PLEASANT RUN CROSSING NAPL REMOVAL
WORK PLAN

Citizens Energy Group - Prospect Facility
2950 East Prospect Street
Indianapolis, Indiana
VRP #6050203

AME PROJECT #: JS0461.379

PREPARED FOR:

Mr. John Havard
Citizens Energy Group
2150 Dr. Martin Luther King Jr. Street
Indianapolis, Indiana 46202

PREPARED BY:

August Mack Environmental, Inc.
1302 N. Meridian Street, Suite 300
Indianapolis, Indiana 46202

ISSUE DATE

March 6, 2018

August Mack
ENVIRONMENTAL

PRX NAPL REMOVAL WORK PLAN

Prospect Facility – Pleasant Run Crossing
2950 East Prospect Street
Indianapolis, Indiana
VRP #6050203
August Mack Project Number JS0461.379

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ATTACHMENTS

Acronym List	
amsl	Above Mean Sea Level
AOC	Area(s) of Concern
August Mack or AME	August Mack Environmental, Inc.
Batteries & By-Products Parcel	Batteries & By-Products or Site
BEA	Baseline Ecological Assessment
Bloodhound	Bloodhound Underground Utility Locating Services
CCL	Construction Closure Level
CEG	Citizens Energy Group
COCs	Constituents of Concern
CQAPP	Construction Quality Assurance Project Plan
CSM	Conceptual Site Model
CSO	Combined Sewer Overflow
CWA	Central Water Authority
DNAPL	Dense Non-Aqueous Phase Liquid
DOCC	Description of Current Conditions
EFS	Environmental Field Services, Inc.
ERC	Environmental Restrictive Covenant
ESLs	Ecological Screening Levels
ESVs	Ecological Screening Values
ETR	endangered, threatened and/or rare species
FID	Flame Ionizing Detector
FLIR	Forward Looking Infrared
FSI	Further Site Investigation
ft	Foot or Feet
ft bg	Feet Below Grade
ft/mi	Feet/Mile
GC/MS	Gas Chromatography-Mass Spectrometry
Geoprobe®	Geoprobe® Direct Push Technology
GIS	Geographic Information Service
gpm	Gallon per Minute
HASP	Health and Safety Plan
HEC-RAS	Hydrologic Engineering Center's River Analysis System
HSA	Hollow Stem Auger
ID	Inner Diameter
IDCLs	Industrial Default Closure Levels
IDCSLs	Industrial Direct Contact Screening Levels
IDEM	Indiana Department of Environmental Management
IDNR	Indiana Department of Natural Resources
IM	Interim Measure

Acronym List	
in	Inch
INHDC	Indiana Natural Heritage Data Center
ISC	Initial Site Characterization
lbs.	Pounds
LIF	Laser Induced Fluorescence
LNAPL	Light Non-Aqueous Phase Liquid
MAH	Monocyclic Aromatic Hydrocarbon
MCL	Maximum Contaminant Level
metals	Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Cadmium (Cd), Chromium (Cr), Copper (Cu), Iron (Fe), Lead (Pb), Manganese (Mn), Mercury (Hg), Nickel (Ni), Selenium (Se), Silver (Ag), Strontium (Sr), Thallium (Tl), Tin (Sn), Vanadium (V), and Zinc (Zn)
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MGD	Million Gallons per Day
MGP	Manufactured Gas Plant
mL	Milliliter
MS/MSD	Matrix Spike/Matrix Spice Duplicate
NAPL	Non-Aqueous Phase Liquid
NGVD	National Geodetic Vertical Datum
NPDES	National Pollution Discharge Elimination System
Pace	Pace Analytical Services
PAH	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PDF	Portable Document Format
PID	Photo Ionizing Detector
PRC	Pleasant Run Creek
PRX	Pleasant Run Crossing
PPE	Personal Protective Equipment
PPM	Parts Per Million
Prospect Facility	Four parcels identified as Southeastern, Gas Supply, Coal Storage, and Batteries & By-Products. Located at 2950 and 2900 Prospect Street, Indianapolis, Indiana
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RDCLs	Residential Default Closure Levels
RFP	Request for Proposal
RISC	Risk Integrated System of Closure

Acronym List	
RWP	Remedial Work Plan
SAP	Sampling and Analysis Plan
Site	Pleasant Run Crossing NAPL Removal Area
SVOCs	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TarGOST	Tar Green Optical Screening Tool
TES	threatened and endangered species
USACE	United States Army Corp of Engineers
USEPA	United States Environmental Protection Services
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UTM	Universal Transverse Mercator System
VI	Vapor Intrusion
VOCs	Volatile Organic Compounds
VRP	Voluntary Remediation Program
WAD	Weak Acid Dissociable
WHPA	Wellhead Protection Area
WWTP	Waste Water Treatment Plant

1.0 BACKGROUND

The Prospect Facility was constructed in 1908 for the purpose of manufacturing coke and coke oven gas for the citizens of Marion County. Products manufactured at the facility included coal tar, light oil, naphthalene, water gas, molten sulfur, ammonium sulfate and dyes. The Prospect Facility was enrolled by Citizens in the IDEM VRP in 2005 to address environmental impacts. The Prospect Facility covers approximately 87-acres. The Prospect Facility was shut down in July 2007 and above grade major structure demolition was completed in September 2017.

Investigation in the northern portion of PRX, a former coal storage area, has identified an area of soils impacted with NAPL and oxide waste material requiring excavation and disposal. The impacted area occupies approximately a 1.5-acre area of the 87-acre facility as shown in **Figure 1**. Impacts extends to approximately 10-ft bg. This soil excavation area has been designated as the PRX NAPL Removal.

A brief summary of the project objectives are discussed in the following sections followed by an overview of the construction means and methods to address the NAPL/oxide waste in the northern portion of PRX.

2.0 PROJECT OBJECTIVES

The objective of the PRX NAPL Removal is to remove impacted soils containing NAPL/oxide waste within the identified footprint as depicted on **Figure 1**. To satisfy the project objective, approximately 20,000-cubic yards of soil will be removed from the 1.5-acre PRX NAPL Removal area. It is anticipated that excavation activities will extend to approximately 10-ft bg. The excavation will be terminated upon visual absence of NAPL/ oxide waste at the boundary of the excavation extent as determined by August Mack and the Owner's Site representative. Prior to commencing the work, August Mack will obtain all permits and other documents required to complete the scope of work. The following sections present the proposed Work Plan for accomplishing the project objectives.

