REPORT ON

SITE MANAGEMENT PLAN

TEXTILEATHER
3729 TWINING STREET
TOLEDO, OHIO

BY

Haley & Aldrich, Inc.
Cleveland, Ohio

FOR

City of Toledo
Toledo, Ohio

File No. 36005
15 May 2015

15 May 2015
File No. 36005

City of Toledo
One Government Center, Suite 2250
Toledo, Ohio 43604

Attention: Bill Burkett

Subject: Site Management Plan
3729 Twining Street
Toledo, Ohio

Dear Mr. Burkett:

Haley & Aldrich, Inc. (Haley & Aldrich) prepared this Site Management Plan (SMP) on behalf of the City of Toledo for the Textileather Facility (the Site), located in Toledo, Ohio.

This Site Management Plan (SMP) documents the overall measures required to maintain protection of human health and the environment at the Site consistent with the requirements of the Order of Consent RCRA-05-2015-0004 and the CA725. This plan specifies the general methods necessary to ensure compliance with the engineering controls (ECs) required to prevent and/or control human exposure to Site contaminants. Compliance with this plan is required until such a time as site remedies/corrective measures have been complete and a Site Management Plan is no longer necessary. Please note that this plan and its attachments are not intended to serve as an investigation or construction specific Health and Safety Plan (HASP) for the Site. Any activities that would expose people/workers on the Site to contaminants of concern will require such plans prepared consistent with this SMP.

Please contact the undersigned with any questions you may have.

Sincerely yours,
HALEY & ALDRICH, INC.

David Veinot
Project Manager

David J. Hagen
Vice President

Enclosures

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1. Introduction

1.1 BACKGROUND

Haley & Aldrich, Inc. (Haley & Aldrich) prepared this Site Management Plan (SMP) on behalf of The City of Toledo for the Textileather Facility (the Site), located in Toledo, Ohio, pursuant to the U.S. EPA's Conditional Approval of the Revised Corrective Measures Plan dated March 31, 2015. ; The United States Environmental Protection Agency (USEPA) ID Number is #OHD980279376. The Site is located at 3729 Twining Street, Toledo, Ohio and covers approximately 30.4 acres (Figure 1), which are currently owned by The City of Toledo.

As detailed in this plan, Site investigation and evaluation activities have been completed to identify and define the nature and extent of releases of hazardous waste and/or hazardous constituents at the Site. The investigation activities have identified the presence of contamination beneath the Site. This SMP presents the requirements to prevent and/or control human exposures to contamination for people at the Site.

1.2 SITE HISTORY

Under terms of the 2009 Administrative Order on Consent, Textileather Corporation completed activities to identify and define the nature and extent of releases of hazardous waste and/or hazardous constituents at the Site. These activities included preparation of a Current Conditions Report (CCR) (Haley & Aldrich, December 2009) that identified 27 main areas of interest (AOIs) at the Site and described the physical conditions, historical operations, and any previous investigation or remedial action at each AOI. One additional area was identified during implementation of Field Event #1.

1.3 SITE MANAGEMENT REQUIREMENTS

A human health risk evaluation (CA725, Haley & Aldrich 2011) of hazardous constituents was conducted during the investigation activities at the Site identified the presence of metals, volatile organic compounds (VOCs), semi- volatile organic compounds (SVOCs) and polychlorinated biphenyls (PCBs) in soil, groundwater, and Stormwater. An evaluation of the potential exposure pathways and receptors identified that maintenance workers, utility workers, or construction workers could be exposed to constituents of concern during excavation and routine maintenance activities unless they are protected. Therefore, the following controls are required at the Site to prevent unacceptable potential exposures:

- Prevent ingestion/direct contact with contaminated soil ;
- Prevent inhalation of or exposure to contaminants volatilizing from contaminated soil; and
- Prevent ingestion, dermal contact, and inhalation exposure to groundwater with contaminant levels that exceed drinking water standards.

1.4 SITE MANAGEMENT PLAN

The following sections present the requirements to prevent and/or control human exposures. The required controls are outlined under plans for excavation management, sewer maintenance, Calender basement maintenance, and PZ-31 NAPL monitoring. The purpose of this plan is to provide:

- A description of the required controls on the Site;
- The basic operation and intended role of each implemented control;
- A description of plans and procedures to be followed for implementation of the controls, such as the implementation of an Excavation Management Plan for the safe handling of remaining contamination that may be disturbed during maintenance, redevelopment work or other related activities where exposure could occur on the Site; and
- A description of the reporting requirements for these controls.

2. Excavation Management

The soils handling and disposition activities outlined below will apply to ALL soil excavation at the Site, regardless of purpose.

Any intrusive work that will penetrate, encounter or disturb the contamination, and any modifications, removal, or repairs to the existing pavement or concrete will be performed in compliance with the following requirements. Evaluation of existing data indicate that the Calender Basement, storm or sanitary sewers, south pump house area, and the former test print finish room potentially exhibit unacceptable levels of contamination for maintenance or workers; accordingly access to these areas by maintenance workers is prohibited until remediation activities are completed. However, given the potential for elevated levels of contamination in other areas of the Site, the following excavation management procedures cover excavation work activities across the entire Site.

Intrusive construction work must also be conducted in accordance with the procedures defined in the Site Health and Safety Plan (HASP – Appendix A). A project-specific Excavation Plan and HASP must be developed prior to excavation work, and conform to this SMP and applicable Federal, State and local regulations in place at the time of work performance. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP will be updated as needed. Any intrusive construction work will be performed in compliance with the SMP and HASP.

The Contractor and Site Manager are responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations).

2.1 EXCAVATION PERMITTING

All excavation work will adhere to applicable local, state, and federal permit requirements.

2.2 CONTAMINATION PRESENT IN THE SUBSURFACE

The risk assessment conducted for the CA725 Report (Haley & Aldrich 2011) identified several locations in the subsurface that require implementation of this Plan (Figure 2). During the preparation and review of the Site Specific Excavation Work Plan, the existing data from the RCRA Facility Investigation will be reviewed for the proposed work zone.

2.3 EXCAVATION REQUIREMENTS

Once the Excavation/Sewer Work Plan has been reviewed and approved, the following procedures are required during excavation activities:

- A qualified environmental professional, or person under their supervision, will oversee all invasive work and the excavation and load-out of all excavated material.
- The Site Manager and excavation contractor are responsible for safe execution of all invasive and other work performed under this Plan.

- The presence of utilities and easements on the Site will be evaluated by the Site Manager who will determine if a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Work will proceed using the following risk abatement methodologies:

2.3.1 Air Monitoring and Vapor Management

Air monitoring will be conducted for all intrusive excavation activities to protect on-site and off-site personnel. The perimeter air monitoring will include the following:

- Background measurements of local air quality will be made during mobilization one day prior to the start of concrete slab demolition or intrusive underground work. Background air quality will be measured on a day without sustained precipitation. Measurements of background air quality will replicate the procedures, sample types and measures (real-time and laboratory) for perimeter air quality monitoring as planned for performance of daily/weekly monitoring activities during the remedial action.
- Monitoring of air quality at the perimeter of the excavation area will be conducted daily throughout work periods while impacted soils or concrete are being excavated, demolished, removed, milled, sorted, staged or loaded onto trucks for disposal. Periodic monitoring of ambient air quality may continue for as long as equipment or materials used or generated during the excavation remain on-Site with a potential to be an emission source of COPC to air. Results of air monitoring during active demolition and excavation will be used indicate if monitoring during periods of low level activity or passive source emission (e.g., from stockpiled materials) is warranted.
- Following the end of Site remediation and restoration activities, measurements of local air quality may be made to confirm or re-establish baseline conditions of air quality for the Site.

A task-specific Perimeter Air Monitoring and Vapor Management Plan may be required depending upon the area of work and the potential levels of contaminants in the work area. The Site Manager will review the Excavation Plan in reference to existing data to determine if a task-specific Perimeter Air Monitoring and Vapor Management Plan is required. The Perimeter Air Monitoring and Vapor Management Plan, if required, will contain provisions for the use of vapor, particulate, and odor suppressant materials in the event that action levels for ambient air are exceeded, as determined by the onsite health and safety personnel.

2.3.2 Soil Screening Methods

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated areas. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed.

Soils will be segregated in separate piles based on environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

2.3.3 Soil Stockpiling

Stockpiles will be identified by material type (material that requires off-site disposal, material that requires testing, material that can be reused on-site, etc.). Soil will be stockpiled on poly sheeting with a minimum of 6-mil thickness. If stockpiles are located near drainage ways, or are larger than can be contained by poly sheeting, soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Stockpiles that require off-site disposal and material that requires testing will be kept covered at all times with appropriately anchored tarps and will be located in the fenced/secure area of the Site to prevent exposures. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Soils may be containerized in appropriate containers including drums and soil roll-off containers if quantities warrant such treatment.

2.3.4 Excavation Soil Characterization

To determine if excavated soil requires off-site disposal or can be reused on-site as fill material, the soil will be characterized through representative sampling and laboratory analysis in accordance with SW846, as detailed below. If the soil will be disposed of off-site, the disposal facility may require different and/or additional analysis.

Sampling will be conducted by the Site Manager (or designee) or Contractor. Each sample will be collected using a decontaminated or new stainless steel or plastic sampling device (hand trowel, shovel, scoop, hand augers or other appropriate sampling equipment). For similarly stockpiled soil (i.e. – soil originating from the same location and soil type), one composite soil sample will be collected for every 500 cubic yards. The composite samples will be comprised of soil collected from four randomly selected areas of the pile at least 12 inches below the soil pile surface. To ensure the sample is properly composited, the soil will be combined and quartered in a decontaminated or new stainless steel or plastic bowl prior to containerizing the sample in the appropriate sample jars.

If soil is containerized (i.e. – roll-off), a sample from each container of a group of containers totaling 250 cubic yards or less of container volume will be collected and composited. Each sample will be collected from the mid-depth of the soil pile or a minimum of approximately depth of 12 inches below the soil surface using a decontaminated or new stainless steel or plastic sampling device. Stockpile sampling will include field screening and sample collection for laboratory analysis at a frequency of one sample per 25 cubic yards for the first 100 cubic yards of soil and one sample for each additional 250 cubic yards thereafter. A reduced frequency can be proposed for quantities of soil greater than 1,000 cubic yards.

Immediately upon collection, samples will be labeled and placed in coolers and chilled with ice to approximately 4°C. The sample labels will identify the soil stockpile or container group, sample type (grab or composite), time and date of collection, name of the sampler, and required analyses. Sealed sample coolers will be delivered with accompanying chain of custody documentation to the analytical laboratory. Laboratory analysis of the samples will include: (List will be dependent upon disposal facility requirements) EPA Method 8260 (Target Compound List VOCs), EPA Method 8270 (Target Compound List SVOCs), EPA Method 6020 (Target Analyte List metals plus cyanide), and EPA Method 8082 (PCBs), as detailed in Table 1.

2.3.5 Materials Disposal Off-Site

All soil/fill excavated and removed from the Site will be transported and disposed in accordance with all local, State and Federal regulations. If disposal of soil from this Site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes elsewhere), the Site Manager will be notified prior to disposal and will approve/disprove of such disposal.

Off-site disposal locations for excavated soils will be identified in the Excavation Work Plan. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, (i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc). Actual disposal quantities and associated documentation will be reported to the Site Manager at the completion of the work as part of a Construction Completion Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

2.3.6 Underground Utilities

Subsurface utilities present a hazard for contact with impacted storm or sewer water. As such, the contractor will implement the safety procedures outlined in Section 3, where there is a potential to come in contact with this water.

In addition, utility trenches have the potential to behave as migration pathways for groundwater and/or soil vapor, the contractor will install proper utility bedding and engineered trench collars (of concrete, bentonite, or similar) on the utilities where they are installed in impacted areas to act as a barrier for groundwater and vapor migration. When appropriate and depending on the type of utility, the contractor will seal pipe joints to prevent the migration of contaminated groundwater into the utility pipes.

2.3.7 Fluids Management

All liquids to be managed at the Site, including excavation dewatering and utility water, will be containerized, handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids that require management will not be recharged back to the land surface or subsurface of the Site, but will be containerized and disposed off-site. Discharge of water generated during large-scale construction activities to surface waters will be performed under a project-specific NPDES permit.

2.3.8 Cover Restoration

After the completion of soil removal and any other invasive remedial activities, the existing cover will be restored in a manner that complies with this SMP. All excavated areas will be restored so that contaminated soils do not remain exposed. Acceptable barriers include pavement (asphalt or concrete), building foundation, or placement of a demarcation layer and at least 1 foot of clean cover material (free of industrial and/or other potential sources of chemical contamination).

2.3.9 Backfill from Off-Site Sources

All materials for import onto the Site as backfill will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP, applicable regulations and guidance prior to receipt at the Site. Commercially purchased topsoil used for landscaping purposes does not require approval prior to use. Material used from off-site sources will be verified as clean fill prior to use on-site.

Soils brought to the Site for filling and grading purposes will be from an acceptable borrow source, verify to be free of industrial and/or other potential sources of chemical contamination.

2.3.10 Stormwater Pollution Prevention

If construction or excavation is performed that exceeds the criteria for construction-related stormwater pollution prevention control, during the duration of construction phase and until cover is restored, procedures outlined in the February 2015 Storm Water Pollution Prevention Plan for Construction Activities prepared by Hull & Associates will be implemented.

2.3.11 Excavation Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed and consist of EPA Method 8270 (Target Compound List SVOCs), EPA Method 6020 (Target Analyte List metals plus cyanide), and EPA Method 8082 (PCBs), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to the Site Manager. Reportable quantities of petroleum product will also be reported to the Ohio EPA spills hotline.

2.3.12 Other Nuisances

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances, where necessary.

3. Sewer Maintenance

All work and maintenance activities in or around sewers will follow the Site HASP.

Investigation activities at the Site have identified elevated levels of PCBs, SVOCs and tetrahydrofuran in sewer water at the Site. As such, all work and maintenance activities conducted in or around Site sewers will require special precautions to prevent dermal contact with potentially impacted fluids. At a minimum, the work and maintenance will be conducted in OSHA HAZWOPER modified Level D, which includes face shield (when working in direct contact with liquids), appropriate gloves, tyvek suit and chemical resistant protective boots or boot covers, as detailed in the Site HASP (Appendix A). It is noted that several of the sewer access points/manholes may be considered confined spaces. Management of confined space entry is detailed in the Site HASP.

Further, all excavation activities for sewers will follow the excavation practices outlined in Section 2.

4. Calender Basement Maintenance

All work and maintenance activities conducted in the Calender Basement will follow the Site HASP.

Investigation activities at the Site have identified the presence of free-phase PCBs in and around the Calender Basement (AOI-01). Due to the demolition of the facility and continued onsite work, access to the basement will be prohibited. Should the need to remove any free-phase PCBs become apparent prior to corrective measures, a plan will be developed to remove the material through surface access locations using a vacuum truck to remove the risk of entering the basement.

4.1 HEALTH AND SAFETY PRECAUTIONS

As identified above, the fluids in the Calender basement contain elevated levels of PCBs. As such, all work activities conducted involving fluids originating from the Calender Basement will need special precautions to prevent dermal contact with PCB-containing materials. At a minimum, any work will be conducted in OSHA HAZWOPER modified Level D, which includes face shield when working in contact with liquids, appropriate gloves, tyvek suit and chemical resistant protective boots or boot covers, as detailed in the Site HASP (Appendix A).

5. PZ-31 NAPL Monitoring

All work and maintenance activities conducted in and around PZ-31 will follow the Site HASP.

Investigation activities at the Site have identified the presence of NAPL in PZ-31. Monthly LNAPL removal from PZ-31 was initiated, after five-months of bailing activities yielding a reduced volume of recoverable LNAPL each time, absorbent socks were deployed into the piezometer to passively collect LNAPL. Saturated absorbent socks were periodically changed and replaced with a new sock. The adsorbent sock was removed in May 2013, since LNAPL was not observed in the piezometer during the period of February to May 2013. During the April 2014 sampling event, approximately 0.3 feet (4 inches) of LNAPL was measured in PZ-31. Adsorbent socks were re-installed in the well. The continued monitoring of LNAPL within PZ-31 occurs during semi-annual CA750 groundwater monitoring activities until corrective measures have been completed to excavate the LNAPL source near PZ-31.

References

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2. 2002, U.S. EPA, “Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils”; Office of Solid Waste and Emergency Response/Office of Solid Waste and Remedial Response; November 29.

3. 2002, U.S. EPA, “Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites”. Office of Solid Waste and Emergency Response/Office of Solid Waste and Remedial Response; OSWER 9355.4-24; December.

4. 2003, U.S. EPA, “Human Health Toxicity Values in Superfund Risk Assessments” (OSWER No. 9285.7-53, December 2003)

5. 2009, Current Conditions Report for Textileather Corporation, December, Haley & Aldrich

6. 2009, RCRA Facility Investigation Work Plan for Textileather Corporation, December, Haley & Aldrich.

7. 2010, Eastern Property Boundary Investigation Work Plan for Textileather Corporation, March, Haley and Aldrich.

