B. Safety glasses					
C. Face shield or goggles					
D. Protective toed safety boots					
E. Full body harness and lanyard or retractable					
F. Hearing protection					
G. Respirators					
H. Gloves (Rings can tear nitrile or latex gloves)					
2. Heavy Equipment		Points	YES	NO	N/A
A. Have pre-shift inspections been performed?					
B. Are vehicles being operated safely (speed, capacity, etc.)					
C. Is operator wearing seat belt?					
D. Is vehicle in satisfactory condition?					
E. Are backup alarms operational?					
F. Are fire extinguisher, lights, brakes, etc., operational?					
3. Excavations		Points	YES	NO	N/A
A. Are excavations adequately shored or sloped?					
B. Is access to and from excavations adequate?					
C. Are daily inspections being completed by a competent person?					
D. Are exposed rebar or fence stakes properly capped?					
E. Are excavations adequately barricaded?					
F. Is completed digging and excavation permit available onsite?					
4. Barricades & Signs		Points	YES	NO	N/A
A. Are required barricades in place, in good condition, and maintained?	?				
B. Are necessary signs in place, in good condition, and maintained?					
5. Machine Guarding		Points	YES	NO	N/A
A. Are all nip points guarded?					
B. Are rotating shafts guarded or is access restricted?					
C. Are E-stops (E-ropes, E-Buttons, etc.) operative and tested daily?					
D. Are manufacturer guards in place on all tools and equipment?					
6. Electrical		Points	YES	NO	N/A
A. Have extension cords been inspected & the inspection documented?	?				
B. Are (Ground Fault Circuit Interrupts) GFCIs used as required?					
C. Are required distances maintained between high voltage lines a mobile equipment?	and				

Jobsite Safety Audit Checklist					
7. Housekeeping		Points	YES	NO	N/A
A. Are work areas organized and clear of clutter and debris?					
B. Are aisles, footpaths, and walkways clear?					
C. Is equipment stored properly?					
D. Area all waste streams identified, properly labeled, and disposed?					
E. Are all containers properly labeled?					
8. Tools		Points	YES	NO	N/A
A. Are hand tools appropriate for task and in good condition?					
B. Are power tools appropriate for task, grounded, & in good condition	ר?				
C. Is lifting equipment inspected and in good condition?					
D. Are slings, cables & chains inspected & the inspection documented?	?				
9. Health		Points	YES	NO	N/A
A. Are adequate first aid kits available onsite?					
B. Are supervisors trained in First Aid?					
C. Has emergency evacuation plan been developed and tested?					
D. Are adequate heat stress controls in place?					
E. Are public areas maintained in a sanitary manner?					
F. Are hazardous chemical product containers properly labeled?					
G. Are Safety Data Sheets available for all hazardous chemicals onsite?	?				
10. Additional Items		Points	YES	NO	N/A
A. Hydration supplies available at work sites?					
B. Hand/face washing provisions available?					
C. Site specific HASP been reviewed by all employees and documented	: ?				
D. Daily SWAP usage in place and documented?					
E. Emergency Contact list available for review?					
G. Are daily toolbox safety meetings being conducted?					
Total Poir	nts				
Comments					
Auditors Signature:	Date):			

Were audit findings reviewed with site supervisor and assigned to a responsible person for correction? _____ Yes _____ No Were the audit findings submitted to Corporate Safety for review? _____ Yes _____ No

Corrective Actions Item Number	Responsible Person	Date	Corrective Actions

Additional Comments:	

Total Points Possible:	
Total Points Awarded:	
Percentage Score:	
4 = Excellent, 3 = Good, 2 = Items Missing, 1 = Deficient, 0 = Total Non-Compliance	

EnSafe Supervisor:	Signature:	Date:
Auditor:	Signature:	Date:

VEHICLE PRE-OPERATION SAFETY CHECK



Items to be Inspected Prior to Operation	ОК	NOT OK	Comments:
1. Tires			
Tread/Condition			
Proper Inflation			
2. Turn Signals			
3. Head Lights (should always be on)			
High Beam			
Low Beam			
4. Tail Lights & Brake Lights			
5. Hazard Lights			
6. Horn			
7. Mirror Adjustment			
8. Fuel Levels and Warning Lights			
9. Seat Belts			
10. Glass (cracks or dings in driving view)			
11. Windshield Wipers	•		
Windshield Wiper Condition			
Windshield Wiper Fluid			
12. Objects in Bed/Cab Secured			
13. Fire Extinguisher			
14. First Aid Kit			
15. Roadside Emergency Kit			
Reflective Vest			
Triangle Reflector			

Inspected By:

Unit Number:

Date:

HEALTH AND SAFETY PLAN ACCEPTANCE FORM

INSTRUCTIONS: This form is to be completed by each person working on the project site and returned to the project file. By signing below, you acknowledge that you have read and understand the contents of the above plan and agree to perform my work in accordance with it.