3.0 PRX NAPL REMOVAL PLAN PROJECT EXECUTION

PRX NAPL Removal execution will encompass a series of activities to meet the project objectives. These activities include:

- Health and Safety Plan Development (see **Attachment D**);
- Mobilization;
- Site preparation;
- Soil removal;
- Groundwater management;
- PRC protection measures;
- Waste characterization and disposal;
- Backfill and grading;
- Post-excavation sampling;
- Decontamination; and,
- Demobilization.

Each of these activities are discussed in the following sections.

3.1 Site-Specific Health and Safety Plan Development

A Site Specific HASP has been prepared to address all anticipated Site activities and hazards. Copies of August Mack's Corporate Health and Safety Policy and Site Specific HASP have been included in **Attachment D**. The HASP will be followed throughout the execution of the PRX NAPL Removal and will ensure the work activities will be executed in a safe manner. Modifications to the HASP will be made if any unanticipated hazards are identified. The major components of the HASP include the following:

- Site identification and contacts;
- Site personnel requirements;
- Site description and background;
- List of known / suspected contaminants;
- Planned Site activities;
- Utility clearance;
- Directions to nearest hospital;
- List of potential physical hazards;
- Site control / entry procedures;
- Monitoring;
- Personal PPE requirements;

- Action levels for PPE upgrade;
- Activity-specific PPE;
- Decontamination;
- Emergency procedures and contacts; and,
- Spill contingency plan.

3.2 Mobilization

Mobilization for this PRX NAPL Removal will be begin in March 2018 following authorization from Citizens. The anticipated mobilization date is March 15th, 2018. Mobilization for the work will include:

- Calling Indiana 811 for a public utility locate;
- Groundwater/storm water pumping equipment and dewatering sumps;
- Heavy construction equipment;
- Personnel and materials;
- Sanitary facilities;
- Barricades to the work area consisting of orange construction snow-fence and signs;
- Temporary above ground fuel tanks; and,
- "Oversea" containers for tool, equipment and material storage.

3.3 Site Preparation

Site preparation activities will occur prior to the implementation of the PRX NAPL Removal to establish staging and work areas necessary for the scope of the project. **Figure 2** shows the Site layout and the proposed staging areas required for the project.

Two construction entrances constructed of INDOT No. 2 stone will be utilized during the PRX NAPL Removal. The INDOT No. 2 stone will assist in removing soil from the tri-axle dump truck tires prior to demobilization off-Site. Each entrance will be inspected on a weekly basis to ensure that the INDOT No. 2 stone is performing effectively. The current entrance located on Prospect Street will be utilized to access the Site from the south side of PRX. An existing plant access road connects the entrance along Prospect Street to the general proximity of the NAPL excavation. Gravel roads will be constructed and existing roads will be improved (as necessary) to allow access into the work area. A

tri-axle dump truck loading and staging area will also be established and entrance off of Southeastern Avenue will be re-constructed to allow access to the Site from Southeastern Avenue. The approximate location of the Southeastern Avenue construction entrance is shown on **Figure 2**. The entrances, access road, and haul road (which will run through the middle of the excavation area) will be approximately 24-ft wide and will consist of approximately 1,500-square yards of 8-oz. geotextile beneath a stone cover. August Mack will install erosion control measures (silt fence, berms, etc.) in order to prevent surface runoff from impacting Pleasant Run Creek. Further details and specifications are described in section **3.7 PRC Protection Measures**.

Signage will be posted to inform visitors and site personnel of construction hazards upon entering the Site. Signage will also be used to inform employees of safety procedures, location of safety equipment, and traffic routes.

3.4 Soil Removal Activities

The planned excavation area, bordered by Pleasant Run Creek to the north, is located in the former coal storage area. Existing topography will be surveyed by an Indiana Professional Surveyor prior to excavation activities. Material will be removed from the anticipated footprint and excavated to within a 20-ft buffer of the floodway. The buffer of undisturbed soils within the floodway will remain until further phases of work outside of this scope are completed. Excavation will be completed to a depth of up to 10-ft bg via hydraulic excavator and loaded into tri-axle dump trucks for transportation to an Indiana permitted Subtitle D landfill. Excavated material will be disposed as non-hazardous media. August Mack estimates removing approximately 2,000 tons per day during excavation activities.

Excavation activities will begin on the east side of the Site and will progress west. Tri-axle dump trucks will be loaded directly from the excavation. August Mack's environmental professional and the Owner's Site representative will make the final visual

assessment for the presence of NAPL and oxide waste. Visual assessment will occur when the completed excavation is less than 40-ft from the anticipated excavation boundary. Soil from the side walls of the excavation will be removed resulting in slopes ranging from 1H:1V to 3H:1V depending on the area and natural angle of repose of the material. Throughout excavation activities, August Mack will coordinate the survey of the excavation base by an Indiana Professional Surveyor.

3.5 Unanticipated Asbestos Containing Material or Coke Oven Gas Lines

If any suspected asbestos containing materials are encountered during excavation activities, work in that area will stop and Owner will be notified. On-Site personnel will evaluate the area and determine if the material can be removed without workers or the environment. If material type is uncertain, a sample of the material will be collected by a qualified individual for laboratory analysis. With Owner approval, AME will continue excavation activities in portions free of suspected asbestos containing materials. If the materials contain asbestos, AME will coordinate the removal of all asbestos containing material in accordance with the technical specification sections.

Any encountered Coke Oven Gas lines or unanticipated obstructions will be evaluated by August Mack and the Owner's Site representative prior to removal. Work will be conducted in accordance with the technical specification sections and the HASP.

3.6 Groundwater Management

In order to mitigate groundwater from entering the excavation area, August Mack will establish four to six sumps within the of the excavation area as depicted on **Figure 3.** Each sump will be equipped with an 18-in perforated, corrugated metal pipe surrounded by crushed rock to allow for groundwater infiltration. An adequately sized electric or diesel pump will be installed within the corrugated pipe. All water collected within the sumps will be combined within a 6-in header pipe that will discharge to the on-Site settling basin per Citizens' Industrial Discharge Permit. Flow of discharged water will be limited to no greater than 150 GPM. All flow will be metered and total discharge volume to the on-Site settling basin will be reported to the Owner.