8. 2010, U.S. EPA, “Regional Screening Levels for Chemical Contaminants at Superfund Sites”; U.S. EPA Office of Superfund. November

9. 2011 RCRA Environmental Indicators CA725 Current Human Exposures Under Control Report, Haley & Aldrich, January

10. 2011 Site Management Plan, Haley & Aldrich, January

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Tables

TABLE 1
PARAMETER LIST, ANALYTICAL METHODS AND TARGET QUANTITATION LIMITS
FORMER TEXTILEATHER CORRECTIVE ACTION
TOLEDO, OHIO

	CAS #	Analytical Method		Detection Limits[1]			
TCL Volatile Organic Compounds (VOC)		**Water**	**Soil**	**Lab MDL Water (ug/L)**	**Lab RL Water (ug/L)**	**Lab MDL Soil (ug/Kg)**	**Lab RL Soil (ug/kg)**
Acetone	67-64-1	SW8260	SW8260	0.940	10.0	6.30	20.0
Benzene	71-43-2	SW8260	SW8260	0.350	1.00	0.230	5.00
Bromoform	75-25-2	SW8260	SW8260	0.560	1.00	0.330	5.00
Bromomethane	74-83-9	SW8260	SW8260	0.440	1.00	0.540	5.00
2-Butanone (MEK)	78-93-3	SW8260	SW8260	0.530	10.0	1.40	20.0
Carbon disulfide	75-15-0	SW8260	SW8260	0.380	1.00	0.440	5.00
Carbon tetrachloride	56-23-5	SW8260	SW8260	0.430	1.00	0.370	5.00
Chlorobenzene	108-90-7	SW8260	SW8260	0.250	1.00	0.330	5.00
Chlorodibromomethane (Dibromochloromethane)	124-48-1	SW8260	SW8260	0.430	1.00	0.550	5.00
Chloroethane	75-00-3	SW8260	SW8260	0.320	1.00	0.860	5.00
Chloroform	67-66-3	SW8260	SW8260	0.250	1.00	0.290	5.00
Chloromethane	74-87-3	SW8260	SW8260	0.440	1.00	0.410	5.00
cis-1,2-Dichloroethene	156-59-2	SW8260	SW8260	0.260	1.00	0.360	5.00
cis-1,3-Dichloropropene	10061-01-5	SW8260	SW8260	0.460	1.00	0.340	5.00
Cyclohexane	110-82-7	SW8260	SW8260	0.450	1.00	0.330	10.0
1,2-Dibromo-3-Chloropropane	96-12-8	SW8260	SW8260	0.820	2.00	1.30	10.0
1,2-Dichlorobenzene	95-50-1	SW8260	SW8260	0.250	1.00	0.360	5.00
1,3-Dichlorobenzene	541-73-1	SW8260	SW8260	0.190	1.00	0.350	5.00
1,4-Dichlorobenzene	106-46-7	SW8260	SW8260	0.270	1.00	0.660	5.00
Dichlorobromomethane	75-27-4	SW8260	SW8260	0.290	1.00	0.280	5.00
Dichlorodifluoromethane	75-71-8	SW8260	SW8260	0.320	1.00	0.500	5.00
1,1-Dichloroethane	75-34-3	SW8260	SW8260	0.300	1.00	0.360	5.00
1,2-Dichloroethane	107-06-2	SW8260	SW8260	0.230	1.00	0.340	5.00
1,1-Dichloroethene	75-35-4	SW8260	SW8260	0.450	1.00	0.520	5.00
1,2-Dichloropropane	78-87-5	SW8260	SW8260	0.250	1.00	0.690	5.00
Ethylbenzene	100-41-4	SW8260	SW8260	0.250	1.00	0.260	5.00
Ethylene Dibromide (1,2-Dibromoethane)	106-93-4	SW8260	SW8260	0.320	1.00	0.500	5.00
2-Hexanone	591-78-6	SW8260	SW8260	0.480	10.0	0.630	20.0
Isopropylbenzene	98-82-8	SW8260	SW8260	0.350	1.00	0.160	5.00
Methyl acetate	79-20-9	SW8260	SW8260	2.27	10.0	1.40	10.0
Methylcyclohexane	108-87-2	SW8260	SW8260	0.430	1.00	0.310	10.0
Methylene Chloride	75-09-2	SW8260	SW8260	0.330	1.00	0.670	5.00
4-Methyl-2-pentanone (MIBK)	108-10-1	SW8260	SW8260	0.990	10.0	0.540	20.0
Methyl tert-butyl ether	1634-04-4	SW8260	SW8260	0.200	1.00	0.430	5.00
m-Xylene & p-Xylene	179601-23-1	SW8260	SW8260	0.240	2.00	1.20	10.0
o-Xylene	95-47-6	SW8260	SW8260	0.250	1.00	0.350	5.00
Styrene	100-42-5	SW8260	SW8260	0.450	1.00	0.150	5.00
1,1,2,2-Tetrachloroethane	79-34-5	SW8260	SW8260	0.220	1.00	0.340	5.00
Tetrachloroethene	127-18-4	SW8260	SW8260	0.310	1.00	0.520	5.00
Toluene	108-88-3	SW8260	SW8260	0.230	1.00	0.270	5.00
trans-1,2-Dichloroethene	156-60-5	SW8260	SW8260	0.300	1.00	0.410	5.00
trans-1,3-Dichloropropene	10061-02-6	SW8260	SW8260	0.560	1.00	0.540	5.00
1,2,4-Trichlorobenzene	120-82-1	SW8260	SW8260	0.320	1.00	0.270	5.00
1,1,1-Trichloroethane	71-55-6	SW8260	SW8260	0.440	1.00	0.560	5.00
1,1,2-Trichloroethane	79-00-5	SW8260	SW8260	0.240	1.00	0.390	5.00

TABLE 1
PARAMETER LIST, ANALYTICAL METHODS AND
TARGET QUANTITATION LIMITS
FORMER TEXTILEATHER CORRECTIVE ACTION
TOLEDO, OHIO

	CAS #	Analytical Method		Detection Limits[1]			
		Water	Soil	Lab MDL Water (ug/L)	Lab RL Water (ug/L)	Lab MDL Soil (ug/Kg)	Lab RL Soil (ug/kg)
TCL Volatile Organic Compounds (VOC) Cont.							
Trichloroethene	79-01-6	SW8260	SW8260	0.220	1.00	0.420	5.00
Trichlorofluoromethane	75-69-4	SW8260	SW8260	0.490	1.00	0.340	5.00
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	SW8260	SW8260	0.450	1.00	1.30	5.00
Vinyl chloride	75-01-4	SW8260	SW8260	0.290	1.00	0.390	5.00
Xylenes, Total	1330-20-7	SW8260	SW8260	0.520	2.00	0.350	10.0
Chlorobromomethane (Bromochloromethane)	74-97-5	SW8260	SW8260	0.500	1.00	0.710	5.00
N-Propylbenzene (Propyl benzene)	103-65-1	SW8260	SW8260	0.400	1.00	0.400	5.00
Tetrahydrofuran	109-99-9	SW8260	SW8260	1.40	5.00	1.80	20.0
TCL Semi-Volatile Organic Compounds (SVOC)							
Acenaphthene	83-32-9	SW8270	SW8270	0.0442	0.200	0.760	6.67
Acenaphthylene	208-96-8	SW8270	SW8270	0.0481	0.200	0.350	6.67
Acetophenone	98-86-2	SW8270	SW8270	0.340	1.00	9.20	100
Anthracene	120-12-7	SW8270	SW8270	0.0879	0.200	0.780	6.67
Atrazine	1912-24-9	SW8270	SW8270	0.340	1.00	9.10	200
Benzaldehyde	100-52-7	SW8270	SW8270	0.390	1.00	12.0	100
Benzo[a]anthracene	56-55-3	SW8270	SW8270	0.0295	0.200	0.630	6.67
Benzo[a]pyrene	50-32-8	SW8270	SW8270	0.0514	0.200	0.640	6.67
Benzo[b]fluoranthene	205-99-2	SW8270	SW8270	0.0394	0.200	0.590	6.67
Benzo[g,h,i]perylene	191-24-2	SW8270	SW8270	0.0464	0.200	0.350	6.67
Benzo[k]fluoranthene	207-08-9	SW8270	SW8270	0.0447	0.200	0.680	6.67
1,1'-Biphenyl	92-52-4	SW8270	SW8270	0.130	1.00	3.50	50.0
Bis(2-chloroethoxy)methane	111-91-1	SW8270	SW8270	0.320	1.00	22.0	100
Bis(2-chloroethyl)ether	111-44-4	SW8270	SW8270	0.100	1.00	2.00	100
bis (2-chloroisopropyl) ether	108-60-1	SW8270	SW8270	0.400	1.00	9.50	100
Bis(2-ethylhexyl) phthalate	117-81-7	SW8270	SW8270	1.70	5.00	19.0	70.0
4-Bromophenyl phenyl ether	101-55-3	SW8270	SW8270	0.220	2.00	13.0	50.0
Butyl benzyl phthalate	85-68-7	SW8270	SW8270	0.260	2.00	10.0	70.0
Caprolactam	105-60-2	SW8270	SW8270	0.200	5.00	37.0	330
Carbazole	86-74-8	SW8270	SW8270	0.280	1.00	27.0	50.0
4-Chloroaniline	106-47-8	SW8270	SW8270	0.210	2.00	17.0	150
4-Chloro-3-methylphenol	59-50-7	SW8270	SW8270	0.210	2.00	21.0	150
2-Chloronaphthalene	91-58-7	SW8270	SW8270	0.100	1.00	0.450	50.0
2-Chlorophenol	95-57-8	SW8270	SW8270	0.290	1.00	8.20	50.0
4-Chlorophenyl phenyl ether	7005-72-3	SW8270	SW8270	0.300	2.00	13.0	50.0
Chrysene	218-01-9	SW8270	SW8270	0.0502	0.200	1.10	6.67
Dibenz(a,h)anthracene	53-70-3	SW8270	SW8270	0.0446	0.200	0.660	6.67
Dibenzofuran	132-64-9	SW8270	SW8270	0.0200	1.00	0.660	50.0
3,3'-Dichlorobenzidine	91-94-1	SW8270	SW8270	0.370	5.00	18.0	100
2,4-Dichlorophenol	120-83-2	SW8270	SW8270	0.190	2.00	20.0	150
Diethyl phthalate	84-66-2	SW8270	SW8270	0.600	2.00	16.0	70.0
2,4-Dimethylphenol	105-67-9	SW8270	SW8270	0.250	2.00	20.0	150
Dimethyl phthalate	131-11-3	SW8270	SW8270	0.290	2.00	17.0	70.0
Di-n-butyl phthalate	84-74-2	SW8270	SW8270	1.70	5.00	15.0	70.0
4,6-Dinitro-2-methylphenol	534-52-1	SW8270	SW8270	2.40	5.00	9.20	150

TABLE 1
PARAMETER LIST, ANALYTICAL METHODS AND
TARGET QUANTITATION LIMITS
FORMER TEXTILEATHER CORRECTIVE ACTION
TOLEDO, OHIO

	CAS #	Analytical Method		Detection Limits[1]			
		Water	Soil	Lab MDL Water (ug/L)	Lab RL Water (ug/L)	Lab MDL Soil (ug/Kg)	Lab RL Soil (ug/kg)
TCL Semi-Volatile Organic Compounds (SVOC) Cont.							
2,4-Dinitrophenol	51-28-5	SW8270	SW8270	0.320	5.00	21.0	330
2,4-Dinitrotoluene	121-14-2	SW8270	SW8270	0.250	5.00	17.0	200
2,6-Dinitrotoluene	606-20-2	SW8270	SW8270	0.800	5.00	21.0	200
Di-n-octyl phthalate	117-84-0	SW8270	SW8270	0.230	2.00	7.90	70.0
Fluoranthene	206-44-0	SW8270	SW8270	0.0446	0.200	0.550	6.67
Fluorene	86-73-7	SW8270	SW8270	0.0405	0.200	0.530	6.67
Hexachlorobenzene	118-74-1	SW8270	SW8270	0.0852	0.200	2.10	6.67
Hexachlorobutadiene	87-68-3	SW8270	SW8270	0.270	1.00	5.60	50.0
Hexachlorocyclopentadiene	77-47-4	SW8270	SW8270	0.240	10.0	8.10	330
Hexachloroethane	67-72-1	SW8270	SW8270	0.190	1.00	9.00	50.0
Indeno[1,2,3-cd]pyrene	193-39-5	SW8270	SW8270	0.0433	0.200	0.350	6.67
Isophorone	78-59-1	SW8270	SW8270	0.270	1.00	13.0	50.0
2-Methylnaphthalene	91-57-6	SW8270	SW8270	0.0904	0.200	0.500	6.67
2-Methylphenol	95-48-7	SW8270	SW8270	0.170	1.00	11.0	200
3 & 4 Methylphenol	15831-10-4	SW8270	SW8270	0.800	2.00	20.0	400
Naphthalene	91-20-3	SW8270	SW8270	0.0627	0.200	0.820	6.67
2-Nitroaniline	88-74-4	SW8270	SW8270	0.210	2.00	9.10	200
3-Nitroaniline	99-09-2	SW8270	SW8270	0.280	2.00	16.0	200
4-Nitroaniline	100-01-6	SW8270	SW8270	0.220	2.00	26.0	200
Nitrobenzene	98-95-3	SW8270	SW8270	0.0400	1.00	2.20	100
2-Nitrophenol	88-75-5	SW8270	SW8270	0.280	2.00	8.30	50.0
4-Nitrophenol	100-02-7	SW8270	SW8270	0.290	5.00	17.0	330
N-Nitrosodi-n-propylamine	621-64-7	SW8270	SW8270	0.240	1.00	6.30	50.0
N-Nitrosodiphenylamine	86-30-6	SW8270	SW8270	0.310	1.00	21.0	50.0
Pentachlorophenol	87-86-5	SW8270	SW8270	0.270	5.00	9.10	150
Phenanthrene	85-01-8	SW8270	SW8270	0.0619	0.200	0.730	6.67
Phenol	108-95-2	SW8270	SW8270	0.600	1.00	7.30	50.0
Pyrene	129-00-0	SW8270	SW8270	0.0420	0.200	0.440	6.67
2,4,5-Trichlorophenol	95-95-4	SW8270	SW8270	0.300	5.00	25.0	150
2,4,6-Trichlorophenol	88-06-2	SW8270	SW8270	0.240	5.00	8.90	150

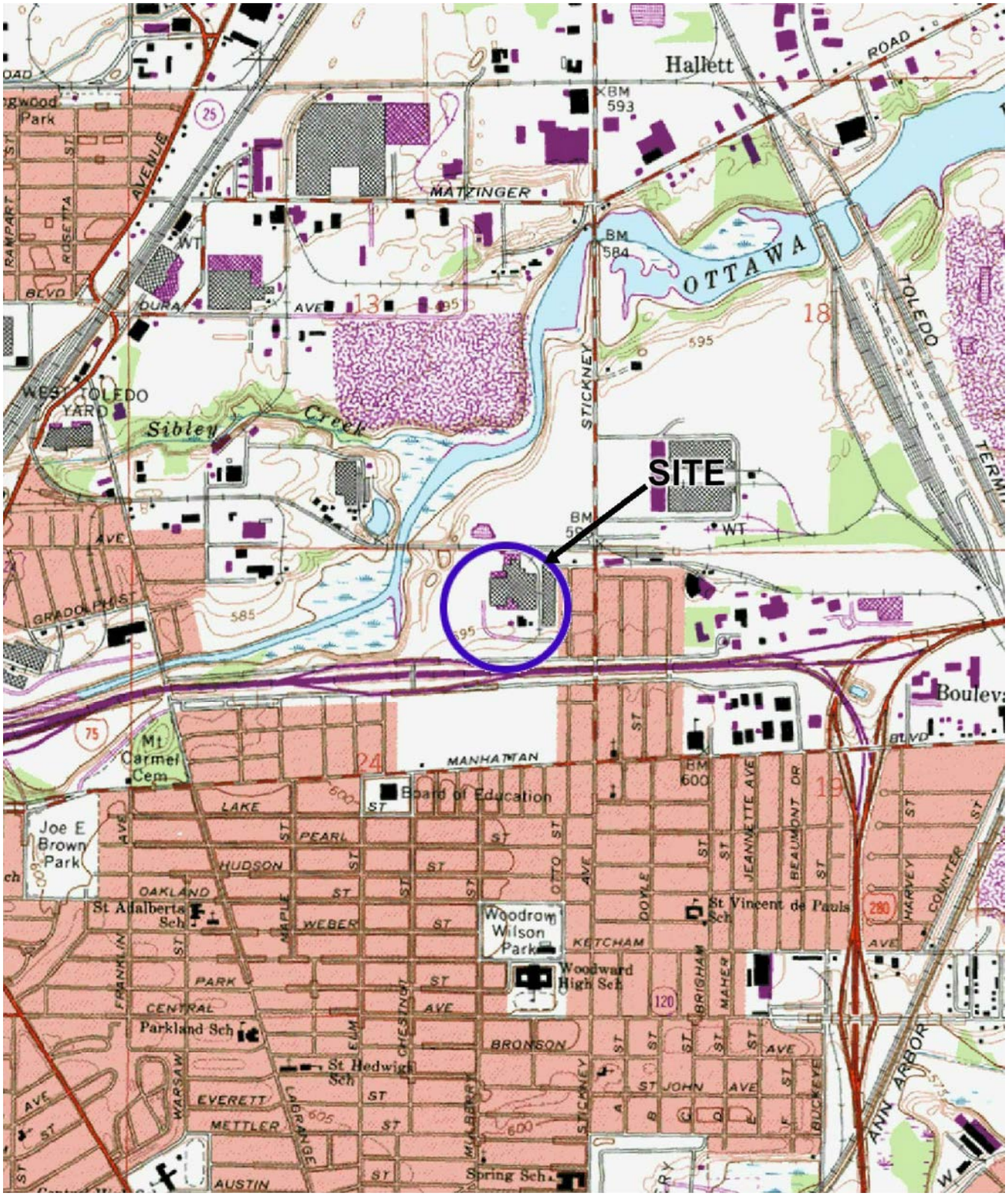
TABLE 1
PARAMETER LIST, ANALYTICAL METHODS AND
TARGET QUANTITATION LIMITS
FORMER TEXTILEATHER CORRECTIVE ACTION
TOLEDO, OHIO

	CAS #	Analytical Method		Detection Limits[1]			
		Water	Soil	Lab MDL Water (ug/L)	Lab RL Water (ug/L)	Lab MDL Soil (ug/Kg)	Lab RL Soil (ug/kg)
TCL Polychlorinated Biphenyls (PCB)							
Aroclor-1016	12674-11-2	SW8082	SW8082	0.170	0.500	12.0	33.0
Aroclor-1221	11104-28-2	SW8082	SW8082	0.130	0.500	16.0	33.0
Aroclor-1232	11141-16-5	SW8082	SW8082	0.160	0.500	20.0	33.0
Aroclor-1242	53469-21-9	SW8082	SW8082	0.220	0.500	11.0	33.0
Aroclor-1248	12672-29-6	SW8082	SW8082	0.100	0.500	8.00	33.0
Aroclor-1254	11097-69-1	SW8082	SW8082	0.160	0.500	14.0	33.0
Aroclor-1260	11096-82-5	SW8082	SW8082	0.170	0.500	9.00	33.0
TAL Metals							
Antimony	7440-36-0	SW6020	SW6020	0.160	2.00	14.0	400
Arsenic	7440-38-2	SW6020	SW6020	0.180	5.00	26.0	1000
Barium	7440-39-3	SW6020	SW6020	1.10	5.00	220	1000
Beryllium	7440-41-7	SW6020	SW6020	0.0530	1.00	11.0	200
Cadmium	7440-43-9	SW6020	SW6020	0.0610	1.00	3.70	200
Chromium	7440-47-3	SW6020	SW6020	0.200	2.00	60.0	400
Cobalt	7440-48-4	SW6020	SW6020	0.0210	1.00	1.70	200
Copper	7440-50-8	SW6020	SW6020	0.750	2.00	97.0	400
Lead	7439-92-1	SW6020	SW6020	0.110	1.00	45.0	200
Manganese	7439-96-5	SW6020	SW6020	1.10	5.00	120	1000
Nickel	7440-02-0	SW6020	SW6020	0.230	2.00	39.0	400
Selenium	7782-49-2	SW6020	SW6020	0.250	5.00	40.0	1000
Silver	7440-22-4	SW6020	SW6020	0.0200	1.00	1.40	200
Sodium	7440-23-5	SW6020	SW6020	68.0	1000	8700	200000
Thallium	7440-28-0	SW6020	SW6020	0.0740	2.00	19.0	400
Vanadium	7440-62-2	SW6020	SW6020	0.230	5.00	37.0	1000
Zinc	7440-66-6	SW6020	SW6020	7.30	20.0	500	4000
Mercury							
Mercury	7439-97-6	SW7470	SW7471	0.09	0.2	14	100
Cyanide							
Cyanide, Total	57-12-5	SW9012	SW9012	2.00	10.0	300	500
Glycols[2]							
Ethylene glycol	107-21-1	SW8015	SW8015	1000	10000	1000	10000

Notes:

1. Please note that target these quantitation limits are presented for guidance only.
   Actual quantitation limits are highly matrix dependent and may be elevated due to matrix effects, QA/QC problems and high concentrations of target and non-target analytes.
   Lab MDL - Laboratory Method Detection Limit
   RL - Reporting Limit
2. Analysis requires DI Leaching

Figures



SITE COORDINATES: 41°41'30"N 83°31'51"W

U.S.G.S. QUADRANGLE: TOLEDO, OH

HALEY ALDRICH

TEXTILEATHER FACILITY
3729 TWINING STREET
TOLEDO, OHIO

PROJECT LOCUS

SCALE: 1:24,000
APRIL 2015

FIGURE 1

LEGEND:

- APPROXIMATE PROPERTY LINE
- RAILROAD
- DRAINAGE SWALE
- FENCE
- AREA OF INTEREST (AOI) - FURTHER INVESTIGATION RECOMMENDED
- AREA OF INTEREST (AOI) - NO ADDITIONAL INVESTIGATION RECOMMENDED
- AREA OF INTERST (AOI) IDENTIFIED IN HUMAN HEALTH RISK ASSESSMENT (HHRA) WITH POTENTIAL UNACCEPTABLE FUTURE RISK
- VEGETATION
- (1A) BUILDING NUMBER

NOTES:
1. BASEPLAN PROVIDED BY CRA's eDAT DATABASE.