SIGNATURE	Print Name	Company	Date



Visitor Log

All visitors MUST sign in and sign out on this log				
Date:	Site Supervisor:			
Project Location:				
Project Hazards:				

Print Name	Signature	Company	Time-In	Time-Out

STOP WORK ORDER

A work stoppage is issued for nonperformance issue(s) specified below and shall remain in effect until all corrective actions are completed.

Report prepared by:

Name:	Title:	Signature:	Date:

Issue of nonperformance

Description:	Date of Nonperformance:

Subcontractor signature of notification:

Name:	Title:	Signature:	Date:

* Corrective action is to be taken immediately.

Subcontractor's Corrective Action

Description:	Date of Corrective Actions:

Subcontractor signature of correction:

Name:	Title:	Signature:	Date:

		EnSafe	e Investiga	ition Repo	rt	
Sele	ect the repo	ort type: _	near m	niss i	ncident	_ injury
	<i>и</i>		1. Dates			
Of Near Miss	s/Incident/Injury	Investigat	ion Started		Investigation Comp	Dieted
	2. Loca	ation			3. Time	
			1 EnSoto Emr			
Inj	ured	Invo	olved	Joyees	Witnesses	
			5 Other	3		
Inj	ured	Invo	olved		Witnesses	
			6. Injure			
		EnSafe				
Name	Length of time with firm	Employee Yes/no	Job Title or Occupation	How long assigned to iob	Nature and	Extent of Injury
		7. Eq	uipment/Tools/Ve	hicles Involved		
Item:						
2						
Damage:						
-						
Ownership:						

8. Description
Events leading up to:
Assident/Insident/Event/Illnesse
Contributing Eactors:
9. Cause
Immediate Cause:
Deet Causes
Rool Cause.
10 Policy Work Rule Population Standard
Violations:

		11. Recommen	dations		
To Prevent Recu	rrence:				
Additional Trainin					
	ıg.				
		12. Investigatio	n Team		
Leader:		Members:			
Signature:					
eignatare.					
Date:					
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		40 Devie			
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	Reviewed by		Signature		Date
Comments:					
e en menter					
		14. Corrective	Action		
	Action		Date		Signature
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Appendix D Safety Data Sheets

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. Do not use on non-rinsable surfaces. **Restrictions on Use:** Sunshine Makers, Inc. Telephone: Company: 800-228-0709 • 562-795-6000 Mon – Fri, 8am – 5pm PST 15922 Pacific Coast Highway Fax: 562-592-3830 Huntington Beach, CA 92649 USA info@simplegreen.com Email: **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

Ingredient	<u>CAS Number</u>	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%*

*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: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: Specific Hazards Arising from Chemical: Special Protective Actions for Fire-Fighters:

Version No. 13000-18C

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. 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:	Gre	Green Liquid		Partition Coefficient: n-octanol/water:		ter:	er: Not determined	
Odor:	Add	led s	assafras odor	Autoignition Temperature:			Non-flammab	le
Odor Threshold:	Not	dete	ermined	Decomposition Temperatur	e:		42.7°C (109°F)
pH ASTM D-1293:	8.5	- 9.2	2	Viscosity:			Like water	
Freezing Point ASTM D-1177:	0-3	0-3.33°C (32-38°F)		Specific Gravity ASTM D-892	Specific Gravity ASTM D-891:		1.01 - 1.03	
Boiling Point & Range ASTM D-112	0: 101	101°C (213.8°F)		VOCs: *	*Water &	fragra	ance exemption in c	alculation
Flash Point ASTM D-93:	> 22	> 212°F		SCAQMD 304-91 / EPA 24:	0 g/l	L	0 lb/gal	0%
Evaporation Rate ASTM D-1901:	½ B	1/2 Butyl Acetate @ 25°C		CARB Method 310**:	2.5 g/	/L	0.021 lb/gal	0.25%
Flammability (solid, gas):	Not	Not applicable		SCAQMD Method 313:	Not te	sted		
Upper/Lower Flammability or Explosive Limits: Not applicable		VOC Composite Partial Pressure: Not determined						
Vapor Pressure ASTM D-323: 0.	.60 PSI @7	·SI @77°F, 2.05 PSI @100°F		Relative Density ASTM D-4017: 8.4		8.42	2 – 8.59 lb/gal	
Vapor Density:	Not determined		Solubility:		100	% in water		

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Section 10: STABILITY AND REACTIVITY

Version No. 13000-18C

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	<u>of Toxicity</u>			
Acute Toxicity:	Oral LD50 (rat)	> 5 g/kg body weight		
	Dermal LD ₅₀ (rabbit)	> 5 g/kg body weight		
		Calculated via OSHA HCS 2012 / Globally Harmonized System of Classification and Labelling of Chemicals		
Skin Corrosion/Irrita	tion: 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.		itant per Ocular Irritection [®] assay modeling. No animal testing performed.		
Germ Cell Mutagenio	Germ Cell Mutagenicity: Mixture does not classify under this category.			
Carcinogenicity:	Mixture does no	Mixture does not classify under this category.		
Reproductive Toxicit	y: Mixture does no	t classify under this category.		
STOT-Single Exposure: Mixture does not classify under this category.				
STOT-Repeated Expo	Repeated Exposure: Mixture does not classify under this category.			
spiration Hazard: Mixture does not classify under this category.				