3.7 PRC Protection Measures

Prior to the excavation of impacted soils, August Mack will construct several features to control and divert storm water away from the excavation area. Protective storm water measures will ensure that minimal runoff from the excavation area discharges into Pleasant Run Creek. August Mack will construct up-gradient berms to the south of the excavation area to divert storm water runoff around the excavation area. These berms will be roughly 2-ft high and 2-ft thick and constructed from existing soil and onsite materials. An earthen berm currently exists to the north of the excavation area which will also assist in protecting Pleasant Run Creek during this phase of work. In addition to the up-gradient berms, August Mack will install approximately 850-ft of silt fence along the down-gradient (north) side of the excavation area to capture storm water sediments prior to discharging from the work area. Storm water controls will be inspected and maintained in accordance with the City of Indianapolis Storm Water Drainage Permit.

3.8 Waste Characterization

Soils generated from the PRX NAPL Removal activities will be sent to an Indiana permitted Subtitle D landfill. On-Site soils have been characterized and approved for disposal as non-hazardous, MPG exempt media. All waste shipped during PRX NAPL Removal will be transported under manifest to the selected disposal facility. Waste manifests and landfill documentation will be maintained on-Site and will be provided to the Owner in accordance with the construction contract.

3.9 Backfilling and Grading

Concurrent with soil removal activities, the excavation area will be backfilled with approved structural backfill material, INDOT Standard Specifications "B Borrow", using a 30,000-40,000-pound/140HP crawler dozer(s). A 30,000-40,000-pound roller compactor(s) will be used to compact the B Borrow and grade the surrounding area. The B Borrow will be delivered through the Southeastern Construction Entrance and

generally will be installed east to west across the excavation area in accordance with technical specification provided in the NAPL RMVl Narrative (Revision 2). Prior to implementation, August Mack will collect a sample of the B Borrow for chemical analysis, and CEG will be provided a sample of the B Borrow for geotechnical analysis. Field inspection and testing shall be performed by the Owner. The testing crew will be on-Site during the backfill work.

Compaction testing will be conducted by CEG during the installation of the backfill on every lift. The backfill material will be compacted to 95 percent. The final backfill elevation will be plus or minus one inch from the surrounding elevations on the perimeter of the excavation and 754 AMSL (plus or minus 1-in) inside the excavation. The existing elevations of the ground at the perimeter of the excavation is higher than 754 AMSL. As such, the backfill at the perimeter of the excavation shall slope at 2H:1V from the existing elevations to the finished backfill elevation on the inside of the excavation (754 AMSL). The final backfill elevation will be surveyed by an Indiana Professional Surveyor contracted by AME.

3.10 Post-Excavation Sampling

Post-excavation soil samples will be obtained from the resulting sidewall and bottom surfaces of the excavation. Excavation base sample locations will be determined based upon a 125-ft grid. Side wall samples will be collected at the midpoint elevation of the sidewall and the intersection of the 125-ft grid. Samples will be collected, handled, preserved, shipped, and analyzed in accordance with the project QAPP. August Mack will collect GPS coordinated of each sampling location. All soil samples will be shipped to Pace Analytical of Indianapolis, Indiana and analyzed for the parameters defined in the RFP. **Figure 4** shows the proposed sampling locations within the excavation area.

3.11 Decontamination

Decontamination of heavy equipment will be completed on-Site. A gross-dry decontamination will be completed prior to the demobilization of any equipment used during excavation activities. Material generated from decontamination will be disposed of off-Site as described above.

3.12 Demobilization

Upon completion of all PRX NAPL Removal and restoration activities, all project personnel and equipment will be demobilized from the site. All areas utilized for storage and staging will be deconstructed and returned to their original state. PRX NAPL Removal and restoration activities are expected to be completed by the end of April 2018. Once demobilization activities are complete, August Mack will proceed with reporting activities as defined in the RFP.

4.0 PERMITTING

A Storm Water Drainage Permit application has been submitted to the City of Indianapolis for this scope of work. Upon approval of the City of Indianapolis Storm Water Drainage Permit, a Rule 5 Notice of Intent (NOI) will be filed with the IDEM Storm water group for Construction/Land Disturbance purposes. Included in the Storm Water Drainage Permit application is the Erosion Control Plan for the PRX NAPL Removal.

In addition, an application for a Driveway Access Permit with the City of Indianapolis has been submitted. This Driveway Access Permit is intended for the construction and use of the Southeastern Construction Entrance as shown on **Figure 2**.

These permits will be in place prior to the execution of the PRX NAPL Removal. If modifications to the permits are made per the request of the Regulatory Agencies, an updated permit package will be provided to the IDEM following permit approval. The permit applications have been included in **Attachment C**.

5.0 PLANS & REPORTS

The required plans and reports for the PRX NAPL Removal are provided in **Appendix D-G**. The plans and reports for this project include:

- Attachment D – Corporate Health and Safety Policy & Health and Safety Plan
- Attachment E – Citizens' Spill Prevention, Control, and Countermeasure Plan
- Attachment F – Citizens' Odor and Dust Control Work Plan
- Attachment G - Daily Report Template

6.0 PRX NAPL REMOVAL IMPLEMENTATION SCHEDULE

The anticipated schedule for implementation of the PRX NAPL Removal described in this plan is provided in **Appendix B**.