BLDG NO.	DEPARTMENT	TOTAL FLOOR AREA (SQ FT.)
1	WAREHOUSE	5,800
1A	WAREHOUSE	3,600
1B	WAREHOUSE	1,800
2	FRAME ROOM	13,900
3	COATING & DOPE STORAGE	9,500
4-5	DOPE MAKEUP & NAUTA MIXER	10,100
6	WAREHOUSE	14,100
7	SAMPLE ROOM	17,700
8	WAREHOUSE	3,300
9	WAREHOUSE	5,400
10	WAREHOUSE	7,900
10A & 10B	WAREHOUSE	4,800
11C	MAINT CRIB & STORAGE	750
14	WAREHOUSE & COATING	6,800
14A	WAREHOUSE & NO 3 STOCK	1,700
14B	REELING, WHSE & NO 3 STOCK	3,800
15	COATING	5,100
15A	FIRST AID	200
20	RECEIVING	5,000
21	EMBOSSING & ROLL STORAGE	3,000
22	EMBOSSING	7,800
23	ANNEALING	4,800
24	COATING & STORAGE	24,250
25	DOPE ROOM	13,100
28	DOPE ROOM	10,300
28A	CAN WASH & WAREHOUSE	4,800
29	BULK DOPE, WHSE & FK. TRK. REP.	3,100
31	SOLVENT RECOVERY	5,500
32	SOLVENT RECOVERY	300
37	CALENDER ROOM (NO 1 CAL)	4,800
37A	CALENDER ROOM (NO 2 CAL)	7,300
41	EMBOSSING & STORAGE	21,200
42	TOLEX WAREHOUSE	18,700
42A	RECEIVING DOCK	600
43	FINAL INSPECTION	18,000
45	FIRE PUMP NO 1	330
46	WAREHOUSE	14,400
47	WAREHOUSE	68,700
48	QUALITY CONTROL	3,000
49	STORAGE SHED	230
50	CALENDER ROOM (NO 3 CAL)	9,800
51	CONTROL ROOM (NO 3 CAL)	2,600
52	MAIN OFFICE BUILDING	24,000
53	SCRAP STORAGE (SOLVENT)	1,080
54	PRINT & FINISH	25,100
55	WAREHOUSE (DOPE ROOM)	3,100
56	TEXTILE WAREHOUSE	4,800
58	PLASTICIZER UNLOADING	140
59	FIRE PUMP NO 2	240
60	MAINTENANCE & RESEARCH	26,600
61	OUTPOST WAREHOUSE	4,800
62	STORAGE & BREAK ROOM	510
63	CONTROL ROOM (SOLVENT RECOVERY)	160
64	SILOS	1,030
66	POWER HOUSE	3,800
67	GAS METER HOUSE	240
68	RED LABEL ROOM	2,560
69	PUMP HOUSE	530
70	PURCHASING STORAGE	320
72	SHED BUILDING 9	300
73	SHED PILOT LINE	1,000
74	SHED BUILDING 6	400
79	GUARD HOUSE	40
81	DEVELOPMENT CENTER	3,170
	TOTAL AREA	462,060

AREAS OF INTEREST:

AOI-01 - PCB AREA
AOI-02 - SOLVENT RECOVERY AREA
AOI-03 - OIL INTERCEPTOR BASINS
AOI-04 - EASTERN REFUSE HANDLING AREA
AOI-05 - NORTHERN REFUSE AND OIL HANDLING AREA
AOI-06 - GENERAL REFUSE HOPPERS
AOI-07 - CONTAINER STORAGE AREA
AOI-08 - BUILDINGS 2 THROUGH 6
AOI-09 - COATER LINES
AOI-10 - DOPE ROOM AND CAN WASH
AOI-11 - PRINT FINISH DEPARTMENT
AOI-12 - HAZARDOUS WASTE STORAGE ROOM
AOI-13 - BUILDING 69
AOI-14 - SOUTH UST FARM
AOI-15 - SOUTH AST FARM
AOI-16 - POWERHOUSE
AOI-17 - FORMER FUEL OIL AST AND FORMER HAZARDOUS WASTE STORAGE AREA
AOI-18 - FORMER FIRE RESPONSE TRAINING AREA
AOI-19 - BATTERY CHARGING AREA
AOI-20 - RAIL CAR UNLOADING AREA
AOI-21 - NORTH FORMER AST FARM AND CURRENT AST FARM
AOI-22 - FORMER NORTH FUEL OIL AST FARM
AOI-23 - NORTHERN PHTHALATE LEAK REMEDIATION AREA
AOI-24 - SOUTH EAST USTS
AOI-25 - TOLEX COURTYARD CHILLER
AOI-26 - OUTPOST OUTSIDE STORAGE AREA
AOI-27 - SITE-WIDE GROUNDWATER
AOI-28 - FORMER SAMPLE PRINT MACHINE

N

0 80 160 240 320
SCALE IN FEET

HALEY ALDRICH

TEXTILEATHER FACILITY
3729 TWINING STREET
TOLEDO, OHIO

SITE PLAN SHOWING AOI LOCATIONS

SCALE: AS SHOWN
APRIL 2015

FIGURE 2

APPENDIX A

Site Health and Safety Plan (HASP)

FORMER TEXTILEATHER FACILITY
GENERIC SITE HASP
3729 TWINING STREET
TOLEDO, OHIO

FOR

City of Toledo
Toledo, Ohio

File No. 36005
15 May 2015

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1. CRITICAL EMERGENCY INFORMATION

1.1 POLICE, MEDICAL OR FIRE EMERGENCY

EMERGENCY: 911

1.2 PRIMARY EMERGENCY CONTACTS

Role	*Name*	*Responsibility*	*Phone Number*
Site Manager (SM)	Bill Burkett	1. Assess the situation and make appropriate decisions for implementing response to the emergency. 2. Initiate contact with members of the Emergency Contact List. 3. Execute emergency response in accordance with this HASP. 4. Assess the situation and call 911. 5. Assist in directing emergency personnel to incident location. 6. Notify emergency room if any injured personnel are chemically contaminated.	Cell: (419) 304-5851

1.3 EVACUATION, COMMUNICATION, PROCEDURE AND MUSTER POINTS

Evacuation Step	*Methods and Comments*
Notify affected workers	Use cellular phones or two way radios
Evacuate to safe location	Primary assembly point – Gate Near Field Office (Former Medcorp Building) Backup assembly point – Truck Gate Adjacent to N Expressway Drive.

1.4 LOCATION OF FIRST AID KITS, FIRE EXTINGUISHERS, AND SPILL KITS

First aid kits:

- First aid kits should be accessible near work being conducted.
- All field vehicles should be equipped with first aid kits.

Fire extinguishers:

- All field vehicles should be equipped with fire extinguishers.

Spill kits:

- Located near areas where heavy equipment will be operated.

1.5 EMERGENCY MEDICAL FACILITY INFORMATION

Mercy St. Vincent Medical Center: Specialty Clinics
2213 Cherry Street
Toledo, OH 43608-2603
Phone: (419) 251-4858

Directions to this hospital can be found below:

bing Maps

A **3729 Twining St, Toledo, OH 43608**

B **2213 Cherry St, Toledo, OH 43608**

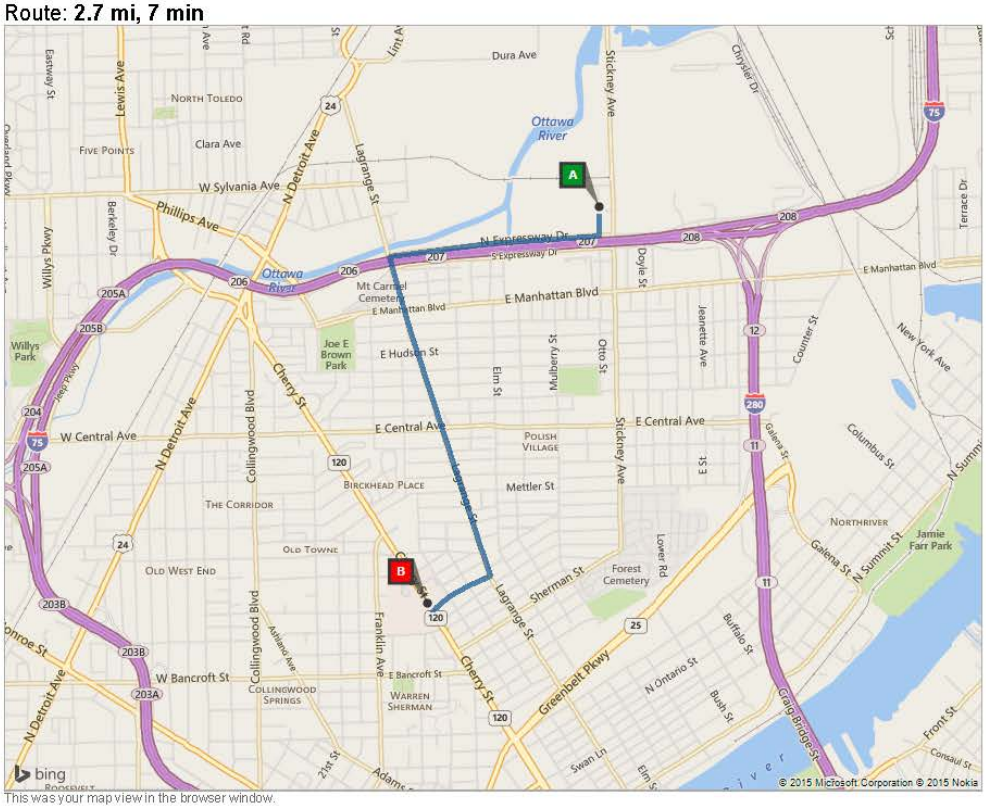
Route: **2.7 mi, 7 min**

My Notes

On the go? Use **m.bing.com** to find maps, directions, businesses, and more

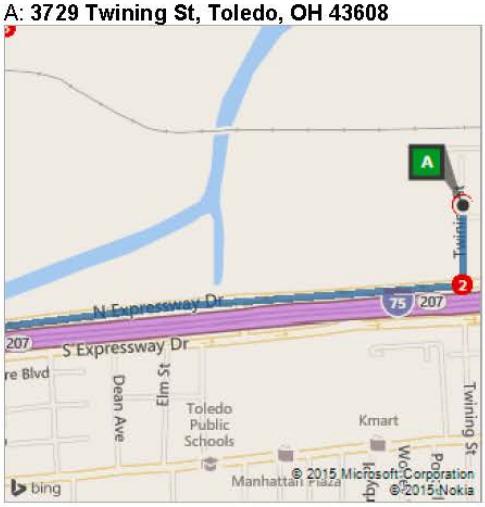
A	**3729 Twining St, Toledo, OH 43608**	**A–B: 2.7 mi** 7 min
	1. Depart **Twining St** toward MedCorp Dr	0.1 mi
	2. Turn **right** onto **N Expressway Dr**	0.9 mi
	3. Turn **left** onto **Lagrange St**	1.4 mi
	4. Turn **right** onto **Yates St**	0.3 mi
	5. Turn **right** onto **OH-120 / Cherry St**	174 ft
B	6. Arrive at **2213 Cherry St, Toledo, OH 43608** *The last intersection is Yates St* *If you reach Mark St, you've gone too far*	

Route: **2.7 mi, 7 min**



This was your map view in the browser window.

A: **3729 Twining St, Toledo, OH 43608**



B: **2213 Cherry St, Toledo, OH 43608**

2. INTRODUCTION

This Health and Safety Plan (HASP) is the generic occupational health and safety document for any work both above and subsurface at the former Textileather Facility (Site). A project-specific Excavation Plan and HASP must be developed prior to excavation work by the successful excavation contractor, and conform to applicable Federal, State and local regulations extant at the time of work performance.

Above ground work includes, but is not limited to, Site visits, surveying, utility mark outs, and Site inspections. Subsurface work includes, but is not limited to, any excavation activities, trenching activities and/or subsurface utility servicing. Potentially hazardous areas include the Calender Basement, storm and sanitary sewers, south pump house area, and the former test print finish room, however, this HASP covers all above work activities across the entire Site. Full descriptions of potentially hazardous areas are listed in section 2.4.

This HASP identifies the general health & safety requirements for all work to be performed at the Site. This HASP has been designed to minimize any potential risk to Site personnel, contractors, subcontractors and the general public working on the Site at all times during work activities.

2.1 SITE INDUCTION

The Site Manager (SM) or designated Person in Charge (PIC) will undertake an initial briefing of all Site personnel at the commencement of any work activities. The primary aim of the induction is to provide Site personnel with an overview of policies, procedures and practices that apply to the work being performed and to provide them with a sound understanding of their health and safety responsibilities.

The induction is compulsory for all personnel performing Site work. The health and safety acknowledgment form at the end of this HASP must be signed and dated by all personnel performing subsurface work and/or working in the potentially hazardous areas of the Site.

Copies of this HASP will be available and accessible to Site personnel for reference and review. The Site Manager is responsible for ensuring that all personnel have read and understood the HASP, are competent for their tasks, have the proper personal protective equipment (PPE) and are familiar with relevant work procedures and safety systems before any work takes place.

2.2 SITE LOCATION

The Facility is located at 3729 Twining Street, Toledo, Ohio within Lucas County.

2.3 SITE DESCRIPTION

In general, the Site is located at 3729 Twining Street, Toledo, Ohio and covers approximately 30.4 acres, which are currently owned by The City of Toledo (Figures 1 and 2).

2.4 AREAS OF CONCERN

2.4.1 Calender Basement Area

The Calender Basement Area consists of Area of Contamination 01 (AOC 01) (PCB Contaminated Soils) and Storm Water Management Unit 1 (SWMU 1) (Storm Sewer System) from the property assessment/visual site inspection (PA/VSI), which comprises Area of Interest (AOI)-01. Between 1967 and 1972 Polychlorinated Biphenyls (PCBs) were present in Therminol heat transfer oil pumped through the Calender rolls to maintain their temperature during the vinyl calendering process. Therminol oil was transferred via above ground and underground piping which lead from above ground storage tanks outside the building to the calendering process equipment in buildings 50, 37 and 37A.

AOC 1 is the outdoor area of PCB contaminated subsurface soils on the northwest side of the former facility. The following information was based on a review of previous reports and interviews of facility personnel. From 1967 to 1972 the Facility's calender process used PCB-containing heat transfer fluid. The fluid was stored outside in above ground storage tanks (ASTs) that were removed from service many years ago, and leaked from process equipment, pumps and underground piping. Extensive investigations of this area began in 1987 and remediation began in 1994 under Ohio Environmental Protection Agency (EPA) supervision under a Consent Order. PCB contaminated soils were excavated in the area west of Building 50. Approximately 5,500 cubic yards of soil were removed from the area, followed by post-excavation verification soil sampling. Residual PCBs remained within the building foundations and were contained by a slurry wall. The storm sewers were also cleaned and sampled as part of the remediation project. The PCB remediation efforts were completed by GenCorp in the mid-1990s.

SWMU 1 consists of a sump beneath the calender equipment and a storm sewer line. A pump in the sump discharged to the storm sewer line. During the time of PCB use at the Facility, PCB containing Therminol oil leaked into the sump and was discharged to the facility's storm sewer system. The leaks to this sump are the same releases noted for AOC 1.

Located inside the northwest corner of the former facility, the Calender Basement contains seeps along the base of the walls where groundwater containing PCBs have entered the structure from outside of the foundation. The Calender Basement contains the piping and pumps that were used for transporting heat transfer oil during the calendering process, as well as a PCB collection sump and oil water separator. The separator was operational until the fall of 2013 when the electrical service was disconnected to the facility, and large adsorbent booms were installed to capture and contain PCB-containing oil.

Due to the demolition of the facility and continued onsite work, access to the basement will be prohibited. Should the need to remove any PCBs becomes necessary, a plan will be developed to remove the material through surface access locations using a vacuum truck to eliminate the risk of entering the basement. All persons performing subsurface activities in the vicinity of the Calender basement will be outfitted in modified level D personal protective equipment (PPE) consisting of coated Tyvek suit, chemical resistant protective boots or boot covers, nitrile gloves, and a face shield when working with liquids, in addition to any other Site specific and job specific PPE necessary.

2.4.2 Oil Interceptor Basins & Sewer Systems (AOI 03)

Three subsurface oil interceptor basins in the storm sewer system are located on the southern end of the Facility. Discharges from these interceptors were regulated under the U.S. EPA National Pollutant Discharge Elimination System (NPDES) program. The east interceptor is connected to NPDES Outfall 001 and the west interceptor is connected to NPDES Outfall 002. The western storm sewer line has another interceptor located upstream of the outfall. The interceptors were installed in 1974. According to facility personnel, and previous reports, several releases of oils, PCBs and solvents have occurred to the storm sewer system and the oil interceptor basins.

Any work activities required within the oil interceptors or the storm and sanitary sewers is considered confined space work and a confined space entry permit will need to be obtained from the Site Manager or designate prior to commencing work activities. Personnel working within the interceptors and or storm and sanitary sewers are required to wear modified level D PPE consisting of coated Tyvek suit, chemical resistant protective boot covers, nitrile gloves, and a face shield when working with liquids, in addition to any other site specific and job specific PPE necessary.

2.4.3 Former Test Print Finish Room (AOI-28)

The Former Test Print Finish Room is located within the former Building 23 and is where inks were used to print on vinyl products. Soil investigation in this area revealed concentrations of volatile organic compounds (VOCs) above industrial screening criteria. Any excavation work taking place in the Former Test Print Finish Room will be completed in compliance with a future Excavation Workplan that will be prepared as part of the corrective measures remediation. The excavation work plan will be completed in accordance with the Site Management Plan and its attachments.