Section 12: ECOLOGICAL INFORMATION

Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of **Ecotoxicity:** Classification and Labelling of Chemicals. Aquatic Toxicity - Low, based on OECD 201, 202, 203 + Microtox: EC₅₀ & IC₅₀ ≥100 mg/L. Volume of ingredients used Aquatic: does not trigger toxicity classifications under the Globally Harmonized System of Classification and Labelling of Chemicals. **Terrestrial:** Not tested on finished formulation. Readily Biodegradable per OCED 301D, Closed Bottle Test. Reaches 100% biodegradability within Persistence and Degradability: 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

II N. Number:	Notannlicable
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 with transport or conveyance of	r needs to be aware of/comply with, in connection None known. 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.

Sections 311/312 Hazard Categories – Not applicable. SARA Title III: Sections 313 Superfunds Amendments and Reauthorizations Act of 1986 - Not applicable. Sections 302 – Not applicable.

Clean Air Act (CAA): Not applicable Clean Water Act (CWA): Not applicable

State Right To Know List	s: No ingredients lis	No ingredients listed			
California Proposition 65	5: No ingredients lis	ted			
Texas ESL:					
Ethoxylated Alcohol	68439-46-3	60 μg/m³ long term	600 μg/m ³ short term		
Sodium Citrate	68-04-2	5 μg/m³ long term	50 μg/m³ short term		
Sodium Carbonate	497-19-8	5 μg/m³ long term	50 μg/m³ short term		
Citric Acid	77-92-9	10 μg/m³ long term	100 µg/m ³ 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.

★

Section 16: OTHER INFORMATION - continued

NFPA:

Health -	– None	Stability – Stable	- ×	0
Flamma	ıbility – Non-flammable	Special - None	Q	0
Acrony	<u>ms</u>			
NTP	National Toxicology Program		IARC	International Agency for Research on Cancer
OSHA	Occupational Safety and Health Admini	stration	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.

OSHA HCS-2012 / GHS

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

P.O. Box 24261 Cleveland, Ohio 44124 216-274-0112 | 800-588-7962 www.ensafe.com



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Sampling and Analysis Plan Closed Loop Refining & Recovery Columbus, Ohio Revision 0.0 April 2020

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.



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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/ Classification	Parameter	Sampling Method	Number of Locations/Samples	Field Quality 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 Confirmation Sampling (offsite analysis)	Wastewater characterization parameters (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.



Sampling and Analysis Plan Closed Loop Refining & Recovery Columbus, Ohio Revision 0.0 April 2020
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.

Sampling and Analysis Plan Closed Loop Refining & Recovery Columbus, Ohio Revision 0.0 April 2020

			Table 2		
			Data Quality Objectives		
1. Problem Statement	2. Decision Statement	3 Data Needs and Innuts	A Decision Rule	5. Limits on Decision Error	6. Optimize Sample Design
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 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.

Sampling and Analysis Plan Closed Loop Refining & Recovery Columbus, Ohio Revision 0.0 April 2020

	Data Quality Objectives												
1. Problem Statement	2. Decision Statement	3. Data Needs and Inputs	4. Decision Rule	5. Limits on Decision Error	6. Optimize 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 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 sampling include 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.	 Wastewater sampling will be performed on treated wastewater prior to discharge to the City of Columbus sanitary sewer system.³ Analytical results will be compared with the regulatory discharge criteria identified in Table 5 and as discussed in Section 2. 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. Results will be reported to the Project Coordinator (or designee) and the disposal contractor who will discuss disposal options with field staff. Null Hypothesis Waste concentration of each individual analyte is less than associated regulatory levels for each analyte. 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.	Wastewater sample locations will be selected to obtain a representative sample of the entire wastewater batch.								

Notes:

¹ Each waste stream will be characterized following Title 40 Code of Federal Regulations Sections 261.21 through 261.24, as described in Table 5.

² Closure performance samples will be characterized as described in Table 5.

³ 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 sample recovery SR = 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 =
$$\frac{No. \text{ of Valid Tests}}{Tests Tests} \times 10$$

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: Percent Recovery %R = LCS Laboratory Control Sample = MS Matrix Spike Sample = **Ouality Assurance** OA = 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.