FIGURES

ATTACHMENTS

ATTACHMENT A

Design Figures

PROSPECT STREET FACILITY

Aerial Image: AccuAir Survey - December 27, 2016

PRX NAPL Removal Area

Pleasant Run Crossing

N

0 50' 100' 200'

LEGEND

- PARCEL BOUNDARIES
- EXTENT OF EXCAVATION AREA

1302 N. MERIDIAN ST., STE. 300
INDIANAPOLIS, INDIANA 46202

(317) 916-8000
(317) 916-8001 FAX

August Mack ENVIRONMENTAL

Citizens Energy Group
2950 Prospect Street
Indianapolis, Indiana

Parcel Map Showing Site Boundaries

PROJECT No.:	FILENAME:		DATE:
JS0461.379	I:\2016\Projects\JQ1578\Task 2...\(5) PRC...\Figures\Aerial B...Edits3.dwg		2/23/2018
DRAWN BY:	MODIFIED BY:	SCALE:	FIGURE:
BA	BA & AT	1" = 100'	1

LEGEND

= PRX NAPL Removal Area

= Equipment Staging Area

= Temporary Access Road

1302 N. MERIDIAN ST., STE. 300
INDIANAPOLIS, INDIANA 46202
(317) 916-8000
(317) 916-8001 FAX
August Mack ENVIRONMENTAL

CITIZENS ENERGY GROUP
2950 PROSPECT STREET
INDIANAPOLIS, INDIANA

Construction Plan

PROJECT No.:	FILENAME:		DATE:
JS0461.379	I:/2017/Projects/JR0576/Figures/Creek Topo.dwg		2/23/2018
DRAWN BY:	MODIFIED BY:	SCALE:	FIGURE:
BA	BO & AT	As Shown	2

LEGEND

- = PRX NAPL Removal Area
- = 100-Year Floodway
- = Excavation Sump Location
- = Discharge Piping
- = Inline Flow Meter

1302 N. MERIDIAN ST., STE. 300
INDIANAPOLIS, INDIANA 46202
(317) 916-8000
(317) 916-8001 FAX

August Mack ENVIRONMENTAL

CITIZENS ENERGY GROUP
2950 PROSPECT STREET
INDIANAPOLIS, INDIANA

Groundwater Management System

PROJECT No.:	FILENAME:		DATE:
JS0461.379	I:/2017/Projects/JR0576/Figures/Creek Topo.dwg		03/5/2018
DRAWN BY:	MODIFIED BY:	SCALE:	FIGURE:
BA	BO & AT & BA	As Shown	3

Existing Surveyed Topographic Contours Provided by the Schneider Corporation.

N

0 30' 60'

SE-1-N-1
SE-1-N-2
SE-1-N-3
SE-1-N-4
SE-1-N-5
SE-1-B-1
SE-1-B-2
SE-1-B-3
SE-1-B-4
SE-1-B-5
SE-1-B-6
SE-1-B-7
SE-1-S-1
SE-1-S-2
SE-1-S-3
SE-1-S-4
SE-1-S-5

LEGEND

▲ = Proposed Sampling Location

— = PRX NAPL Removal Area

1302 N. MERIDIAN ST., STE. 300
INDIANAPOLIS, INDIANA 46202
(317) 916-8000
(317) 916-8001 FAX

August Mack ENVIRONMENTAL

CITIZENS ENERGY GROUP
2950 PROSPECT STREET
INDIANAPOLIS, INDIANA

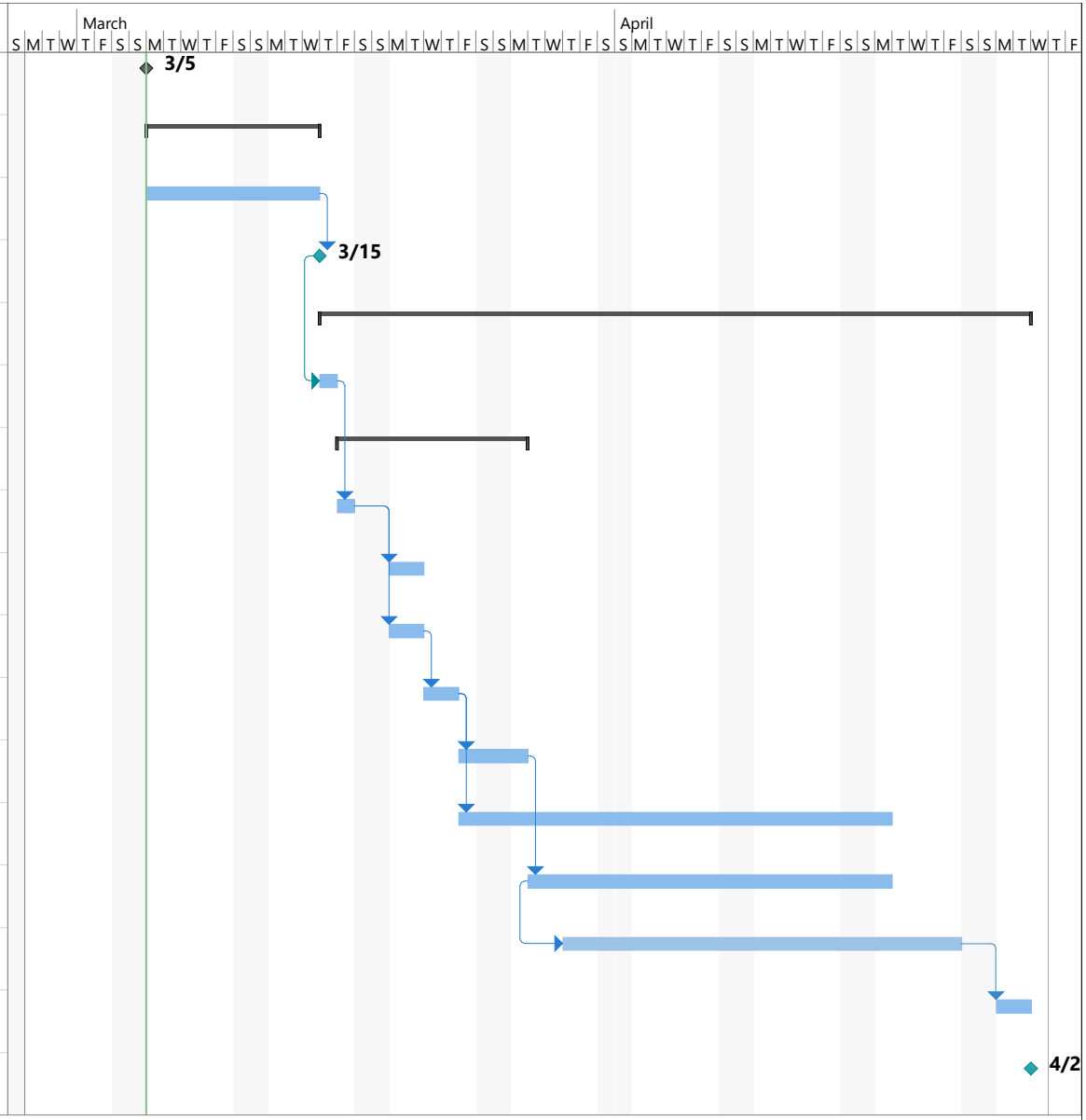
Post-Excavation Sampling Points

PROJECT No.:	FILENAME:		DATE:
JS0461.379	I:/2017/Projects/JR0576/Figures/12_27_2016 Creek Topo.dwg		02/26/2018
DRAWN BY:	MODIFIED BY:	SCALE:	FIGURE:
BA	BO & AT & BA	As Shown	4