2.4.4 Building 69 – Pump House Area (AOI-13)

Building 69 was the former Pump House and it contained the pumps and equipment to transfer the contents of the South underground storage tank (UST) and AST tank farms (AOI 14 and AOI 15). Materials historically managed in this area include methyl ethyl ketone (MEK), tetrahydrofuran (THF) and various phthalate-based plasticizer oils. According to facility personnel, equipment in the Pump House has leaked for at least 30 years. Over the years various pan and dike containment systems have been installed to control the leaks. According to facility documents two spills occurred in January 2007 releasing a total of 1,200 gallons of Palatinol DPHP plasticizer oil onto the pavement outside the Pump House. Oil dry and a vacuum truck were used to collect the oil from the pavement and the oil did not make it to the storm sewer system. The City of Toledo Department of Environmental Services inspected the spill area at the time of the clean-up. The Ohio EPA Spill ID# for this incident is 0702-48-0432.

Workers planning to perform subsurface activities in the vicinity of Building 69 are required to wear modified level D PPE. These requirements are the minimum requirements in the area. A Site Specific Health and Safety Plan will be created prior to work commencing, this plan will include monitoring requirements and contingency options should levels exceed exposure

standards. The Site Specific Health and Safety Plan will be created in accordance with the Site Management Plan and its attachments.

2.4.5 Remainder of Site

Subsurface contamination exists in other areas of the Site. Therefore, any subsurface activities planned in areas of the Site not listed above must first be evaluated for conditions that may create pose a hazard to human health or the environment. Other constituents of concern are present onsite as summarized in **Appendix A**.

The Site is currently in the process of demolition. The buildings have all been removed and the facility slab is in the process of being removed. Personnel completing work at Site should first be oriented to current slips, trips, falls prior to entering. The SM or PIC will orient workers to the surficial hazards.

2.5 SITE AUTHORITIES & RESPONSIBILITIES

The implementation of health and safety at the Site will be the responsibility of the Site Manager.

2.5.1 Site Manager (Bill Burkett)

The SM will verify that all work activities conducted are consistent with all HASP policies and practices. The SM will verify that the HASP is being implemented on-site and by all workforce members. The SM will participate, where necessary, in the development and verification of Site permits.

The SM is the individual who has the primary responsibility for ensuring the overall health and safety of this project. The SM is also responsible for cultivating and maintaining a high level of health and safety consciousness among the entire Site workforce. Responsibilities also include:

- Reviewing and approving the HASP for this project,
- Conducting accident/incident investigations,
- Maintaining regular contact with the Site workforce to evaluate Site conditions and new information which might require modifications to the HASP.
- Assuring that all personnel to whom this HASP applies have received a copy and have submitted a completed copy of the HASP acknowledgment form, and
- Assuring that only properly trained and qualified personnel perform work at the site.

2.5.2 Person In Charge (Varies)

The Person in Charge, appointed by the SM, will function as a liaison between the City, the contractor(s), and their workforce at the Site. The PIC will identify and verify all simultaneous operations (SIMOPS), determine if conflicts exist between work to be completed, and after consultation with all affected parties, shall decide the order of work to be performed. The PIC will remain onsite until work activities have stopped and appropriate equipment has been secured.

2.5.3 Site Workforce

All workforce personnel and contractor personnel covered by this HASP are responsible for following the health and safety procedures specified in this HASP and for performing their work in a safe and responsible manner. Some of the specific responsibilities of the field personnel are as follows:

- Reading the HASP in its entirety prior to the start of on-Site work;
- Signing the HASP Acknowledgment Form and documentation of medical surveillance and training to the SM prior to the start of work;
- Attending the required tailgate safety briefing prior to beginning on-Site work;
- Reporting near miss incidents;
- Bringing forth any questions or concerns regarding the content of the HASP to the SM prior to the start of work;
- Stopping work in cases where an immediate danger is perceived;
- Reporting all accidents, injuries and illnesses, regardless of their severity, to the SM; and
- Complying with the requirements of this HASP and the requests of the SM.

2.6 DAILY SAFE WORK PRACTICES

The following safe work practices are designed to augment the specific health and safety requirements defined in this document and must be adhered to by all field personnel working at the Site.

- All field personnel must wear the minimal level of personal protective equipment (PPE) required at the Site (Level D), which includes hard hats, high visibility vests, safety glasses with side shields, steel toed protective footwear, and long pants.

- The buddy system will be used at all times by field personnel. No one is to perform any field activities alone. In some instances, a cell phone or two-way radio may be used in lieu of the physical presence of a person in a work area.

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited within work zones.

- Hands must be thoroughly washed upon leaving the work area and prior to eating, drinking, or any other activities which may lead to the ingestion of hazards.

- Beards and other facial hair that interfere with the respirator fit are prohibited, when working in restricted areas.

3. CHEMICAL HAZARD ASSESSMENT & CONTROLS

Persons working at this Site should be aware of the following chemical hazards.

3.1 POLYCHLORINATED BIPHENYLS

PCBs have been identified in several areas of the site, including the Calender Basement Area and the storm and sanitary sewers. Polychlorinated biphenyl's (PCBs) are a group of manufactured organic chemicals that contain 209 individual chlorinated chemicals (known as congeners). PCBs are either oily liquids or solids and are colorless to light yellow in color. They have no known smell or taste. There are no known natural sources of PCBs. Some commercial PCB mixtures are known in the United States by their industrial trade name, Aroclor.

PCBs don't burn easily and are good insulating material. They have been used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. The manufacture of PCBs stopped in the United States in 1977 because of evidence that they build up in the environment and cause harmful effects. Products containing PCBs are old fluorescent lighting fixtures, electrical appliances containing PCB capacitors, old microscope oil, and hydraulic fluids.

PCBs are generally considered to be of moderate to low toxicity. The higher the chlorine content of the PCBs, the greater the toxicity is likely to be. Exposure to PCBs can cause liver damage at high concentrations. Prolonged ingestion of large doses of PCBs has been shown to cause liver cancer in laboratory rats. A few studies of workers indicate that PCBs were associated with certain kinds of cancers in humans, such as cancer of the liver and biliary tract. The Department of Health and Human Services (DHHS) has concluded that PCBs may reasonably be considered to be carcinogens. Dermal contact with liquid PCBs may produce skin irritation or a rash, often referred to as "chloracne." Eye contact with PCB fluids is likely to produce eye irritation.

Due to the low vapor pressures of PCBs, an inhalation hazard is not likely to be generated by PCB fluids at ambient temperatures. Therefore, respiratory protection is not typically required for exposure to PCB fluids, particularly in outdoor locations. However, exposure to hot PCB fluids, particularly in enclosed areas, such as a transformer vault, could produce hazardous vapor concentrations and dusts laden with PCBs may be readily inhaled and or ingested. PCBs do penetrate the skin readily. Therefore, PPE, as described in Section 7 of this HASP, will be worn during any activity where direct skin contact with PCB fluids is a possibility.

The Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) for PCB (42%) is 1 milligram per cubic meter (mg/m^3) as an eight hour time weighted average (TWA). The OSHA PEL for PCB (54%) is 0.5 mg/m^3 as a TWA.

3.2 SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS) INCLUDING PENTACHLOROPHENOL

SVOCs have been identified in several areas of the site. SVOCs are organic compounds which have a boiling point higher than water and which may vaporize when exposed to temperatures above room temperature. Many are human made and are used and produced in the manufacturing industry (e.g. in plastic, pharmaceutical and pesticide manufacture). SVOCs are typically industrial plasticizers e.g.

phthalates, by-products of incomplete combustion of fossil fuels e.g. benzo(a) pyrene. To name a few, household sources can include cooked foods (especially chargrilled), medicines, and disinfectants. SVOCs include a variety of chemicals, which may have short and long term adverse health effects. The health effects can vary greatly from those that are highly toxic, to those which at present, have no known health effects. Many are suspected to be cancer causing in humans and some are known to be carcinogenic in animals and humans e.g benzo (a) pyrene. Other SVOCs have also been shown to be reproductive toxicants based on animal studies e.g. phthalates have been linked to asthma, allergies, and other bronchial irritations.

3.3 VOLATILE ORGANIC COMPOUNDS (VOCS)

VOCs have been identified in several areas of the site, including storm sewers; the southern pump house and the test print finish area, including tetrachloroethene, trichloroethene, tetrahydrofurn, methyl ethyl ketone, benzene, toluene, ethylbenzene and xylene. VOCs are a group of chemicals that contain organic carbon, and readily evaporate – changing from liquids to gases when exposed to air. VOCs are usually in such solvent as paint wastes, dry cleaning chemicals, furniture stripper, carburetor cleaners and other solvents and waste sludge. VOCs generally do not stick (absorb) to soils at low concentrations, and readily evaporate from water and soil when the water is used for irrigation purposes.

Human health effects are related to routes of exposure, or exposure pathways. The three primary routes of exposure for humans are:

- Ingestion (swallowing),
- Respiration (lungs), and
- Dermal absorption (through skin).

In general, long-term exposure to low concentrations of volatile organic compounds in water or air may result in liver or kidney effects. These effects may include elevation of serum enzyme levels, mild cellular changes and changes in lipid metabolism. At somewhat higher concentrations, breathing VOCs may cause irritation of the respiratory tract.

Acute symptoms of overexposure to these VOCs include irritation of the mucous membranes of the upper respiratory tract, nose and mouth, drowsiness, headache, fatigue and drunken-like behaviors. Chronic and prolonged overexposure to the vapors of benzene may cause damage to the blood-forming organs and is known to cause leukemia in humans.

3.4 HAZARDOUS SUBSTANCES BROUGHT ON-SITE

A material safety data sheet (MSDS) must be available for each hazardous substance that any person brings onto the Site.

In addition, all containers of hazardous materials must be properly labeled in accordance with OSHA's Hazard Communication Standard. Either the original manufacturer’s label or a National Fire Protection Association (NFPA) 704M label specific for the material is considered to be an acceptable label

3.5 POTENTIAL ROUTES OF CHEMICAL EXPOSURE

It is anticipated that the likelihood of encountering and being overexposed to the contaminants of concern is relatively low unless very dusty conditions are generated during the subsurface work activities.

The potential routes of exposure to the contaminants of concern include:

- Ingestion via hand to mouth transfer,
- Inhalation from airborne dust/particulates and
- Dermal contact with contaminated soils, groundwater

4. Physical Hazard Analysis & Controls

Persons working at this Site should be aware of the following physical hazards.

4.1 OVERHEAD UTILITY HAZARDS

Activities within the vicinity of overhead utility hazards cannot commence until thorough inspection of the area has taken place by the SM or the PIC and it is deemed safe to perform the work.

4.2 WORKING AT HEIGHTS

Use of a scissor lift or aerial lift may be required for some general Site activities. No person shall elevate beyond 6 feet above ground surface without the use of American National Standards Institute (ANSI)-approved fall protection (approved belts, lanyards and a fall protection slide rail) that meets the requirements of OSHA standards. All personnel involved in activities which require fall protection shall be trained and competent.

4.3 HAND AND POWER TOOLS

A variety of hand tools will be used during work activities at the Site. The use of each can pose serious safety hazards to the user. Hand and power tools to be used are to be inspected each day prior to use confirming that they are in proper functioning order to prevent possible serious injury. Power tools with frayed cords or missing guards are to be taken out of service until the appropriate repairs have been made and the tool is deemed safe by the SM.

4.4 NOISE EXPOSURE

Site activities in proximity to heavy equipment often expose workers to excessive noise. It is anticipated that situations may arise when noise levels may exceed the OSHA action level (AL) of 85 dBA in a TWA. If excessive noise levels occur, efforts will be made to control this by issuance of hearing protection to all personnel and by implementing a system of hand signals understood by all.

4.5 HEAVY EQUIPMENT HAZARDS

Use of heavy equipment will require all personnel in the vicinity of the operating equipment to wear hardhats and fluorescent colored shirts/vests in addition to the Site required PPE. Personnel shall not remain in the vicinity of heavy equipment unless it is required for their work responsibilities. Before heavy equipment use, the SM or the PIC will ensure an adequate safety zone around the equipment and associated operations.

4.6 SIMULTANEOUS OPERATIONS (SIMOPS)

One or more activities (e.g., tasks, jobs) or work taking place at the same time have the potential to affect one another. Specifically, multiple operations may be occurring concurrently in sufficient proximity that one operation creates a hazard for another, or new hazards are created. Before SIMOPS activities the PIC will ensure an adequate safety zone around the equipment and associated operations.

4.7 TRAFFIC HAZARDS

To reduce the risk to field personnel during work activities at the site; traffic safety precautions should be implemented. Safety precautions may include establishing vehicle right-of-ways and directions of traffic flow, restricting traffic in or around certain work areas and barricading designated work areas.

4.8 PERSONAL HEAVY LIFTING

Using the proper techniques to lift and move heavy objects (greater than 50-lbs) is important to reduce the potential for back injury.

The following precautions should be implemented when lifting or moving heavy objects.

- Bend at the knees, not the waist. Let your legs do the lifting.
- Do not twist while lifting
- Bring the load as close to you as possible before lifting
- Be sure the path you are taking while carrying a heavy object is free of obstructions and slip, trip and fall hazards
- Use mechanical devices to move objects, such as drums of PPE wastes or generators, that are too heavy to be moved manually
- If mechanical devices are not available, ask another person to assist you.

4.9 SLIP, TRIP, AND FALLS

Many slip, trip and fall hazards exist on the site. When carrying equipment, identify a path that is clear of any obstructions. It may be necessary to remove obstacles to create a smooth, unobstructed access point to the work areas on-site. Employees should always follow an unobstructed path when accessing outdoor work locations as well due to the irregular terrain and the potential presence of construction/demolition debris and/or vegetation.

The following procedures can be used to minimize the risk of slip, trip, and fall hazards:

- Keep work area and walking pathways clear of obstacles and debris
- Keep work surfaces dry where possible
- Stay alert and be aware of the conditions of the walking path or work area
- Use a suitable portable light source (e.g., flashlight) when working in Site buildings that lack permanent lighting
- Avoid fenced in areas, maintain 6-foot perimeter from edge of roofs, and inspect and maintain inspection records for all ladders in service.
- Keep work areas and walking paths clear of snow and ice. Use a shovel to clear areas where snow has accumulated. Apply ice melt or sand to work area and path surfaces to prevent ice accumulation.

4.10 DRUM HANDLING

Since accidents occur frequently during drum handling, particularly during initial handling, drums should only be handled if necessary. Prior to handling, all personnel should assess the drum handling task and review ways to minimize handling as much as possible and to avoid unnecessary handling. Once a drum has material placed within it, the drum must be moved using a drum dolly or a drum grappler attached to a forklift. The following procedures can be used to maximize worker safety during drum handling and movement:

- Use proper lifting and moving techniques to prevent back injuries.
- Make sure the vehicle selected has sufficient rated load capacity to handle the anticipated loads and make sure the vehicle can operate smoothly on the available road surface.
- Supply operators with the appropriate respiratory protective equipment when needed.
- Before moving anything, determine the most appropriate sequence in which the various drums and other containers should be moved.
- Exercise extreme caution in handling drums that are not intact and tightly sealed.
- Ensure that operators have a clear view of the roadway when carrying drums.
- Pressurized drums are extremely hazardous. Do not move drums that may be under internal pressure, as evidenced by bulging or swelling.
- If a drum containing a liquid cannot be moved without rupture, immediately transfer its contents to a sound drum using a pump designed for transferring that liquid. If the liquid is combustible use proper bonding and grounding to eliminate static electricity.

- Using a drum grappler, place immediately in overpack containers: leaking drums that contain sludges or semi-solids; open drums that contain liquid or solid waste; deteriorated drums that can be moved without rupture.
- Ensure forklift operator is currently certified and trained to operate the forklift equipment.

4.11 SUN EXPOSURE

Employees are encouraged to liberally apply sunscreen, with a minimum sun protection factor (SPF) of 15, when working outdoors to avoid sunburn and potential skin cancer, which is associated with excessive sun exposure to unprotected skin. Additionally, employees should wear safety glasses that offer ultra violet (UV) protection from UVA/UVB rays.

4.12 HEAT STRESS

Heat stress on hazardous waste sites or construction sites usually is a result of protective clothing decreasing natural body ventilation, although it may occur at any time work is being performed at elevated ambient temperatures. Because heat stress is one of the most common and potentially serious illnesses associated with hazardous waste site work, regular monitoring and other preventative measures are vital.

4.13 COLD STRESS

Persons working outdoors in low temperatures, especially at or below freezing are subject to cold stress. Exposure to extreme cold for a short time may cause severe injury to the surface of the body, or result in profound generalized cooling, causing death.

4.14 INCLEMENT WEATHER

When a severe thunderstorm is coming, employees will only have a short amount of time to make important decisions. Employees do not have access to consistent and current news information via the television or radio when working in the field. To ensure that on-site staff is alerted to the onset of severe weather, the project team should keep cell phones on them at all times.

Via the radio, the SM or PIC will be aware of any severe thunderstorm and/or tornado watches or warnings that have been issued for their work area by the National Weather Service. It is important for field team members to understand the difference between a "watch" and a "warning". If a severe thunderstorm ***watch*** is issued for your work or travel area, it means that a severe thunderstorm is ***possible***. If a severe thunderstorm ***warning*** is issued, it means that ***a severe thunderstorm has actually been spotted or is strongly indicated on radar and it is time to seek safe shelter immediately***.

If a ***severe thunderstorm watch*** is issued, employees must remain alert for approaching storms and review the procedures for seeking refuge in the event that a warning is issued. If a ***severe thunderstorm warning*** is issued, the SM or PIC will alert the project field team to stop work and seek shelter. Work will be stopped until 30-minutes after the last observed lightning strike or thunderclap and the SM or PIC declares that work can continue.

During a severe thunderstorm warning, employees will take the following measures. If you hear thunder, you are close enough to a storm to be struck by lightning.

- Cease all work and seek shelter, either a sturdy building or car, immediately.
- If you are near heavy equipment, move away from the equipment.
- Protect yourself by taking cover in the best shelter you can find. Do not take shelter in small sheds, under isolated tress or in convertible automobiles.
- Avoid trees as they are targets for lightning.
- If in a car, keep the windows up.
- If you are using conductive tools and equipment, separate yourself from them as far as practical.
- Watch for local flooding you may have to move if water begins to accumulate.

If you are caught outside during a thunderstorm and no shelter is available, find a low spot away from trees, fences and poles. Squat low to the ground on the balls of your feet; place your hands on your knees with head between them. Make yourself the smallest target possible and minimize your contact. Do not lie flat on the ground, as your fully extended body will provide a larger surface to conduct electricity. Stay in a tuck position well after the storm passes.

If you feel your hair stand on end in a storm, drop into the tuck position **immediately.** This sensation means electric charges are already rushing up your body from the ground toward an electrically charged cloud. Minimize your contact with the ground to minimize your injury.

5. Biological Hazard assessment & controls

Persons working at this Site should be aware of the possible presence of poisonous plants and insects.

5.1 POISONOUS PLANTS

Poison ivy is a climbing plant with leaves that consist of three glossy, greenish leaflets. Poison ivy has conspicuous red foliage in the fall. Small yellowish-white flowers appear in May through July at the lower leaf axils of the plant. White berries appear from August through November. Poison ivy is typically found east of the Rockies.

The stems, leaves, roots and fruit of poison ivy contains an oil called urushiol. Contact with the irritating oil causes an intensely itching skin rash and characteristic, blister-like lesions. The oil can be transmitted on soot particles when burned and may be carried on the fur of animals, equipment and apparel.