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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.



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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 Method	Sample Volume, Container	Holding Time	Preservation							
Waste Characterization Sampling											
TCLP Metals	1311/6010D/ 150 grams; plastic 7470A or glass		180 days from collection to TCLP extraction; 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; 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

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- 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

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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.

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Table 5													
Analytes, Regulatory Levels, and Measurement Performance Criteria													
Analyte	Analytical Method	Regulatory Levels ^(1,2)	Laboratory Method Detection Limit	Laboratory Reporting Limit	Units	LCS Accuracy (%R)	MS Accuracy (%R)	Surrogate Accuracy (%R)	LCS Precision (%RPD)	MS Precision (RPD)			
Waste Characterization: TCLP Metals	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 Me	etals												
Lead	E200.7	4.0	0.010	0.100	mg/L	50-150	75-125	_	20	20			

Notes:

¹ Waste characterization regulatory Levels were obtained from Title 40 Code of Federal Regulations Sections 261.21 through 261.24.

² 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

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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

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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.



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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 completeness
 Blanks
- Holding times
 MS or spike/lab duplicates
- Instrument tuning

• Field duplicate precision

Calibrations

• 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.



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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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FIGURES



(15) 1 2 5 6 \bigcirc 8 9 10 (11) (12) (13) (14) (16) 3 4 Ø-B C **NEIGHBORING** D-**TENANT** E-E7 G-CONVEYOR PROCESSING AREA FIGURE 2 SITE LAYOUT MAP 1655 WATKINS ROAD COLUMBUS, OHIO **LEGEND** REQUESTED BY: NB NAD 1983 STATE PLANE CLOSED LOOP LEASE SPACE OHIO SOUTH FEET DRAWN BY: KMB CRT - RELATED MATERIALS IN BOXES 50 100 Λ DATE: 2/19/2019 Creative thinking. Custom solutions LOADING DOCK DOORS SCALE IN FEET PROJECT: 0888823935 800.588.7962 www.ensafe.com

DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215



DATA SOURCES: Genesis Planning and Design - 300 East Broad Street, Suite 310 - Columbus, Ohio 43215

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

ENI	CAFE	CHAIN OF CUSTODY AND ANALYTICA			EQUEST	RECOR	D	- 1	COC N	lo.				Page of						
EIVS	DALE	Project Name:						1	PO No. Project /					No. Phase						
Ens				Sample Analysis Requested (Enter number of containers for ea																
800-5	800-588-7962 Send Results To:																		\$D	
Sampler/	Site Phone#								inèrs					1.11	11		-		MS/N	
Lab Nam	e:		Tu	irnaround Time	(specify):				Conta										ne for	
Lab ID	Sample II (sys_samp_c) ode)	Location ID (sys_loc_code)	(mm/dd/yy)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	Field Filtered (Y/N)	Total No. of										Extra Volur	НОГР
																_				
Field Comments:				Lab Comments:										Sample Shipment and Delivery Details Number of coolers in shipment:						
Relinquished by (signature) Date Time			Time	Received by (signature) Date Ti 1						me	e Samples Iced?(check) Yes No Method of Shipment:									
2						2								Airbill No:						
3					3									D	ate Ship	ped:				

(1) 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=Shudge, SN=Miscellaneous Solid/Building Materials, SO=Soil, SQ=Soil/Solid QC Matrix, ST=Solid Waste, SW=Swab/Wipe, TA=Animal Tissue, TP=Piant Tissue, WG=Ground Water, WL=Leachate, WO=Ccean Water, WQ=Water QC Matrix, WS=Surface Water, SU=Storm Water, WW=Waste Water (2) Sample Type: AB=Ambient Blank, EB=Equipment Blank, FB=Field Blank, FB=F Rev. 12/12

(3) Preservative added: HA=Hydrochioric Acid, NI=Nitric Acid, SH=Sodium Hydroxide, SA=Sulfuric Acid, AA=Ascorbic Acid, HX=Hexane, ME=Methanol, SB=sodium bisulfate, ST=Sodium Thiosulfate, If NO preservative added leave blank
Figure 6 Example Custody Seal

ENSAFE	EnSafe, Incorporated 5724 Summer Trees Dr. Memphis, TN 38134 OFFICIAL SAMPLE SEAL	SAMPLE #	DATE	SEAL BROKEN BY:
		SIGNATURE PRINT NAME & TITLE:		DATE:

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Attachment A Standard Operating Procedures This page intentionally left blank.

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_qapp_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:

- 1. 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 <u>BEFORE</u> 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. <u>At no time is contaminated field equipment to be shipped back to rental companies or any of the EnSafe offices</u>.

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.

- If the SOW requires **solvents** to be used in the decontamination process only pesticide-grade 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 sampling and 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.
- 2. 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
- 3. 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
- 3. 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.