ATTACHMENT B

Implementation Schedule

ID	Task Name	Start	Finish
1	Purchase Order Issued	Mon 3/5/18	Mon 3/5/18
2	**Premobilization Task**	**Mon 3/5/18**	**Thu 3/15/18**
3	Plan Prep/Rev/App	Mon 3/5/18	Wed 3/14/18
4	Commencement Date	Thu 3/15/18	Thu 3/15/18
5	**Site Activities**	**Thu 3/15/18**	**Wed 4/25/18**
6	Mobilization	Thu 3/15/18	Thu 3/15/18
7	**Site Preparation**	**Fri 3/16/18**	**Mon 3/26/18**
8	Install Construction Entrance	Fri 3/16/18	Fri 3/16/18
9	Install Perimeter Fencing	Mon 3/19/18	Tue 3/20/18
10	Install Erosion Control	Mon 3/19/18	Tue 3/20/18
11	Install Water Managemet Piping	Wed 3/21/18	Thu 3/22/18
12	Construct Haul Road	Fri 3/23/18	Mon 3/26/18
13	Water Management	Fri 3/23/18	Mon 4/16/18
14	Excavation	Tue 3/27/18	Mon 4/16/18
15	Backfill Excavation	Thu 3/29/18	Fri 4/20/18
16	Demobilzation	Mon 4/23/18	Tue 4/24/18
17	Substantial Completion	Wed 4/25/18	Wed 4/25/18



Project: Project 435161 PRC NA
Date: Mon 3/5/18

Task		Inactive Task		Manual Summary Rollup		External Milestone	
Split		Inactive Milestone		Manual Summary		Deadline	
Milestone		Inactive Summary		Start-only		Progress	
Summary		Manual Task		Finish-only		Manual Progress	
Project Summary		Duration-only		External Tasks			

ATTACHMENT C

Permit Package Applications (Drainage Permit Application Provided Separately)

DRIVEWAY ACCESS PERMIT APPLICATION

DRV _____ - _____

☐ RESIDENTIAL
☒ COMMERCIAL

APPLICANT MUST SUBMIT ONE (1) SET OF PLANS SHOWING EXACT LOCATION OF DRIVEWAY(S). FOR ADDITIONAL SITE PLAN REQUIREMENTS REFER TO REGULATION 86-01 FOR COMMERCIAL ACCESS AND REGULATION 86-02 FOR RESIDENTIAL ACCESS. THIS APPLICATION MUST BEAR THE NOTARIZED SIGNATURE OF THE RESPONSIBLE PARTY.

A. ADDRESS: 2950 Prospect Street
Indianapolis, IN 46203

B. RESIDENTIAL PROPERTY DESCRIBED BY:
☐ METES & BOUNDS ☐ SUBDIVISION

C. CLASSIFICATION OF STREET:
☐ COLLECTOR ☐ LOCAL
☒ PRIMARY ☐ SECONDARY

D. PROPERTY OWNER:
NAME: Citizens Energy Group
ADDRESS: 2020 North Meridian Street
CITY, STATE, ZIP: Indianapolis, IN, 46202
PHONE: 317-693-8716 FAX: 317-263-6452
E-MAIL: jhavard@citizensenergygroup.com

E. CONTRACTOR:
NAME: Environmental Field Services, Inc.
ADDRESS: 40 State Road 32 West
CITY, STATE, ZIP: Westfield, IN, 46074
PHONE: 317-896-1116 FAX: 317-896-1118
E-MAIL: elikens@envfield.com
LIC. #: C6627500 (BUSINESS) LIC. #: GA1300070 (INDIVIDUAL)

F. TYPE OF USE:
☒ COMMERCIAL ☐ RESIDENTIAL
☐ INDUSTRIAL ☐ SUBDIVISION

G. CHANGE OF USE
☐ YES ☒ NO

H. TYPE OF CONSTRUCTION:
☐ NEW ACCESS ☒ TEMPORARY ACCESS
☐ ABANDONMENT ☐ REPAIR
☐ MODIFICATION

I. EXISTING SURFACE AT POINT OF ACCESS:
☒ ASPHALT ☐ CONCRETE

J. PROPOSED SURFACE TYPE:
☐ ASPHALT ☐ CONCRETE
☒ STONE

K. DRIVEWAY SPECIFICS:
OF ACCESSES: 1 # OF LOTS/UNITS: 1
OF ADA RAMPS: N/A (IF APPLICABLE)
CULVERT PIPE REQUIRED? ☒ YES ☐ NO

L. DAILY VEHICULAR TRAFFIC (COMMERCIAL ONLY)
NUMBER OF DELIVERY/SEMI TRUCKS: 40 Dump Trucks
NUMBER OF PASSENGER VEHICLES: 0
TOTAL DAILY TRAFFIC: 40 Dump Trucks

M. RESIDENTIAL/COMMERCIAL ACCESS:
ACCESS 1:
PROPOSED OR EXISTING ACCESS WIDTH: 40'
SW SIDE OF: Southeastern Avenue
18 FT. OF CENTERLINE OF: Southeastern Avenue
NAME OF NEAREST INTERSECTION: Earhart & Southeastern
DIRECTION FROM NEAREST INTERSECTING STREET: NW
ACCESS 2:
PROPOSED OR EXISTING ACCESS WIDTH:
_____ SIDE OF:
_____ FT. OF CENTERLINE OF:
NAME OF NEAREST INTERSECTION:
DIRECTION FROM NEAREST INTERSECTING STREET:
***IF NEEDED USE DRIVEWAY ADDITIONAL ACCESS SHEET*