Proper identification is the key to preventing contact and subsequent dermatitis. Wear long sleeves and pants when working in wooded areas. In areas of known infestation, wear Tyvek coveralls and gloves. Oils are easily transferred from one surface to another. If you come in contact with these poisonous plants, wash all exposed areas immediately with soap and cool water to remove the oils. Some commercial products such as Fels-Naptha Laundry Soap and Tecnu's Poison Oak-n-Ivy Cleanser claim to further help with the removal of such oils.

5.2 TICKS

Ticks are bloodsuckers, attaching themselves to warm-blooded vertebrates to feed. Deer ticks, which are associated with the transmission of Lyme's Disease (ticks transmit the bacteria that causes the disease) have been observed in New England and Mid-Atlantic. Not all ticks carry the disease. Furthermore, an infected tick must attach itself for at least 24 hours before it can transmit disease. As such, personnel should carefully inspect themselves each day for the presence of ticks or any rashes. This is important since prompt removal of the tick can prevent disease transmission. Female deer ticks are about one-quarter inch in length and are black and brick red in color. Males are smaller and all black.

Removal of the tick is important in that the tick should not be crushed and care must be taken so that the head is also removed. If the head of the tick is not completely removed or if the tick is allowed to remain for days feeding on human blood, a condition known as **tick paralysis** can develop. This is due to a neurotoxin that the tick apparently injects while engorging. This neurotoxin acts upon the spinal cord causing incoordination, weakness and paralysis.

One characteristic symptom of Lyme Disease is a bulls-eye rash that develops around the bite site. The rash appears in about 60-80% of all Lyme disease cases.

Submit an Incident Report to the SM if you discover you have been bitten by any ticks, or if the tick is still attached. First aid or medical follow-up may be necessary.

Tick season lasts from April through October; peak season is May through July. Wear light-colored clothing (easier to spot ticks) with long sleeves and make sure that shirts are tucked into pants and pants are tucked into socks or boots. Ticks have a tendency to crawl upwards. These procedures will make it more difficult for a tick to reach your skin. Studies have determined that repellants containing DEET as a main ingredient are most effective against mosquitoes and ticks. DEET can be directly applied to the exposed skin of adults and/or clothing. Permonone is another repellent however; it can only be directly applied to clothing.

5.3 MOSQUITO-BORNE ILLNESSES

5.3.1 Eastern Equine Encephalitis

Eastern equine encephalitis is a rare disease that is spread to horses and humans by infected mosquitoes. It is among the most serious of a group of mosquito-borne virus diseases that can affect the central nervous system and cause severe complications and even death. Although relatively small outbreaks of human disease have occurred in the United States, the frequency of this disease is increasing with most cases reported from the eastern seaboard states, the Gulf Coast, and some inland mid-western areas.

After infection, the virus invades the central nervous system, including the spinal cord and brain. Most people have no symptoms; others get only a mild flu-like illness with fever, headache, and sore throat. For people with infection of the central nervous system, a sudden fever and severe headache can be followed quickly by seizures and coma. About half of these patients die from the disease. Of those who survive, many suffer permanent brain damage and require lifetime institutional care. Symptoms usually appear 4 to 10 days after the bite of an infected mosquito. Confirming diagnosis is based on tests of blood or spinal fluid.

Refer to section 5.3.2 for preventative measures.

5.3.2 West Nile Virus

West Nile encephalitis is an infection of the brain caused by the West Nile virus, which is transmitted by infected mosquitoes. Following transmission from an infected mosquito, West Nile virus multiplies in the person's blood system and crosses the blood-brain barrier to reach the brain. The virus interferes with normal central nervous system functioning and causes inflammation of the brain tissue. However, most infections are mild and symptoms include fever, headache and body aches. More severe infections may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis and rarely, death. Persons over the age of 50 have the highest risk of severe disease.

Take preventative measures to avoid mosquito bites. To avoid being bitten by the mosquitoes that cause disease, use the following control measures:

- If possible, stay inside between dusk and dark. This is when mosquitoes are most active.
- When outside between dusk and dark, wear long pants and long-sleeved shirts.
- Spray exposed skin with an insect repellent, preferably containing DEET.
- Where possible, eliminate places where mosquitoes can breed, such as small containers that can hold standing water.

5.4 WASPS AND BEES

Wasps (hornets and yellow-jackets) and bees (honeybees and bumblebees) are common insects that may pose a potential hazard to the field team if work is performed during spring, summer or fall. Bees normally build their nests in the soil. However, they use other natural holes such as abandoned rodent nests or tree hollows. Wasps make a football-shaped, paper-like nest either below or above the ground. Yellow-jackets tend to build their nests in the ground but hornets tend to build their nests in trees and shrubbery.

To avoid bees and wasps when working outdoors:

- Stay away from known nests whenever possible, and warn others of the hazard that exists, via signs and safety briefings.
- Avoid the use of heavily scented soaps, shampoos, perfumes, colognes, after-shaves and cosmetics.
- Avoid shiny buckles and jewelry.
- Cover exposed skin and wear gray, white or tan rather than bright colors. Flowery prints and black especially attract insects.
- Remove food sources from Site that may attract bees. Social wasps thrive where humans discard food.
- Check for new nests during the warmer hours of the day during July, August and September. Bees are very active then.
- If required work areas contain bee or wasp nests, contact a qualified vendor to eradicate them.

Bees are generally more mild-mannered than wasps and are less likely to sting. Bees can only sting once while wasps sting multiple times because their stinger is barbless. Wasps and bees will sting in defense of itself or its nest. To avoid being stung:

- Slowly raise your hands to protect your face, remaining calm and stationary for a while and then move very slowly away.
- Never swing, strike or run rapidly away since quick movement often provokes attack and painful stings.
- Restrain from throwing rocks or spraying nests with water.
- Avoid creating loud noises and disturbance near the nest

Wasps and bees inject a venomous fluid under the skin when they sting. The venom causes a painful swelling that may last for several days. If the stinger is still present, carefully remove it with tweezers. Then,

- Wash the area carefully with soap and water. This should be continued several times a day until the skin is healed.
- Apply a cold or ice pack, wrapped in cloth for a few minutes.
- Apply a paste of baking soda and water and leave it on for 15 to 20 minutes.
- Take acetaminophen for pain.

Wasp stings can be life-threatening to persons who are allergic to their venom. If you develop hives, difficulty breathing or swallowing, wheezing or similar symptoms of allergic reaction, **SEEK MEDICAL ATTENTION IMMEDIATELY**. People with known allergies to insect stings should NEVER work alone.

6. Control of Work Procedures

6.1 DAILY TAILGATE MEETING

A daily tailgate meeting should be held at the start of each work day, shift or task change by the PIC or the Contractor. The daily tailgate meetings shall review the planned work activities for the day, discuss and resolve the risk and mitigations, discuss Health, Safety, Security, and Environmental concerns and raise the HASP consciousness of each worker before the start of work. The Daily Tailgate Meeting form needs to be completed before the work commences each day and covers the task to be completed in the period covered by the form and stipulates the Control of Work procedures and permits required. Another Daily Tailgate Meeting shall also be scheduled at the end of the work day and any best practices, incidents, stop work interventions, and any recommendations for improvements shall be documented. Daily Tailgate Meeting forms shall be signed off by all field personnel and the SM or designate at the end of the day that all personnel left the job safe. When a permit for work is required, the permit can only be signed by a person authorized to do so and cannot be the person doing the work. Any work permits should be copied and attached to the Daily Tailgate Meeting forms.

A copy of the Daily Tailgate Meeting form is included in **Appendix B** of the HASP.

7. Personal Protective Equipment

Personal protective equipment (PPE) will be worn by all field personnel during Site work activities as described in **Section 2.4**. PPE will be worn to prevent injury from the hazards posed by the Site and/or the work activities being implemented.

The minimum PPE requirements for all personnel working at the Site are as follows:

- Hard Hat;
- High Visibility Vest
- Protective Steel-toed Boots;
- Safety Glasses Or Goggles With Side Shields.

7.1 PROJECT SPECIFIC PPE REQUIREMENTS

Project specific PPE requirements will be listed in the project specific HASP.

7.2 RESPIRATORY PROTECTION

Respiratory protection will be donned if required if working in level C PPE and above. All field personnel who are expected to don respiratory protection must have passed a respirator fit test within the last 12-months for the particular respirator that they plan to use.

7.3 ADDITIONAL SAFETY EQUIPMENT

The following additional protective equipment shall be readily available within each work zone at the Site:

- First Aid kit/AED
- Eyewash solution bottles
- Fire extinguisher

8. Site Control

8.1 SITE ACCESS AND SECURITY

The Site is currently secured by a six-foot high, chain-linked fence. Access to the Site is controlled by access through the main truck gate and the entry gate near the field office. Upon arrival at the Site, authorized personnel must check in with the SM or the PIC. Upon leaving the Site, authorized personnel must let the SM or PIC know they are leaving. The Site sign-in sheet and Daily Tailgate Form will be used to monitor the number and identify of personnel on-Site **Appendix B**.

8.1.1 Authorized Personnel

Only authorized personnel are allowed to access the Site without an escort. Authorized personnel must meet the training and medical requirements outlined in **Section 9**.

8.1.2 Site Visitors

Visitors to the Site must first be approved by the SM prior their arrival at the Site. Visitors at the Site shall be escorted during the duration of their visit by the SM or their designate. Upon arrival to the Site, visitors shall participate in a pre-entry Site safety briefing and sign the Daily Tailgate Form. The pre-entry Site safety briefing will include an orientation of the Site, and a review of the HASP.

8.2 EXCLUSION ZONE

Work areas at the Site will be set up as exclusion zones. The exclusion zone will be the area that immediately surrounds the work activity and where the potential exposure by dermal or inhalation routes exists. All personnel entering the exclusion zone must be trained in accordance with the requirements defined in **Section 9** and wear the prescribed level of PPE. The exclusion zone will be marked off as designated by the Performing Authority.

9. Training and medical requirements

9.1 OFF-SITE TRAINING REQUIREMENTS

Training requirements must be completed prior to the start of any work activities that have the potential for workers to come into contact with potentially hazardous substances. The PIC or the Contractor is responsible for determining when the work becomes subject to training requirements specified by OSHA in 29 CFR 1910.120(e).

9.2 ON-SITE TRAINING REQUIREMENTS

9.2.1 Project HASP Briefing Meetings

Pre-project HASP meetings for non-recurring projects will be conducted to review the specific requirements of this HASP. Attendance to these meetings is required for personnel performing work covered by this HASP.

9.2.2 Daily Tailgate Meetings

Please refer to Section 6.1.

10. Incident Reporting Guidelines

All HASP incidents that occur while performing on-Site work activities must be immediately reported to the SM. HASP incidents include any accident, injury, unsafe act, or near miss.

10.1 NEAR MISS INCIDENTS AND HASP OBSERVATIONS

10.1.1 Near Miss

A near miss is any incident that under different circumstances could have caused an injury, property damage, an environmental release, or any detrimental loss of resources. The purpose for reporting and following up on near miss incidents is to prevent a reoccurrence of the incident. All near miss incidents must be reported to the SM as soon as possible. When reporting a near miss, the witness must describe the incident and identify the cause(s) of the incident. After reporting the near miss, the witness shall work with the SM to identify and implement an appropriate corrective action to prevent the reoccurrence of the incident.

10.1.2 Safety Observation

A safety observation is a situation when a hazard is identified and corrected before an incident occurs. The purpose of reporting safety observations is to provide opportunities for learning about and improving on ways to work safely during this project.

10.1.3 Reporting

Field team members are responsible for reporting any HASP observations, near misses, and incidents immediately to the SM or PIC. The report will be reviewed jointly by the SM/PIC and the witness. The report will then be reviewed and discussed by project team members during the subsequent day's safety meeting.

10.2 INCIDENT INVESTIGATION AND REPORTING

All HASP incidents that result in an injury, damage to property, an environmental release, or any detrimental loss or resources must be investigated and a report submitted to The City of Toledo. The investigation should be conducted by the SM as soon as emergency conditions are under control. The purpose of this investigation is to collect the facts regarding the situation, determine the cause of the incident, and identify corrective measures to prevent the reoccurrence of the incident.

Tables

TABLE 1
OCCUPATIONAL EXPOSURE LIMITS (CONCENTRATIONS IN AIR)

(CIRCLE CONTAMINANTS OF CONCERN, WRITE ADDITIONAL CONTAMINANTS AND EXPOSURE ON LAST PAGE)

CHEMICAL	ROUTES OF EXPOSURE	IDLH	Ceiling	STEL	PEL	TLV	REL	PID (IP eV)	FID	ODOR THRES-HOLD	IRRITATION THRESHOLD	ODOR DESCRIPTION
VAPORS & GASES												
Acetone	R, I, C	2500	-	750 [ACGIH]	1000	500	250	9.69	60	13	-	fragrent, mint-like
Ammonia	R, I, C	300	-	35 [NIOSH, ACGIH]	50	25	25	10.18**	-	0.5-2	10	Pungent suffocating odor
Benzene	R,A,I,C	Ca [500]	-	1 [NIOSH]; 2.5 [ACGIH]	1	0.5	0.1	9.24	150	4.68	-	Solvent, aromatic
Carbon tetrachloride (Tetrachloromethane)	R,A,I,C	Ca [200]	25 [instantaneous] 200 [5 min peak in any 4 hrs]	2 [NIOSH, 60-min]; 10 [ACGIH]	2	5	Ca	11.47**	10	50	-	Sweet, pungent, ether-like
Chlorobenzene	R,I,C	1000	-	-	75	10	-	9.07	200	0.68	-	Almond-like
Chloroform	R,I,C	Ca [500]	50 [OSHA]	2 [NIOSH, 60-min]	-	10	-	11.42**	65	50	-	Sweet, pleasant
o-Dichlorobenzene	R,A,I,C	200	50 [NIOSH, OSHA]	50 [ACGIH]	-	25	-	9.06	50	0.3	E 20-30	Pleasant, aromatic
p-Dichlorobenzene	R,A,I,C	Ca [150]	-	-	75	10	Ca	8.98	-	0.18	E 80-160	Distinct, aromatic, mothball-like
Dichlorodifluoromethane (Freon 12)	R,C	15000	-	-	1000	1000	1000	11.75**	15	-	-	Ether-like when at very high concs.
1,1-Dichloroethane	R,I,C	3000	-	-	100	100	100	11.06**	80	200	-	Distinct, chloroform-like
1,2-Dichloroethane (Ethylene dichloride)	R,I,A,C	Ca [50]	100 [OSHA]	2 ppm [NIOSH]; 200 ppm [OSHA, 5-min max peak in any 3 hours]	50	10	1	11.05**	80	88	-	Chloroform-like
1,1-Dichloroethylene (1,1-DCE, Vinylidene chloride)	R,A,I,C	Ca [ND]	-	-	-	5	Ca	10.00**	40	190	-	Chloroform-like
1,2-Dichloroethylene	R,I,C	1000	-	-	200	200	200	9.65	50	0.85	-	Bitter, chloroform-like
Ethanol	R,I,C	3300	-	-	1000	1000	1000	10.47**	25	10	-	Weak, ether-like, wine-like
Ethylbenzene	R,I,C	800	-	125 [NIOSH; ACGIH]	100	100	100	8.76	100	2.3	E 200	Aromatic
Ethylene Glycol	R,I,C	ND	50 [OSHA]; 100 mg/m^3 [ACGIH]	-	-	-	-	-	-	-	-	Odorless
Formaldehyde	I,C	Ca [20]	0.1 [NIOSH, 15-min]; 0.3 [ACGIH]	2	0.75	-	Ca [0.016]	10.88**	-	0.83	-	Pungent, suffocating
Gasoline	R,I,A,C	Ca [ND]	-	500 [OSHA; ACGIH]	300	300	-	-	-	-	E 0.5	Petroleum-like
n-Hexane	R,I,C	1100	-	-	500	50	50	10.18	70	130	E.T 1400-1500	Gasoline-like
Hydrogen Cyanide	R,A,I,C	50	4.7 [ACGIH, Skin]	4.7 [NIOSH - skin]	10 [skin]		-	-	-	0.58	-	Bitter almond
Hydrogen peroxide	R,I,C	75	-	-	1	1	1	10.54**	-	-	-	Sharp
Methanol	R,I,A,C	6000	-	250 [NIOSH; ACGIH; skin]	200	200 [skin]	200	10.84**	12	1000	-	Pungent
Methyl Ethyl Ketone Peroxide	R,I,C	ND	0.2 [NIOSH; ACGIH] 0.7 [OSHA]	-	-	-	-	-	-	-	-	Characteristic odor
Methyl Chloroform (1,1,1-TCA)	R,I,C	700	350 [NIOSH, 15-min]	450 [ACGIH]	350	350	Ca	11.00**	105	20-100	-	Chloroform-like
Methylene Chloride (Dichloromethane, Methylene dichloride)	R,I,A,C	Ca [2300]	-	125	25	50	Ca	11.32**	100	25-50	E 5000	Chloroform-like
Methyl Mercaptan	R,C	150	10 [OSHA] 0.5 [NIOSH, 15-min]	-	-	0.5	-	9.44	-	-	-	Garlic, rotten cabbage
MIBK (Hexone)	R,I,C	500	-	75 [NIOSH; ACGIH]	100	50	50	9.30	-	-	-	Pleasant
Naptha (coal tar)	R,I,C	1000	-	-	100	400	100	-	-	-	-	Aromatic
Naphthalene	R,A,I,C	250	-	15 [NIOSH; ACGIH]	10	10	10	8.12	-	0.3	E 15	Mothball-like
Octane	R,I,C	1000	385 [NIOSH, 15-min]	-	500	300	75	9.82	80	48	-	Gasoline-like
Pentachlorophenol	R,A,I,C	2.5 mg/m^3	-	-	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	-	-	-	-	Pungent when hot, benzene-like
Phenol	R,A,I,C	250	15.6 [NIOSH, 15-min]	-	5 [skin]	5 [skin]	5 [skin]	8.50	-	0.04	E.N.T. 68	Sweet, acrid
Propane	R,C	2100	-	-	1000	1000	1000	11.07**	80	1600	-	Odorless (commonly smells foul due to additive for odor detection)
Stoddard Solvent (Mineral Sprits)	R,Cl,I	20000 mg/m^3	1800 mg/m^3 [NIOSH, 15-min]	-	500	100	350 mg/m^3	-	-	1	E 400	Kerosene-like
Styrene	R,I,A,C	700	200 [OSHA]	100 [NIOSH]; 600 [OSHA, 5-min max peak in any 3 hours]; 40 [ACGIH]	100	20	50	8.40	85	0.047	E 200-400	Sweet, floral
1,1,2,2-Tetrachloroethane	R,I,A,C	Ca [100]	-	-	5 [skin]	1 [skin]	1 [skin]	11.10**	100	1.5	-	Pungent, chloroform-like
Tetrachloroethylene (Perchloroethylene, Perc, PCE)	R,I,A,C	Ca [150]	200 [OSHA]	300 [OSHA, 5-min max peak in any 3-hours]; 100 [ACGIH]	100	25	Ca	9.32	70	4.68	N.T513-690	Chloroform-like
Toluene	R,A,I,C	500	300 [OSHA]	150 [NIOSH]; 500 [OSHA, 10-min max peak]	200	50	100	8.82	110	2.14	E300-400	Sweet, pungent, benzene-like
Trichloroethylene (TCE)	R,I,A,C	Ca [1000]	200 [OSHA]	300 [OSHA, 5-min max peak in any 2-hours]; 100 [ACGIH]	100	50	Ca	9.45	70	21.4	-	Chloroform-like
1,2,3-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.48	-	-	-	Distinctive, aromatic
1,2,4-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.27	-	-	-	Distinctive, aromatic
1,3,5-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.39	-	-	-	Distinctive, aromatic
Turpentine	R,A,I,C	800	-	-	100	20	100	-	-	200	E.N 200	Pine-like
Vinyl Chloride	R,C	Ca [ND]	5 [OSHA, 15-min]	-	1	1	Ca	9.99	-	3000	-	Pleasant odor at high concs.
Xylenes	R,A,I,C	900	-	150 [NIOSH, ACGIH]	100	100	100	8.56 (m- and o-) 8.44 (p-)	111/116	1.1	E.N.T. 200	Aromatic

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(CIRCLE CONTAMINANTS OF CONCERN, WRITE ADDITIONAL CONTAMINANTS AND EXPOSURE ON LAST PAGE)

CHEMICAL	ROUTES OF EXPOSURE	IDLH	Ceiling	STEL	PEL	TLV	REL	PID (IP eV)	FID	ODOR THRES-HOLD	IRRITATION THRESHOLD	ODOR DESCRIPTION
VAPORS & GASES												
Acetone	R, I, C	2500	-	750 [ACGIH]	1000	500	250	9.69	60	13	-	fragrent, mint-like
Ammonia	R, I, C	300	-	35 [NIOSH, ACGIH]	50	25	25	10.18**	-	0.5-2	10	Pungent suffocating odor
Benzene	R,A,I,C	Ca [500]	-	1 [NIOSH]; 2.5 [ACGIH]	1	0.5	0.1	9.24	150	4.68	-	Solvent, aromatic
Carbon tetrachloride (Tetrachloromethane)	R,A,I,C	Ca [200]	25 [instantaneous] 200 [5 min peak in any 4 hrs]	2 [NIOSH, 60-min]; 10 [ACGIH]	2	5	Ca	11.47**	10	50	-	Sweet, pungent, ether-like
Chlorobenzene	R,I,C	1000	-	-	75	10	-	9.07	200	0.68	-	Almond-like
Chloroform	R,I,C	Ca [500]	50 [OSHA]	2 [NIOSH, 60-min]	-	10	-	11.42**	65	50	-	Sweet, pleasant
o-Dichlorobenzene	R,A,I,C	200	50 [NIOSH, OSHA]	50 [ACGIH]	-	25	-	9.06	50	0.3	E 20-30	Pleasant, aromatic
p-Dichlorobenzene	R,A,I,C	Ca [150]	-	-	75	10	Ca	8.98	-	0.18	E 80-160	Distinct, aromatic, mothball-like
Dichlorodifluoromethane (Freon 12)	R,C	15000	-	-	1000	1000	1000	11.75**	15	-	-	Ether-like when at very high concs.
1,1-Dichloroethane	R,I,C	3000	-	-	100	100	100	11.06**	80	200	-	Distinct, chloroform-like
1,2-Dichloroethane (Ethylene dichloride)	R,I,A,C	Ca [50]	100 [OSHA]	2 ppm [NIOSH]; 200 ppm [OSHA, 5-min max peak in any 3 hours]	50	10	1	11.05**	80	88	-	Chloroform-like
1,1-Dichloroethylene (1,1-DCE, Vinylidene chloride)	R,A,I,C	Ca [ND]	-	-	-	5	Ca	10.00**	40	190	-	Chloroform-like
1,2-Dichloroethylene	R,I,C	1000	-	-	200	200	200	9.65	50	0.85	-	Bitter, chloroform-like
Ethanol	R,I,C	3300	-	-	1000	1000	1000	10.47**	25	10	-	Weak, ether-like, wine-like
Ethylbenzene	R,I,C	800	-	125 [NIOSH; ACGIH]	100	100	100	8.76	100	2.3	E 200	Aromatic
Ethylene Glycol	R,I,C	ND	50 [OSHA]; 100 mg/m^3 [ACGIH]	-	-	-	-	-	-	-	-	Odorless
Formaldehyde	I,C	Ca [20]	0.1 [NIOSH, 15-min]; 0.3 [ACGIH]	2	0.75	-	Ca [0.016]	10.88**	-	0.83	-	Pungent, suffocating
Gasoline	R,I,A,C	Ca [ND]	-	500 [OSHA; ACGIH]	300	300	-	-	-	-	E 0.5	Petroleum-like
n-Hexane	R,I,C	1100	-	-	500	50	50	10.18	70	130	E.T 1400-1500	Gasoline-like
Hydrogen Cyanide	R,A,I,C	50	4.7 [ACGIH; Skin]	4.7 [NIOSH - skin]	10 [skin]		-	-	-	0.58	-	Bitter almond
Hydrogen peroxide	R,I,C	75	-	-	1	1	1	10.54**	-	-	-	Sharp
Methanol	R,I,A,C	6000	-	250 [NIOSH; ACGIH; skin]	200	200 [skin]	200	10.84**	12	1000	-	Pungent
Methyl Ethyl Ketone Peroxide	R,I,C	ND	0.2 [NIOSH; ACGIH] 0.7 [OSHA]	-	-	-	-	-	-	-	-	Characteristic odor
Methyl Chloroform (1,1,1-TCA)	R,I,C	700	350 [NIOSH, 15-min]	450 [ACGIH]	350	350	Ca	11.00**	105	20-100	-	Chloroform-like
Methylene Chloride (Dichloromethane, Methylene dichloride)	R,I,A,C	Ca [2300]	-	125	25	50	Ca	11.32**	100	25-50	E 5000	Chloroform-like
Methyl Mercaptan	R,C	150	10 [OSHA] 0.5 [NIOSH, 15-min]	-	-	0.5	-	9.44	-	-	-	Garlic, rotten cabbage
MIBK (Hexone)	R,I,C	500	-	75 [NIOSH; ACGIH]	100	50	50	9.30	-	-	-	Pleasant
Naptha (coal tar)	R,I,C	1000	-	-	100	400	100	-	-	-	-	Aromatic
Naphthalene	R,A,I,C	250	-	15 [NIOSH; ACGIH]	10	10	10	8.12	-	0.3	E 15	Mothball-like
Octane	R,I,C	1000	385 [NIOSH, 15-min]	-	500	300	75	9.82	80	48	-	Gasoline-like
Pentachlorophenol	R,A,I,C	2.5 mg/m^3	-	-	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	-	-	-	-	Pungent when hot, benzene-like
Phenol	R,A,I,C	250	15.6 [NIOSH, 15-min]	-	5 [skin]	5 [skin]	5 [skin]	8.50	-	0.04	E.N.T. 68	Sweet, acrid
Propane	R,C	2100	-	-	1000	1000	1000	11.07**	80	1600	-	Odorless (commonly smells foul due to additive for odor detection)
Stoddard Solvent (Mineral Sprits)	R,CI,I	20000 mg/m^3	1800 mg/m^3 [NIOSH, 15-min]	-	500	100	350 mg/m^3	-	-	1	E 400	Kerosene-like
Styrene	R,I,A,C	700	200 [OSHA]	100 [NIOSH]; 600 [OSHA, 5-min max peak in any 3 hours]; 40 [ACGIH]	100	20	50	8.40	85	0.047	E 200-400	Sweet, floral
1,1,2,2-Tetrachloroethane	R,I,A,C	Ca [100]	-	-	5 [skin]	1 [skin]	1 [skin]	11.10**	100	1.5	-	Pungent, chloroform-like
Tetrachloroethylene (Perchloroethylene, Perc, PCE)	R,I,A,C	Ca [150]	200 [OSHA]	300 [OSHA, 5-min max peak in any 3-hours]; 100 [ACGIH]	100	25	Ca	9.32	70	4.68	N.T513-690	Chloroform-like
Toluene	R,A,I,C	500	300 [OSHA]	150 [NIOSH]; 500 [OSHA, 10-min max peak]	200	50	100	8.82	110	2.14	E300-400	Sweet, pungent, benzene-like
Trichloroethylene (TCE)	R,I,A,C	Ca [1000]	200 [OSHA]	300 [OSHA, 5-min max peak in any 2-hours]; 100 [ACGIH]	100	50	Ca	9.45	70	21.4	-	Chloroform-like
1,2,3-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.48	-	-	-	Distinctive, aromatic
1,2,4-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.27	-	-	-	Distinctive, aromatic
1,3,5-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.39	-	-	-	Distinctive, aromatic
Turpentine	R,A,I,C	800	-	-	100	20	100	-	-	200	E.N 200	Pine-like
Vinyl Chloride	R,C	Ca [ND]	5 [OSHA, 15-min]	-	1	1	Ca	9.99	-	3000	-	Pleasant odor at high concs.
Xylenes	R,A,I,C	900	-	150 [NIOSH, ACGIH]	100	100	100	8.56 (m- and o-) 8.44 (p-)	111/116	1.1	E.N.T. 200	Aromatic

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(CIRCLE CONTAMINANTS OF CONCERN, WRITE ADDITIONAL CONTAMINANTS AND EXPOSURE ON LAST PAGE)

CHEMICAL	ROUTES OF EXPOSURE	IDLH	Ceiling	STEL	PEL	TLV	REL	PID (IP eV)	FID	ODOR THRES-HOLD	IRRITATION THRESHOLD	ODOR DESCRIPTION
DUSTS, MISTS, FUMES, AND MISCELLANEOUS COMPOUNDS												
Asbestos	R	Ca (ND)	-	-	0.1 fiber/cc	0.1 fiber/cc	0.1 fiber/cc	-	-	-	-	-
PCBs-42% Chlorine	R,A,I,C	Ca [5 mg/m^3]	-	-	1 mg/m^3 [skin]	1 mg/m^3 [skin]	0.001 mg/m^3	-	-	-	-	Mild, hydrocarbon
PCBs-54% Chlorine	R,A,I,C	Ca [5 mg/m^3]	-	-	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	0.001 mg/m^3	-	-	-	-	Mild, hydrocarbon
Aluminum - metal dust	R,C	ND	-	-	15 mg/m^3 (total); 5 mg/m^3 (respirable)	10 mg/m^3	10 mg/m^3 (total), 5 mg/m^3 (respirable)	-	-	-	-	-
Aluminum - soluble salts	R,I,C	ND	-	-	2 mg/m^3	2 mg/m^3	2 mg/m^3	-	-	-	-	-
Arsenic- inorganic	R,A,I,C	Ca [5 mg/m^3]	0.002 mg/m^3 [NIOSH, 15-min]	-	0.01 mg/m^3	0.01 mg/m^3	Ca	-	-	-	-	-
Barium:soluble compounds	R,I,C	50 mg/m^3	-	-	0.5 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Beryllium	R,C	Ca [4 mg/m^3]	0.005 mg/m^3 [OSHA]; 0.025 mg/m^3 [OSHA, 30-min max peak]; 0.0005 mg/m^3	0.01 mg/m^3 [ACGIH]	0.002 mg/m^3	0.002 mg/m^3	Ca	-	-	-	-	-
Cadmium dusts	R,I	Ca [9 mg/m^3]	-	-	0.005 mg/m^3	0.01 mg/m^3	Ca	-	-	-	-	-
Chromates (Cr(VI) Compounds) & Chromic Acid	R,I,C	Ca [15 mg/m^3]	0.1 mg/m^3 [OSHA]	-	0.001 mg/m^3	0.05 mg/m^3 [water soluble]; 0.01 mg/m^3 [insoluble]	Ca	-	-	-	-	-
Chromium (III) Compounds	R,I,C	25 mg/m^3	-	-	0.5 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Chromium Metal	R,I,C	250 mg/m^3	-	-	1 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Copper - dust & mist	R,I,C	100 mg/m^3	-	-	1 mg/m^3	1 mg/m^3	1 mg/m^3	-	-	-	-	-
Lead	R,I,C	100 mg/m^3	-	-	0.050 mg/m^3	0.05 mg/m^3	0.050 mg/m^3	-	-	-	-	-
Manganese (compounds and fume)	R,I	500 mg/m^3	5 mg/m^3 [OSHA]	3 mg/m^3 [NIOSH]	-	0.2 mg/m^3	1 mg/m^3	-	-	-	-	-
Mercury & Inorganic Mercury Compounds	R,I,A,C	10 mg/m^3	0.1 mg/m^3 [NIOSH, Skin]; 0.1 mg/m^3 [OSHA]	-	-	0.025 mg/m^3	0.05 mg/m^3 [skin]	-	-	-	-	-
Organo-Mercury Compounds	R,A,I,C	2 mg/m^3	0.04 mg/m^3 [OSHA]	0.03 mg/m^3 [NIOSH]	0.01 mg/m^3	0.01 mg/m^3 [alkyl]; 0.1 mg/m^3 [aryl]	0.01 mg/m^3	-	-	-	-	-
Nickel (metal and compounds)	R,I,C	Ca [10 mg/m^3]	-	-	1 mg/m^3	1.5 mg/m^3 [metal]; 1 mg/m^3 [soluble inorganic compounds]; 1 mg/m^3 [insoluble	0.015 mg/m^3	-	-	-	-	-
Particulate (Not otherwise regulated)	R, C	ND	-	-	15 mg/m^3 (total); 5 mg/m^3 (respirable)	10 mg/m^3 (inhalable); 3 mg/m^3 (respirable)	-	-	-	-	-	-
Portland cement	R,I,C	5000 mg/m^3	-	-	50 mppcf	10 mg/m^3	10 mg/m^3 (total); 5 mg/m^3 (respirable)	-	-	-	-	-
Selenium compounds	R,I,C	1 mg/m^3	-	-	0.2 mg/m^3	0.2 mg/m^3	0.2 mg/m^3	-	-	-	-	-
Silica, crystalline	R, C	Ca [25 mg/m^3 (cristobalie, tridymite); 50 mg/m^3 (quartz, tripoli)]	-	-	Dependent on silicon dioxide content of silica (see Appendix C of the NIOSH Pocket Guide to Chemical Hazards, 2004)	Dependent on minerology [see ACGIH 2005 TLVs and BEIs Handbook]	0.05 mg/m^3	-	-	-	-	-
Silver (metal and soluble compounds)	R,I,C	10 mg/m^3	-	-	0.01 mg/m^3	0.1 mg/m^3	0.01 mg/m^3	-	-	-	-	-
Thallium, soluble	R,A,I,C	15 mg/m^3	-	-	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	-	-	-	-	-
Tin (metal)	R,C	100 mg/m^3	-	-	2 mg/m^3	2	2 mg/m^3	-	-	-	-	-
Tin (organic compounds)	R,A,I,C	25 mg/m^3	-	-	0.1 mg/m^3	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	-	-	-	-	-
Zinc oxide dust & fume	R	500 mg/m^3	15 mg/m^3 [NIOSH, dust]	10 mg/m^3 [NIOSH; ACGIH, fume]	15 mg/m^3 (total dust), 5 mg/m^3 [respirable dust]; 5 mg/m^3 [fume]	2 mg/m^3 [respirable]	5 mg/m^3 (total dust), 5 mg/m^3 [fume]	-	-	-	-	-

NOTES & ABBREVIATIONS:

All units in parts per million (ppm) unless otherwise noted.

R = Respiratory (Inhalation)

I = Ingestion

A = Skin Absorption

C = Skin Contact

-: Not available

ND: Not detectable.

Ca = Carcinogen

** = Use 11.7 eV lamp

IP: Ionization potential

eV: Electrovolts

IDLH: Immediately dangerous to life and health

Ceiling: Highest allowable instantaneous C = Skin and/or Eye Contact

STEL: Short-term exposure limit. Exposure period is 15 minutes unless otherwise indicated

PEL: OSHA Permissible Exposure Limit (legally-enforceable)

REL: NIOSH Recommended Exposure Limit

PID: Photoionization Detector

OSHA: United States Occupational Safety and Health Administration

NIOSH: National Institute of Occupational Safety and Health

TLV: ACGIH Threshold Limit Value

ACGIH: American Conference of Governmental Industrial Hygienists

TABLE 1
OCCUPATIONAL EXPOSURE LIMITS (CONCENTRATIONS IN AIR)

(CIRCLE CONTAMINANTS OF CONCERN, WRITE ADDITIONAL CONTAMINANTS AND EXPOSURE ON LAST PAGE)