N. IS THIS PERMIT SUBMITTED AS A RESULT OF A VIOLATION?
☐ YES* ☒ NO
*IF YES, PROVIDE VIO # **VIO** -

O. INDEMNIFICATION AGREEMENT:

THE PETITIONER/APPLICANT HEREBY AGREES TO HOLD HARMLESS, DEFEND AND TO INDEMNIFY THE DEPARTMENT OF PUBLIC WORKS AND THE CITY OF INDIANAPOLIS FROM AND AGAINST ALL CLAIMS, ACTIONS, DAMAGES AND EXPENSES, INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEY'S FEES ON ANY ALLEGED INJURY AND/OR DEATH TO ANY PERSON OR DAMAGE TO ANY PROPERTY ARISING, OR ALLEGED TO HAVE ARISEN OUT OF ANY ACT OF COMMISSION OR OMISSION ON THE PART OF THE PETITIONER/APPLICANT HE/HER HEIRS, SUCCESSORS OR ASSIGNS REGARDLESS OF WHETHER SUCH ACTS ARE THE DIRECT OR INDIRECT RESULT OF THE PUBLIC RIGHT-OF-WAY USE PURSUANT TO THIS PERMIT GRANT.

SIGNATURE OF CONTRACTOR/PROPERTY OWNER

Eric Likens — PRINTED NAME
2/27/18 — DATE

THE CITY OF INDIANAPOLIS

DEPARTMENT OF BUSINESS AND NEIGHBORHOOD SERVICES
1200 MADISON AVENUE, SUITE 100
INDIANAPOLIS, IN 46225
www.indy.gov/bns
MAIN #: 317-327-8700

SEC. 691-153. - DRIVEWAYS.

(A) WHEN SHOWN ON CONSTRUCTION PLANS, EACH DRIVEWAY SHALL BE DESIGNED TO MEET THE FOLLOWING REGULATIONS:
(1) THE DEPARTMENT OF PUBLIC WORKS ACCESS CONTROL MANUAL; AND
(2) THE PROVISIONS OF THIS ARTICLE GOVERNING DRIVEWAY CONSTRUCTION.
(B) IF DRIVEWAYS ARE NOT TO BE INSTALLED AS A PART OF THE CONSTRUCTION SUBJECT TO THIS ARTICLE, A NOTE TO THAT EFFECT SHALL BE PLACED ON THE PLANS.

(CODE 1975, § 28-99; G.O. 15, 2001, § 133)

SEC. 691-172. - DRIVEWAYS.

(A) PRIVATE RESIDENTIAL DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD PLAN 16-01, AND SECTIONS 691-164 AND 691-166.
(B) COMMERCIAL DRIVEWAYS AND THEIR ACCELERATION AND DECELERATION LANES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT OF PUBLIC WORKS ACCESS CONTROL MANUAL AND SECTIONS 691-163 THROUGH 691-166.

(CODE 1975, § 28-122; G.O. 15, 2001, § 137)

SEC 431-502

(C)

PROTECTIVE SURFACE TREATMENT. ANY LOT OR PARCEL OF REAL ESTATE OR ANY PART THEREOF WITHIN THE CITY SUBJECT TO SUBSECTION (A) SHALL BE SO GRADED AS TO PROVIDE A WELL DRAINED SURFACE WHICH SHALL BE PAVED OR GIVEN SUCH SURFACE TREATMENT AS TO PREVENT DUST FROM BLOWING OFF OF THE SURFACE AND TO PREVENT DIRT, GRAVEL, STONE, CINDERS OR OTHER AGGREGATES FROM BEING BLOWN OR WASHED BY WATER OR OTHER LIQUID OR CARRIED BY VEHICLE TIRES ONTO OR OVER ADJOINING SIDEWALKS, STREETS, ALLEYS OR REAL ESTATE. WHEN ANY SUCH LOT OR PARCEL OF REAL ESTATE OR PART THEREOF HAS BEEN GRADED AND SURFACED AS ABOVE DESCRIBED, IT SHALL BE CONTINUALLY MAINTAINED IN GOOD CONDITION, FREE FROM DUST, DIRT, WEEDS AND REFUSE.

(CODE 1975, § 28-22; G.O. 15, 2001, § 20)

Legal Description of Parcels

Parcel 1035106
CANBY PARK IRR TR BEG W OF BELT R/R N OF
PROSPECTE OF PLEASANT RUN BLVD & S OF
SOUTHEASTERN AVE PTSW1/4 SE1/4 S8 T15 R4
CONT 71.867 AC

LEGEND

= PRX NAPL Removal Area

= Equipment Staging Area

= Temporary Access Road

1302 N. MERIDIAN ST., STE. 300
INDIANAPOLIS, INDIANA 46202
(317) 916-8000
(317) 916-8001 FAX

August Mack ENVIRONMENTAL

CITIZENS ENERGY GROUP
2950 PROSPECT STREET
INDIANAPOLIS, INDIANA

Construction Plan

PROJECT No.:	FILENAME:		DATE:
JS0461.379	I:/2017/Projects/JR0576/Figures/Creek Topo.dwg		2/23/2018
DRAWN BY:	MODIFIED BY:	SCALE:	FIGURE:
BA	BO & AT	As Shown	1

LEGEND

= New Culvert Pipe

= Temporary Access Road

1302 N. MERIDIAN ST., STE. 300
INDIANAPOLIS, INDIANA 46202
(317) 916-8000
(317) 916-8001 FAX

August Mack
ENVIRONMENTAL

CITIZENS ENERGY GROUP
2950 PROSPECT STREET
INDIANAPOLIS, INDIANA

Driveway Access Construction Entrance

PROJECT No.:	FILENAME:		DATE:
JS0461.379	I:/2017/Projects/JR0576/Figures/Creek Topo.dwg		2/23/2018
DRAWN BY:	MODIFIED BY:	SCALE:	FIGURE:
BA	BO & AT	As Shown	2

ATTACHMENT D

Corporate Health and Safety Policy & Health and Safety Plan

August Mack
ENVIRONMENTAL

AUGUST MACK ENVIRONMENTAL, INC.