CHEMICAL	ROUTES OF EXPOSURE	IDLH	Ceiling	STEL	PEL	TLV	REL	PID (IP eV)	FID	ODOR THRES-HOLD	IRRITATION THRESHOLD	ODOR DESCRIPTION
DUSTS, MISTS, FUMES, AND MISCELLANEOUS COMPOUNDS												
Asbestos	R	Ca (ND)	-	-	0.1 fiber/cc	0.1 fiber/cc	0.1 fiber/cc	-	-	-	-	-
PCBs-42% Chlorine	R,A,I,C	Ca [5 mg/m^3]	-	-	1 mg/m^3 [skin]	1 mg/m^3 [skin]	0.001 mg/m^3	-	-	-	-	Mild, hydrocarbon
PCBs-54% Chlorine	R,A,I,C	Ca [5 mg/m^3]	-	-	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	0.001 mg/m^3	-	-	-	-	Mild, hydrocarbon
Aluminum - metal dust	R,C	ND	-	-	15 mg/m^3 (total); 5 mg/m^3 (respirable)	10 mg/m^3	10 mg/m^3 (total); 5 mg/m^3 (respirable)	-	-	-	-	-
Aluminum - soluble salts	R,I,C	ND	-	-	2 mg/m^3	2 mg/m^3	2 mg/m^3	-	-	-	-	-
Arsenic- inorganic	R,A,I,C	Ca [5 mg/m^3]	0.002 mg/m^3 [NIOSH, 15-min]	-	0.01 mg/m^3	0.01 mg/m^3	Ca	-	-	-	-	-
Barium:soluble compounds	R,I,C	50 mg/m^3	-	-	0.5 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Beryllium	R,C	Ca [4 mg/m^3]	0.005 mg/m^3 [OSHA]; 0.025 mg/m^3 [OSHA, 30-min max peak]; 0.0005 mg/m^3	0.01 mg/m^3 [ACGIH]	0.002 mg/m^3	0.002 mg/m^3	Ca	-	-	-	-	-
Cadmium dusts	R,I	Ca [9 mg/m^3]	-	-	0.005 mg/m^3	0.01 mg/m^3	Ca	-	-	-	-	-
Chromates (Cr(VI) Compounds) & Chromic Acid	R,I,C	Ca [15 mg/m^3]	0.1 mg/m^3 [OSHA]	-	0.001 mg/m^3	0.05 mg/m^3 [water soluble]; 0.01 mg/m^3 [insoluble]	Ca	-	-	-	-	-
Chromium (III) Compounds	R,I,C	25 mg/m^3	-	-	0.5 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Chromium Metal	R,I,C	250 mg/m^3	-	-	1 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Copper - dust & mist	R,I,C	100 mg/m^3	-	-	1 mg/m^3	1 mg/m^3	1 mg/m^3	-	-	-	-	-
Lead	R,I,C	100 mg/m^3	-	-	0.050 mg/m^3	0.05 mg/m^3	0.050 mg/m^3	-	-	-	-	-
Manganese (compounds and fume)	R,I	500 mg/m^3	5 mg/m^3 [OSHA]	3 mg/m^3 [NIOSH]	-	0.2 mg/m^3	1 mg/m^3	-	-	-	-	-
Mercury & Inorganic Mercury Compounds	R,I,A,C	10 mg/m^3	0.1 mg/m^3 [NIOSH, Skin]; 0.1 mg/m^3 [OSHA]	-	-	0.025 mg/m^3	0.05 mg/m^3 [skin]	-	-	-	-	-
Organo-Mercury Compounds	R,A,I,C	2 mg/m^3	0.04 mg/m^3 [OSHA]	0.03 mg/m^3 [NIOSH]	0.01 mg/m^3	0.01 mg/m^3 [alkyl]; 0.1 mg/m^3 [aryl]	0.01 mg/m^3	-	-	-	-	-
Nickel (metal and compounds)	R,I,C	Ca [10 mg/m^3]	-	-	1 mg/m^3	1.5 mg/m^3 [metal]; 1 mg/m^3 [soluble inorganic compounds]; 1 mg/m^3 [insoluble	0.015 mg/m^3	-	-	-	-	-
Particulate (Not otherwise regulated)	R, C	ND	-	-	15 mg/m^3 (total); 5 mg/m^3 (respirable)	10 mg/m^3 (inhalable); 3 mg/m^3 (respirable)	-	-	-	-	-	-
Portland cement	R,I,C	5000 mg/m^3	-	-	50 mppcf	10 mg/m^3	10 mg/m^3 (total); 5 mg/m^3 (respirable)	-	-	-	-	-
Selenium compounds	R,I,C	1 mg/m^3	-	-	0.2 mg/m^3	0.2 mg/m^3	0.2 mg/m^3	-	-	-	-	-
Silica, crystalline	R, C	Ca [25 mg/m^3 (cristobalie, tridymite); 50 mg/m^3 (quartz, tripoli)]	-	-	Dependent on silicon dioxide content of silica (see Appendix C of the NIOSH Pocket Guide to Chemical Hazards, 2005)	Dependent on minerology [see ACGIH 2005 TLVs and BEIs Handbook]	0.05 mg/m^3	-	-	-	-	-
Silver (metal and soluble compounds)	R,I,C	10 mg/m^3	-	-	0.01 mg/m^3	0.1 mg/m^3	0.01 mg/m^3	-	-	-	-	-
Thallium, soluble	R,A,I,C	15 mg/m^3	-	-	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	-	-	-	-	-
Tin (metal)	R,C	100 mg/m^3	-	-	2 mg/m^3	2	2 mg/m^3	-	-	-	-	-
Tin (organic compounds)	R,A,I,C	25 mg/m^3	-	-	0.1 mg/m^3	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	-	-	-	-	-
Zinc oxide dust & fume	R	500 mg/m^3	15 mg/m^3 [NIOSH, dust]	10 mg/m^3 [NIOSH; ACGIH, fume]	15 mg/m^3 (total dust); 5 mg/m^3 [respirable dust]; 5 mg/m^3 [fume]	2 mg/m^3 [respirable]	5 mg/m^3 (total dust); 5 mg/m^3 [fume]	-	-	-	-	-

NOTES & ABBREVIATIONS:

All units in parts per million (ppm) unless otherwise noted.

R = Respiratory (Inhalation)

I = Ingestion

A = Skin Absorption

C = Skin Contact

-: Not available

ND: Not detectable.

Ca = Carcinogen

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STEL: Short-term exposure limit. Exposure period is 15 minutes unless otherwise indicated

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OSHA: United States Occupational Safety and Health Administration

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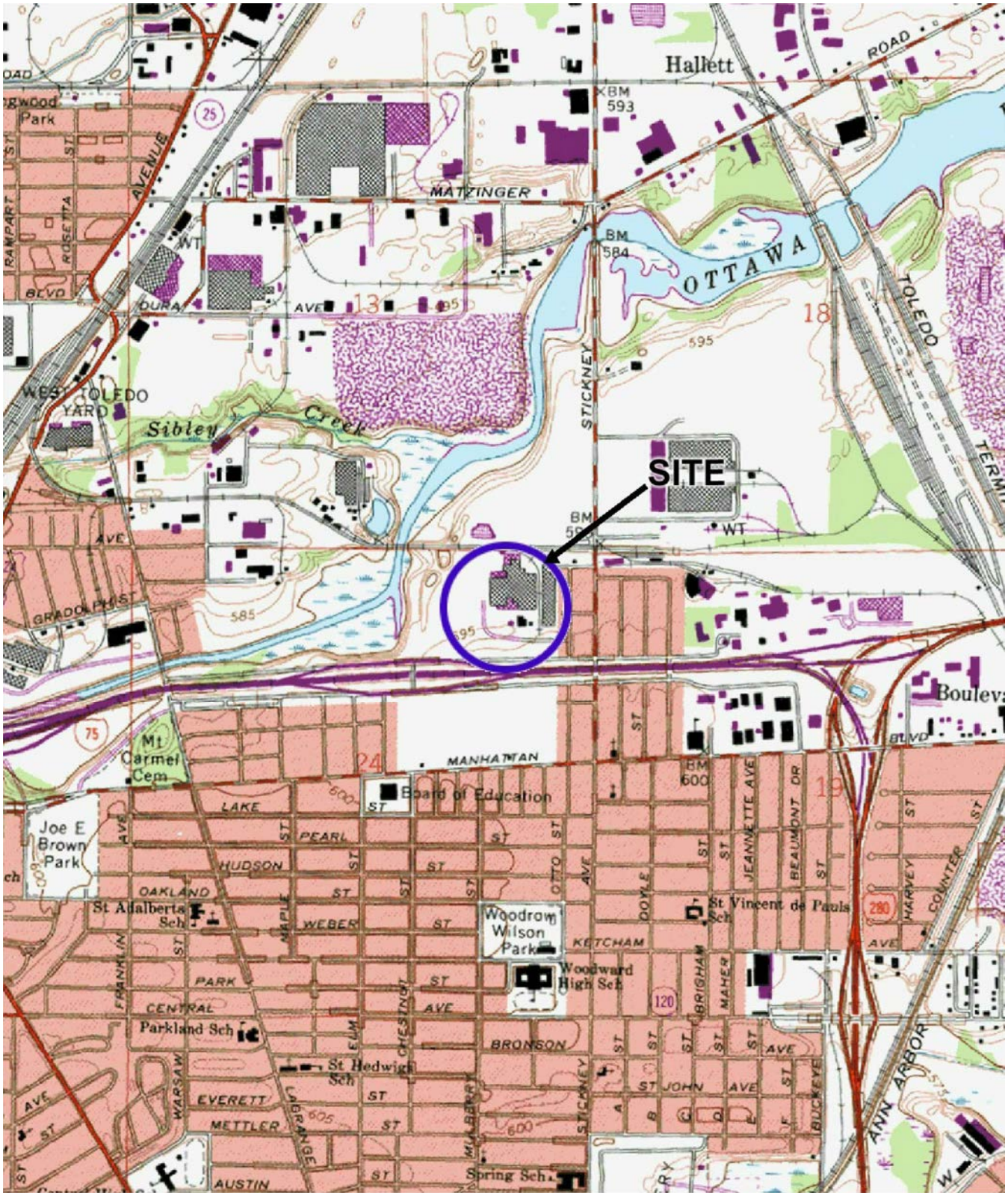
Figures



SITE COORDINATES:41°41'30"N 83°31'51"W

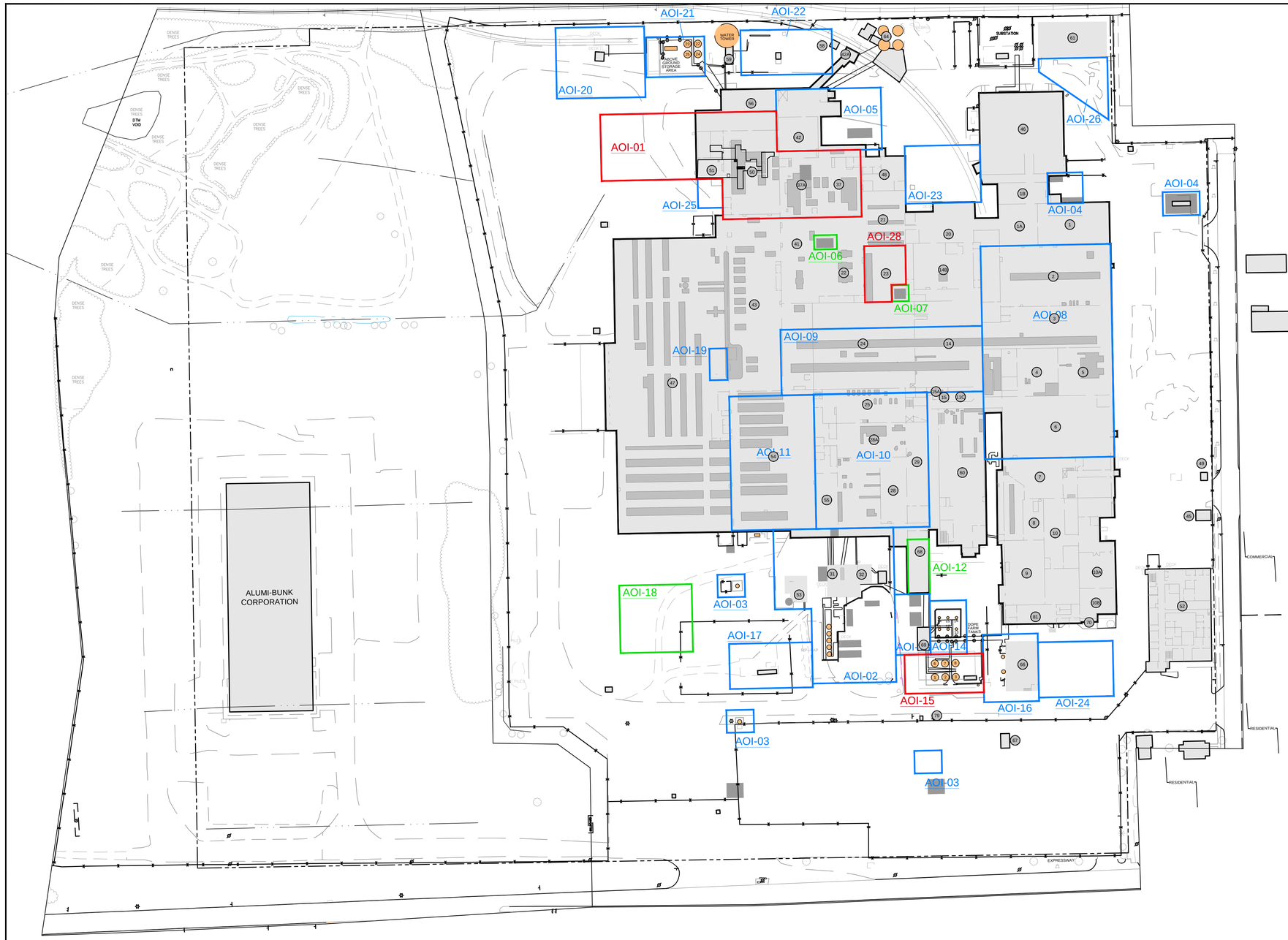
U.S.G.S. QUADRANGLE: TOLEDO, OH

TEXTILEATHER FACILITY
3729 TWINING STREET
TOLEDO, OHIO

PROJECT LOCUS

SCALE: 1:24,000
APRIL 2015

FIGURE 1



LEGEND:

- APPROXIMATE PROPERTY LINE
- RAILROAD
- DRAINAGE SWALE
- FENCE
- AREA OF INTEREST (AOI) - FURTHER INVESTIGATION RECOMMENDED
- AREA OF INTEREST (AOI) - NO ADDITIONAL INVESTIGATION RECOMMENDED
- AREA OF INTERST (AOI) IDENTIFIED IN HUMAN HEALTH RISK ASSESSMENT (HHRA) WITH POTENTIAL UNACCEPTABLE FUTURE RISK
- VEGETATION
- (1A) BUILDING NUMBER

NOTES:
1. BASEPLAN PROVIDED BY CRA's eDAT DATABASE.

BLDG NO.	DEPARTMENT	TOTAL FLOOR AREA (SQ FT.)
1	WAREHOUSE	5,800
1A	WAREHOUSE	3,600
1B	WAREHOUSE	1,800
2	FRAME ROOM	13,900
3	COATING & DOPE STORAGE	9,500
4-5	DOPE MAKEUP & NAUTA MIXER	10,100
6	WAREHOUSE	14,100
7	SAMPLE ROOM	17,700
8	WAREHOUSE	3,300
9	WAREHOUSE	5,400
10	WAREHOUSE	7,900
10A & 10B	WAREHOUSE	4,800
11C	MAINT CRIB & STORAGE	750
14	WAREHOUSE & COATING	6,800
14A	WAREHOUSE & NO 3 STOCK	1,700
14B	REELING, WHSE & NO 3 STOCK	3,800
15	COATING	5,100
15A	FIRST AID	200
20	RECEIVING	5,000
21	EMBOSSING & ROLL STORAGE	3,000
22	EMBOSSING	7,800
23	ANNEALING	4,800
24	COATING & STORAGE	24,250
25	DOPE ROOM	13,100
28	DOPE ROOM	10,300
28A	CAN WASH & WAREHOUSE	4,800
29	BULK DOPE, WHSE & FK. TRK. REP.	3,100
31	SOLVENT RECOVERY	5,500
32	SOLVENT RECOVERY	300
37	CALENDER ROOM (NO 1 CAL)	4,800
37A	CALENDER ROOM (NO 2 CAL)	7,300
41	EMBOSSING & STORAGE	21,200
42	TOLEX WAREHOUSE	18,700
42A	RECEIVING DOCK	600
43	FINAL INSPECTION	18,000
45	FIRE PUMP NO 1	330
46	WAREHOUSE	14,400
47	WAREHOUSE	68,700
48	QUALITY CONTROL	3,000
49	STORAGE SHED	230
50	CALENDER ROOM (NO 3 CAL)	9,800
51	CONTROL ROOM (NO 3 CAL)	2,600
52	MAIN OFFICE BUILDING	24,000
53	SCRAP STORAGE (SOLVENT)	1,080
54	PRINT & FINISH	25,100
55	WAREHOUSE (DOPE ROOM)	3,100
56	TEXTILE WAREHOUSE	4,800
58	PLASTICIZER UNLOADING	140
59	FIRE PUMP NO 2	240
60	MAINTENANCE & RESEARCH	26,600
61	OUTPOST WAREHOUSE	4,800
62	STORAGE & BREAK ROOM	510
63	CONTROL ROOM (SOLVENT RECOVERY)	160
64	SILOS	1,030
66	POWER HOUSE	3,800
67	GAS METER HOUSE	240
68	RED LABEL ROOM	2,560
69	PUMP HOUSE	530
70	PURCHASING STORAGE	320
72	SHED BUILDING 9	300
73	SHED PILOT LINE	1,000
74	SHED BUILDING 6	400
79	GUARD HOUSE	40
81	DEVELOPMENT CENTER	3,170
	TOTAL AREA	462,060

AREAS OF INTEREST:

AOI-01 - PCB AREA
AOI-02 - SOLVENT RECOVERY AREA
AOI-03 - OIL INTERCEPTOR BASINS
AOI-04 - EASTERN REFUSE HANDLING AREA
AOI-05 - NORTHERN REFUSE AND OIL HANDLING AREA
AOI-06 - GENERAL REFUSE HOPPERS
AOI-07 - CONTAINER STORAGE AREA
AOI-08 - BUILDINGS 2 THROUGH 6
AOI-09 - COATER LINES
AOI-10 - DOPE ROOM AND CAN WASH
AOI-11 - PRINT FINISH DEPARTMENT
AOI-12 - HAZARDOUS WASTE STORAGE ROOM
AOI-13 - BUILDING 69
AOI-14 - SOUTH UST FARM
AOI-15 - SOUTH AST FARM
AOI-16 - POWERHOUSE
AOI-17 - FORMER FUEL OIL AST AND FORMER HAZARDOUS WASTE STORAGE AREA
AOI-18 - FORMER FIRE RESPONSE TRAINING AREA
AOI-19 - BATTERY CHARGING AREA
AOI-20 - RAIL CAR UNLOADING AREA
AOI-21 - NORTH FORMER AST FARM AND CURRENT AST FARM
AOI-22 - FORMER NORTH FUEL OIL AST FARM
AOI-23 - NORTHERN PHTHALATE LEAK REMEDIATION AREA
AOI-24 - SOUTH EAST USTS
AOI-25 - TOLEX COURTYARD CHILLER
AOI-26 - OUTPOST OUTSIDE STORAGE AREA
AOI-27 - SITE-WIDE GROUNDWATER
AOI-28 - FORMER SAMPLE PRINT MACHINE

N

0 80 160 240 320
SCALE IN FEET

TEXTILEATHER FACILITY
3729 TWINING STREET
TOLEDO, OHIO

SITE PLAN SHOWING AOI LOCATIONS

SCALE: AS SHOWN
APRIL 2015

FIGURE 2

APPENDIX A

Site Contaminants

Soil Data

Inorganic Compounds (mg/kg)	Detected Result Maximum	Industrial RSL (1) HI = 0.1	Selected as a COPC? (2)
Antimony	**92.5**	41	**yes**
Arsenic	**15.9**	1.6	**yes**
Barium	399	19000	no
Beryllium	1.48	200	no
Cadmium	21.5	80	no
Chromium Total	**810**	5.6	**yes**
Cobalt	17.7	30	no
Copper	215	4100	no
Cyanide Total	0.8	14	no
Lead	**3140**	** 800	**yes**
Manganese	1460	2300	no
Mercury	2.664	31	no
Nickel	63.7	2000	no
Selenium	3.19	510	no
Silver	0.45	510	no
Thallium	0.35	1.0	no
Vanadium	18.5	520	no
Zinc	391	31000	no

PCBs (mg/kg)	Detected Result Maximum	Industrial RSL (1) HI = 0.1	Selected as a COPC? (2)
Aroclor-1242 (PCB-1242)	**2167**	0.74	yes
Aroclor-1248 (PCB-1248)	**4.7**	0.74	**yes**

SVOCs (mg/kg)	Detected Result Maximum	Industrial RSL (1) HI = 0.1	Selected as a COPC? (2)
2,4-Dimethylphenol	0.4	1200	no
2,4-Dinitrotoluene	0.2	5.5	no
2-Methylnaphthalene	8.85	220	no
2-Methylphenol	4.49	3100	no
2-Nitroaniline	0.06	600	no
3&4-Methylphenol	3.12	3100	no
3,3'-Dichlorobenzidine	0.2	3.8	no
Acenaphthene	0.42	3300	no
Acenaphthylene	0.06	1700	no
Anthracene	1.53	17000	no
Benzaldehyde	1	100000	no
Benzo(a)anthracene	**6.09**	2.1	**yes**
Benzo(a)pyrene	**5.94**	0.21	**yes**
Benzo(b)fluoranthene	**6.15**	2.1	**yes**
Benzo(g,h,i)perylene	1.82	1700	no
Benzo(k)fluoranthene	5.61	21	no
Biphenyl	0.1	21	no
bis(2-Ethylhexyl)phthalate	**598**	120	**yes**
Butyl benzylphthalate	1.1	910	no
Carbazole	0.3	NA	**yes**
Chrysene	6.09	210	no
Dibenz(a,h)anthracene	0.1	0.21	no
Dibenzofuran	0.3	100	no
Diethyl phthalate	3.33	49000	no
Dimethyl phthalate	0.07	NA	**yes**
Dimethylformamide	89.9	6200	no
Di-n-octyl phthalate	**2900**	740	**yes**
Fluoranthene	12.4	2200	no
Fluorene	1	2200	no
Indeno(1,2,3-cd)pyrene	1.82	2.1	no
Naphthalene	0.4	18	no
Pentachlorophenol	**30.3**	2.7	**yes**
Phenanthrene	7.33	1700	no
Phenol	0.3	18000	no
Pyrene	11	1700	no