GENERAL HEALTH & SAFETY POLICY

August Mack's mission is to provide superior client service and a strong commitment to our employees. In order to effectively implement this mission, August Mack has a policy of conducting business in a manner that provides safe and healthy working conditions for August Mack employees, clients and vendors. The August Mack Health and Safety Program is a comprehensive, integrated program that is consistent with its mission and complies with all applicable federal, state, and local health and safety laws and regulations. Safety is the business and responsibility of every August Mack employee and is achieved through proper engineering, education, training, protective equipment and enforcement of safety rules. The responsibility begins at the working level and extends upward through project managers, senior managers and the highest level of ownership.

Health and safety is intrinsic for each employee. Each employee is familiar with August Mack's basic safety requirements and are required to assist their peers when an unsafe or unhealthy activity is observed. This peer involvement creates a safety culture in a manner more valuable than that established by citations from a regulatory body. The August Mack Health and Safety Program identifies the importance of correcting health and safety issues by immediate corrective action. This, in turn, helps the employee to better understand the reasons for the program and potential consequences of non-compliance. In situations where health and safety issues are observed on a consistent/routine basis or that are potentially life-threatening, disciplinary action up to and including termination is a potential outcome.

It is our desire that each member of August Mack accepts the challenge of maintaining an accident-free and healthy environment. It is the positive safety attitude, the knowledge of safe work practices and our actions that determine the success of August Mack, its employees and our clients.

Geoffrey A. Glanders
President

Bryan K. Petriko
Vice President

August Mack
ENVIRONMENTAL

Health and Safety Plan

Environmental Site Investigations

Remedial Construction

Citizens Energy Prospect Facility

2950 Prospect St.

Indianapolis, IN 46202

Table of Contents

Approvals

This Site-Specific Health and Safety Plan (HASP) has been written for use by August Mack Environmental (AME) and AME subcontractors supervised by AME only. The plan is written for the specific site conditions and identified scope(s) of work and must be amended if those conditions or the scope(s) of work change. Revisions to this HASP must be documented below:

By approving this HASP

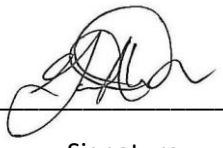
- The Health and Safety Manager certifies that the personal protective equipment has been selected based on the project-specific hazard assessment.
- The Project Manager certifies that all anticipated work activities, including potential hazardous substance(s) encountered on the project are identified in the detailed description of work.

Approval

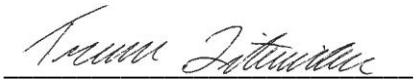
August Mack Environmental Health and Safety Manager

Shannon Switzer		3/15/2017
Print	Signature	Date

August Mack Environmental Project Manager

Garrett Welch		3/15/2017
Print	Signature	Date

August Mack Environmental Field/Site Supervisor

Trevor Litwiller		3/15/2017
Print	Signature	Date

Revision(s)

Description of Revision(s):

_____

_____

H&S Manager Revision Approval

_____	_____	_____
Print	Signature	Date

1.0 Site Specific Health and Safety Plan Summary

Section 1.01 Project Description

The Board of Directors for Utilities of the Department of Public Utilities of the City of Indianapolis, d/b/a Citizens Energy Group and f/k/a Citizens Gas & Coke Utility, as successor trustee of a public charitable trust and its predecessor trustee ("Citizens") operated a gas manufacturing plant located at 2950 Prospect Street in Indianapolis, Indiana (the "Prospect Facility"). Over the course of its operation, the Prospect MGP produced manufactured gas that was distributed to customers through the Citizens gas utility distribution system. The Prospect MGP also produced metallurgical coke and other by-products. Citizens enrolled the Prospect MGP site in the IDEM VRP in 2005 to address environmental impacts associated with these historic manufacturing operations.

The Facility was assigned VRP #6050203 and divided into four separate geographic areas: Southeastern, Gas Supply, Coal Storage, and Batteries & By-Products.

1) Southeastern/West Bank – located in the northern portion of the Site, west of Pleasant Run. This portion occupies approximately 15 acres.
2) Gas Supply – located in western portion of the Site, west of Pleasant Run. This portion of the Site occupies 17 acres.
3) Coal Storage – located in the northeastern portion of the Site, east of Pleasant Run. This portion of the Site occupies approximately 15 acres.
4) Batteries/By-Products - located in the south-central portion of the Site. This portion of the Site occupies approximately 40 acres and includes most of the previous production areas of the facility.

In correspondence dated August 10, 2009, IDEM agreed Citizens could conduct investigations and prepare separate Remediation Work Plans (RWPs) for each of these four distinct parcels following a phased approach. During subsequent discussions with IDEM, it was decided that the RWPs for Coal Storage and Batteries & By-Products would include the proposed remedial actions for Pleasant Run Creek (PRC).

Multiple phases of sediment investigation activities were conducted within PRC from 2012 through 2016 and isolated "hot spots" of ecological risk were identified. Citizens submitted an Interim Measure (IM) Work Plan on December 15, 2016 which provided the most recent investigation results and details the IM strategy to address the "hot spots" within PRC. Citizens believes that even though the identified impacts within PRC do not pose an acute risk to human receptors, they nonetheless warrant the need for addressing during the IM. Furthermore, community stakeholders have communicated their interest in improving the quality of PRC, and the IM is a necessary step in that process.

Section 1.02 Contaminants of Concern

Contaminants of Concern			
Contaminant	**Exposure Limit**	**IDLH**	**Symptoms and Effects of Exposure**
Arsenic	0.5 mg/m^3	ND	Eye, nose, skin, and respiratory irritation; respiratory distress, muscular tremors, live damage
Ammonia	PEL 50 ppm	300 ppm	Skin, eye, and respiratory irritation
Benzene	1 ppm	500 Ca	Eye, nose, skin, and respiratory irritation; headache; nausea; dermatitis; fatigue; giddiness; staggered gait; bone marrow depression
Benzo(a)anthracene	0.2 mg/m^3	ND	Skin, eye, and respiratory irritation
Benzo(a)pyrene	0.2 mg/m^3	ND	Skin, eye, and respiratory irritation
Cyanide	11mg/m	50ppm	Skin, eye, and respiratory irritation
Lead	0.05 mg/m	100mg/m	Skin, eye, and respiratory irritation
Naphthalene	10 ppm	250 ppm	Skin, eye, and respiratory irritation; profuse sweat, renal shutdown, nausea
Toluene	PEL 200 ppm C 300 ppm	500 ppm	Skin, eye, and respiratory irritation
Xylene	PEL 100 ppm STEL 150 ppm	500 ppm	Skin, eye, and respiratory irritation

Potential Routes of Exposure		
Dermal: Contact with contaminated media. This route of exposure is minimized through proper use of PPE, as specified in Section 4.	Inhalation: Vapors and contaminated particulates. This route of exposure is minimized through proper respiratory protection and monitoring, as specified in Sections 4 and 5, respectively.	Other: Inadvertent ingestion of contaminated media. This route should not present a concern if good hygiene practices are followed (e.g., wash hands and face before drinking, eating or smoking).