VOCs (mg/kg)	Detected Result Maximum	Industrial RSL (1) HI = 0.1	Selected as a COPC? (2)
1,1,1-Trichloroethane	0.0005	3800	no
1,1-Dichloroethane	0.002	17	no
1,1-Dichloroethene	0.001	1100	no
1,2,4-Trichlorobenzene	0.15	99	no
1,2-Dichlorobenzene	0.004	980	no
1,3-Dichlorobenzene	0.0004	NA	**yes**
1,4-Dichlorobenzene	0.003	12	no
2-Butanone (Methyl Ethyl Ketone)	1.8	20000	no
4-Methyl-2-Pentanone (MIBK)	0.01	5300	no
Acetone	8	63000	no
Benzene	**20**	5.4	**yes**
Carbon disulfide	0.013	370	no
Carbon tetrachloride	0.018	3	no
Chlorobenzene	0.0009	140	no
Chloroform (Trichloromethane)	0.006	1.5	no
cis-1,2-Dichloroethene	0.004	200	no
Cyclohexane	24.6	2900	no
Cyclohexanone	0.2	310000	no
Dimethylformamide	2900	6200	no
Ethylbenzene	**2200**	27	**yes**
Isopropylbenzene	3.9	1100	no
m&p-Xylene	**661**	250	**yes**
Methyl acetate	0.3	100000	no
Methyl cyclohexane	56.6	NA	**yes**
Methyl Tert Butyl Ether	0.2	220	no
Methylene chloride	0.098	310	no
m-xylene	**5600**	250	**yes**
Naphthalene	0.004	18	no
n-Propylbenzene	5	2100	no
o-Xylene	**2900**	300	**yes**
p-Xylene	**2300**	260	**yes**
Tetrachloroethene	12.1	41	no
Tetrahydrofuran	5500	9500	no
Toluene	**56800**	4500	**yes**
trans-1,2-Dichloroethene	0.0008	690	no
Trichloroethene	**5.28**	2	**yes**
Xylene (total)	**10800**	270	**yes**

Notes and Abbreviations:

(1) Values are the Regional Screening Levels (RSLs) for USEPA Regions 3, 6, and 9: *Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2012.* (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm)

Values used for screening are the industrial soil RSLs based on the lesser value for cancer risks equal to 1E-06, or non-cancer risks equal to a hazard index of 0.1 unless noted otherwise.

Inorganic Compounds

Value for antimony is based on the RSL for antimony (metallic).

Value for chromium (total) is based on the RSL for chromium VI.

Value for cyanide (total) is based on the RSL for the cyanide ion CN^-.

**Value for lead is based on the RSL for lead and compounds (non-cancer HI = 1).

Value for mercury is based on the RSL for mercuric chloride (and other mercury salts).

Value for thallium is based on the RSL for thallium (soluble salts).

Semi-Volatile Organic Compounds

Value for 3&4-Methylphenol is based on RSL for o-cresol; this RSL is the low range RSL value identified for cresol isomers.

Value for pyrene is used as a surrogate RSL value for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

Volatile Organic Compounds

Value for m&p-Xylene is based on the RSL value for m-xylene; this RSL is the lesser of the RSL values identified for the m- and p-xylene isomers.

(2) Analyte is selected as a COPC if the maximum detected concentration exceeds the RSL or if no screening value is available.

mg/kg = Milligram per kilogram

COPC = Chemical of potential concern

NA = Not available.

" - " = Not detected/ Not applicable.

Groundwater Data

Inorganic Compounds (ug/L)	Detected Result Maximum	Tapwater RSL (2) HI = 1	Selected as a COPC? (3)
Antimony	**41**	6	**yes**
Arsenic	**56**	0.045	**yes**
Barium	523	2900	no
Cadmium	**8.9**	6.9	**yes**
Chromium Total	**24**	0.031	**yes**
Cobalt	**53**	4.7	**yes**
Copper	57	620	no
Lead	12	** 15	no
Manganese	**3370**	320	**yes**
Nickel	39	300	no
Selenium	17	78	no
Silver	0.9	71	no
Vanadium	25	78	no
Zinc	200	4700	no

PCBs (ug/L)	Detected Result Maximum	Tapwater RSL (2) HI = 1	Selected as a COPC? (3)
<u>PCB Aroclors (ug/L)</u>			
Aroclor-1242 (PCB-1242)	**2.9**	0.034	**yes**
<u>PCB Homologs (ug/L)</u>			
Monochlorobiphenyls C12H9Cl	**0.38**	0.17	**yes**
Dichlorobiphenyls C12H8Cl2	**2.3**	0.17	**yes**
Trichlorobiphenyls C12H7Cl3	**0.79**	0.17	**yes**

SVOCs (ug/L)	Detected Result Maximum	VISLs - Industrial Groundwater (1) HI = 0.1	Tapwater RSL (2) HI = 1	Selected as a COPC? (3)
2,4-Dimethylphenol	0.3	-	270	no
2-Methylnaphthalene	0.3	NA	27	no
4-Nitrophenol	1	-	NA	no
Acetophenone	0.3	NA	1500	no
Benzaldehyde	0.7	NA	1500	no
bis(2-Ethylhexyl)phthalate	**1410**	-	4.8	**yes**
Caprolactam	2	-	7700	no
Di-n-octyl phthalate	**12500**	-	190	**yes**
Dibenzofuran	0.3	-	5.8	no
Diethyl phthalate	1	-	11000	no
Fluoranthene	0.2	-	630	no
Hexachlorobutadiene	0.2	NA	0.26	no
Hexachloroethane	0.3	NA	0.79	no
Naphthalene	**0.3**	43	0.14	no
Phenanthrene	0.5	-	87	no
Phenol	21.9	-	4500	no
Pyrene	0.2	-	87	no

VOCs (ug/L)	Detected Result Maximum	VISLs - Industrial Groundwater (1) HI = 0.1	Tapwater RSL (2) HI = 1	Selected as a COPC? (3)
1,1-Dichloroethane	**5**	51	2.4	**yes**
1,2-Dichlorobenzene	0.9	2200	280	no
2-Butanone	8	1500000	4900	no
4-Methyl-2-Pentanone (MIBK)	3	410000	1000	no
Acetone	50	15000000	12000	no
Benzene	**0.5**	11	0.39	**yes**
Bromodichloromethane	**0.2**	6.3	0.12	no
Carbon disulfide	1	770	720	no
Chlorobenzene	0.7	310	72	no
Chloroethane	1	14000	21000	no
Chloroform (Trichloromethane)	**2**	5.5	0.19	**yes**
cis-1,2-Dichloroethene	6	240	28	no
Cyclohexane	7	680	13000	no
Ethylbenzene	0.3	28	1.3	no
Isopropylbenzene	0.4	780	390	no
m&p-Xylene	0.4	270	190	no
Methyl acetate	3	NA	16000	no
Methyl cyclohexane	0.2	NA	NA	no
Methyl Tert Butyl Ether	**210**	3000	12	**yes**
Methylene chloride	0.9	3000	9.9	no
n-Propylbenzene	0.2	2000	530	no
o-Xylene	0.2	380	190	no
Tetrachloroethene	1.64	42	9.7	no
Tetrahydrofuran	**180000**	480000	3200	**yes**
Toluene	0.6	14000	860	no
trans-1,2-Dichloroethene	0.4	240	86	no
Trichloroethene	**5.93**	3.6	0.44	**yes**
Trichlorofluoromethane	70	110	1100	no
Trifluorotrichloroethane	0.5	920	53000	no
Vinyl chloride	**17**	3.3	0.015	**yes**

Notes and Abbreviations:

(1) The values identified are the groundwater to indoor air vapor intrusion screening levels (VISLs) based on commercial/industrial exposure factors, and toxicity values current as of May 2012. *EPA OSWER VISL Calculator Version 2.0, May 2012 RSLs.* Calculations are presented in Appendix E, Attachment A of the Facility Investigation Report (31 December 2012)..

(2) Values are the Regional Screening Levels (RSLs) for USEPA Regions 3, 6, and 9: *Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2012.* (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm)

Values used for screening are the tapwater RSLs for the lesser of cancer risks equal to 1E-06 or non-cancer risks equal to a hazard index of 1 unless noted otherwise.

<u>Inorganic compounds</u>
Value for antimony is based on the RSL for antimony (metallic).
Value for chromium (total) is based on the RSL value for hexavalent chromium.
**Value for lead is the federal drinking water standard (MCL).
Value for nickel is based on the RSL value for nickel (soluble salts).
Value for vanadium is bssed on the RSL value for vanadium and compounds.
Value for zinc is based on the RSL value for zinc and compounds.

<u>PCBs</u>
Value for monochlorobiphenyls C12 H9 Cl, dichlorobiphenyls C12 H8 Cl2, and trichlorobiphenyl is based on the RSL value for polychlorinated biphenyls (low risk).
PCBs within these homologue groups are identified as non-dioxin-like PCBs.

<u>Semi-Volatile Organic Compounds</u>
Value for pyrene is used as a surrogate RSL value for phenanthrene.

(3) Analyte is selected as a COPC if the maximum detected concentration exceeds the RSL or if no screening value is available.

ug/L = Microgram per liter.
VISL = Vapor Intrusion Screening Level
COPC = Chemical of potential concern
NA = Not available.
" - " = Not detected/ Not applicable.

Storm Water Data

Inorganic Compounds (ug/L)	Detected Result Maximum	Tapwater RSL (1) HI = 1	Selected as a COPC? (2)
Antimony	**23**	6	**yes**
Arsenic	**4.2**	0.045	**yes**
Barium	348	2900	no
Cadmium	5	6.9	no
Chromium Total	**6**	0.031	**yes**
Cobalt	0.46	4.7	no
Copper	5	620	no
Lead	9	** 15	no
Manganese	206	320	no
Nickel	6	300	no
Selenium	4	78	no
Thallium	**0.56**	0.16	**yes**
Vanadium	3	78	no
Zinc	449	4700	no

PCBs (ug/L)	Detected Result Maximum	Tapwater RSL (1) HI = 1	Selected as a COPC? (2)
PCB Aroclors (ug/L)			
Aroclor-1242 (PCB-1242)	**2**	0.034	**yes**
Aroclor-1248 (PCB-1248)	**5**	0.034	**yes**
PCB Homologs (ug/L)			
Dichlorobiphenyls C12H8Cl2	0.088	0.17	no
Trichlorobiphenyls C12H7Cl3	0.25	0.17	**yes**
Tetrachlorobiphenyls C12H6Cl4	0.44	0.0017	**yes**
Pentachlorobiphenyls C12H5Cl5	0.034	0.017	**yes**

SVOCs (ug/L)	Detected Result Maximum	Tapwater RSL (1) HI = 1	Selected as a COPC? (2)
Acenaphthene	6	400	no
Anthracene	6	1300	no
Benzo(a)anthracene	**27**	0.029	**yes**
Benzo(a)pyrene	**35**	0.0029	**yes**
Benzo(b)fluoranthene	**35**	0.029	**yes**
Benzo(g,h,i)perylene	21	87	no
Benzo(k)fluoranthene	**35**	0.29	**yes**
Caprolactam	0.7	7700	no
Carbazole	9	NA	**yes**
Chrysene	**45**	2.9	**yes**
Di-n-butylphthalate	0.66	670	no
Di-n-octyl phthalate	4	190	no
Dibenzofuran	4	5.8	no
Diethyl phthalate	1	11000	no
Dimethylformamide	779	1600	no
Fluoranthene	87	630	no
Fluorene	6	220	no
Indeno(1,2,3-cd)pyrene	**19**	0.029	**yes**
Naphthalene	**2**	0.14	**yes**
Phenanthrene	57	87	no
Pyrene	69	87	no

VOCs (ug/L)	Detected Result Maximum	Tapwater RSL (1) HI = 1	Selected as a COPC? (2)
Bromodichloromethane	**2**	0.12	**yes**
Bromoform	0.2	7.9	no
Chloroform (Trichloromethane)	**6**	0.19	**yes**
Dibromochloromethane	**1**	0.15	**yes**
Tetrahydrofuran	**33000**	3200	**yes**
Toluene	0.3	860	no

Notes and Abbreviations:

(1) Values are the Regional Screening Levels (RSLs) for USEPA Regions 3, 6, and 9: *Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2012.* (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm)

Values used for screening are the tapwater RSLs for the lesser of cancer risks equal to 1E-06 or non-cancer risks equal to a hazard index of 1 unless noted otherwise.

Inorganic compounds

Value for antimony is based on the RSL for antimony (metallic).
Value for chromium (total) is based on the RSL value for hexavalent chromium.
**Value for lead is the federal drinking water standard (MCL).
Value for nickel is based on the RSL value for nickel (soluble salts).
Value for thallium is based on the RSL value for thallium (soluble salts).
Value for vanadium is bssed on the RSL value for vanadium and compounds.
Value for zinc is based on the RSL value for zinc and compounds.

PCBs

Value for dichlorobiphenyls C12 H8 Cl2 is based on the RSL value for polychlorinated biphenyls (low risk). Dichlorobiphenyl homologues are identified as non-dioxin-like PCB homologues.

Value for pentachlorobiphenyl is based on the common RSL value for pentachlorobiphenyl, 2',3,4,4',5- (PCB 123); pentachlorobiphenyl, 2,3',4,4',5- (PCB 118); pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105), and; pentachlorobiphenyl, 2,3,4,4',5- (PCB 114).

Value for tetrachlorobiphenyl is based on the RSL value for tetrachlorobiphenyl, 3,4,4',5- (PCB 81).

Value for trichlorobiphenyl is based on the RSL value for polychlorinated biphenyls (low risk). Trichlorobiphenyl homologues are identified as non-dioxin-like PCB homologues.

Semi-Volatile Organic Compounds

Value for pyrene is used as a surrogate RSL value for benzo(g,h,i)perylene and phenanthrene.

(2) Analyte is selected as a COPC if the maximum detected concentration exceeds the RSL or if no screening value is available.

ug/L = Microgram per liter.
COPC = Chemical of potential concern
NA = Not available.
" - " = Not detected/ Not applicable.

Soil Gas Data

VOCs (ug/m3)	Detected Result Maximum	VISLs - Residential Sub-Slab Soil Gas (1) HI = 1 (Eastern Property Boundry)	VISLs - Industrial Sub-Slab Soil Gas (2) HI = 0.1 (AOI 28)	Selected as a COPC? (3)
1,1,1-Trichloroethane	11	52000	22000	no
1,1-Dichloroethane	0.1	15	-	no
1,2-Dichlorobenzene	0.46	2100	-	no
1,2-Dichloroethane	0.49	0.94	-	no
1,3-Dichlorobenzene	23	NA	-	no
1,4-Dichlorobenzene	0.43	2.2	-	no
2-Butanone (MEK)	21	52000	22000	no
2-Hexanone	1.4	310	-	no
4-Methyl-2-Pentanone (MIBK)	2.3	31000	13000	no
Acetone	120	320000	140000	no
Benzene	9.6	31	16	no
Bromodichloromethane	**5.6**	0.66	-	**yes**
Bromomethane (Methyl Bromide)	0.85	52	-	no
Carbon disulfide	87	7300	3100	no
Carbon tetrachloride	0.62	4.1	20	no
Chlorobenzene	1.3	520	-	no
Chloroethane	3.7	100000	-	no
Chloroform (Trichloromethane)	**49**	1.1	5.3	**yes**
Chloromethane (Methyl Chloride)	3.9	940	390	no
Cyclohexane	24	63000	26000	no
Dibromochloromethane	0.29	0.90	-	no
Dichlorodifluoromethane (CFC-12)	3.7	1000	440	no
Ethylbenzene	6.1	97	49	no
m&p-Xylene	22	10000	440	no
Methylene chloride	5.6	960	-	no
o-Xylene	9.6	10000	440	no
Styrene	2.20	10000	-	no
Tetrachloroethene	**310000**	94	180	**yes**
Tetrahydrofuran	38.0	21000	8800	no
Toluene	18	520000	22000	no
trans-1,2-Dichloroethene	2.1	630	-	no
Trichloroethene	**64000**	4.3	8.8	**yes**
Trichlorofluoromethane (CFC-11)	16	7300	3100	no
Trifluorotrichloroethane	2.1	310000	130000	no
Vinyl chloride	0.23	1.6	-	no

Notes and Abbreviations:

(1). The values identified are target sub-slab soil gas vapor intrusion screening levels (VISLs) based on residential exposure factors, and toxicity values current as of May 2012.
EPA OSWER VISL Calculator Version 2.0, May 2012 RSLs. Calculations are presented in Appendix E, Attachment A of the Facility Investigation Report (revised 31 December 2012). Values for benzene, toluene, ethylbenzene, and xylenes (BTEX) incorporate a 100-fold attenuation factor as directed by EPA Region 5.

(2) The values identified are target sub-slab soil gas vapor intrusion screening levels (VISLs) based on commercial/industrial exposure factors, and toxicity values current as of May 2012.
EPA OSWER VISL Calculator Version 2.0, May 2012 RSLs. Calculations are presented in Appendix E, Attachment A of the Facility Investigation Report (revised 31 December 2012).

<u>Volatile Organic Compounds</u>
Value for m&p-xylene is based on the industrial sub-slab VISL value for m-xylene; which is the lesser of the two sub-slab VISLs calculated for the m- and p-xylene isomers.

(3). Analyte is selected as a COPC if the maximum detected result exceeds the vapor intrusion screening value, or if no screening value is available.

COPC = Chemical of potential concern.
ug/m3 = Microgram per cubic meter.
" - " = Not detected/ Not applicable.

APPENDIX B

Forms

HEALTH & SAFETY TAILGATE MEETING

PROJECT		**FILE NO.**	
LOCATION		**PROJECT MGR.**	
SUBCONTRACTOR		**DATE**	

Required Personal Protective Equipment (PPE):

Steel toed boots, safety glasses with side shields,

Site Hazards:

Safety Talk:

I have read and understood the above material.

Print your Name	Signature
Print your Name	Signature
Print your Name	Signature
Print your Name	Signature
Print your Name	Signature

HASP Acknowledgment Form:

I hereby acknowledge receipt and briefing on this Health & Safety Plan prior to the start of onsite work and declare that I understand and agree to follow the provisions and procedures set forth herein while working at the Site.

Printed Name	Signature	Date

Site Sign-In Sheet:

Record date and time onsite below.

Name	Company	Date	Time In	Time Out