Project personnel are potentially exposed to these contaminants when airborne aerosol, mists, or dust concentrations are generated in personnel breathing zones. The potential routes of exposure include inhalation of contaminated airborne dust and ingestion. See the Chemical Health Hazard section for health hazards associated with the standard contaminants of concern.

Section 1.03 Project Team

Project Role	Name	Phone Number
Senior Project Manager	Joel Ruselink	317-748-7982
Project Manager	Garrett Welch	317-354-6433
Construction Manager	Eric Likens	317-409-3242
Corporate H&S Manager	Shannon Switzer	317-916-3142
Site Safety Officer	Greg Utz	219-669-4695
EFS Field Supervisor Manager	Kevin Chapman	812-343-0163
AME Field Supervisor Manager	Trevor Litwiller	217-781-0377
Quality Control Manager	Alex Tihen	636-577-2306
Field Inspector	Alex Haberfield	317-605-8846

Section 1.04 Emergency Action Plan

In the event of an emergency, site personnel are evacuated and do not participate in emergency response activities. In the event of an emergency that necessitates an evacuation, site workers will evacuate to the severe weather shelter marked out on the site map. The rally point for all other emergencies will be the guard building on the south side of the property near Prospect Street.

In the event of severe weather, site workers shall shelter in place in on site buildings or the work vehicle. Monitor weather conditions and in the event of a tornado, site workers shall procedure to the severe weather shelter displayed in the site map below.

Section 1.05 Emergency Information

Emergency Response Organization	Contact	Address/Location	Telephone
Ambulance/EMS	911		911
Police	IPD	1150 Shelby St Indianapolis, IN	911 (317) 327-6300
Fire Department	IFD	1715 East Washington Street	911
Primary Medical Facility	Community Hospital East	1500 N Ritter Ave, Indianapolis IN 46219	911 or 317-355-5457
Secondary Medical Facility (if necessary)	IU Methodist Hospital	1701 N Senate Blvd Indianapolis, IN 46202	
Gas Utility	Citizens	2020 N Meridian St. Indianapolis, IN 46202	(317)-924-3341
Water Utility	Citizens	2020 N Meridian St. Indianapolis, IN 46202	(317)-924-3341
Electric Utility	IPL	2102 N Illinois St. Indianapolis, IN 46202	(888) 261-8222
Hazardous Materials Response Team	NA	NA	NA
Confined Space Rescue Services	NA	NA	NA
August Mack Project Manager	Garrett Welch	1302 N Meridian St., Suite 300, Indianapolis, IN 46202	(317)-354-6433
H&S Manager	Shannon Switzer	1302 N Meridian St., Suite 300, Indianapolis, IN 46202	(317)-775-2557
Client Emergency Contact	John Havard	2150 Dr. Martin Luther King Jr. St. Indianapolis, Indiana 46202	(317) 693-8716

Section 1.06 Personal Protective Equipment

Work Activity	Level of PPE	PPE Required	Upgrade
Utility Locating	Modified Level D	Hard Hat, Safety Glasses, Steel Toe Boots, High Vis Clothing (Vest Minimum)	NA
Saw Cutting	Modified Level D	Hard Hat, Safety Glasses, Steel Toe Boots, Cut Resistant Gloves, Hearing Protection, , Long Sleeved Shirt, Work Pants, High Vis Clothing (Vest Minimum)	Full Face Respirator if wet methods are not used Face shield when using handheld concrete saw
Drilling	Modified Level D	Hard Hat, Safety Glasses, Steel Toe Boots, Cut Resistant Gloves, Hearing Protection, High Vis Clothing (Vest Minimum)	Respirator > AL Coveralls > Direct Contact
Air Knife	Modified Level D	Hard Hat, Safety Glasses, Steel Toe Boots, Cut Resistant Gloves, Hearing Protection, High Vis Clothing (Vest Minimum), Face Shield	Respirator > AL Coveralls > Direct Contact
Hydro Excavation	Modified Level C	Hard Hat, Safety Glasses, Steel Toe Rubber Boots, Nitrile inner and Rubber outer Gloves, Hearing Protection, High Vis Clothing (Vest Minimum), Chemical Resistant coveralls, Face Shield	Respirator > AL
Heavy Equipment Operation	Modified Level D	Hard Hat, Safety Glasses, Steel Toe Boots, Cut Resistant Gloves, High Vis Clothing (Vest Minimum)	Hearing protection for open cab Respirator > AL Coveralls > Direct Contact
Use of Hand Tools	Modified Level D	Hard Hat, Safety Glasses, Steel Toe Boots, Cut resistant gloves	Respirator > AL Coveralls > Direct Contact
Logging and Screening soil samples	Modified Level D	Hard Hat, Safety Glasses, Steel Toe Boots, Nitrile Gloves	Hearing Protection > 85 db Respirator > AL
Groundwater sampling and gauging	Modified Level D	Hard Hat, Safety Glasses, Steel Toe Boots, Nitrile Gloves	Hearing Protection if exposed to noise > 85 dba
Well Abandonment	Modified Level D	Hard Hat, Safety Glasses, Steel Toe Boots, Work gloves	Hearing Protection if exposed to noise > 85 dba
Pressure Washing Equipment Decontamination	Modified Level D	Hard Hat, Steel Toe Boots, Hearing Protection, safety glasses, face shield, rain pants and coat or poly coated Tyvek, boot covers	NA

Section 1.07 Air Monitoring

Hydrocarbons, BTEX, and VOCs

For site where Hydrocarbons, BTEX, and VOCs are the contaminant of concern (including gasoline), Benzene shall be the initial trigger for screening due to its low permissible exposure limit of 1 ppm. If Benzene is not confirmed by the use of a detector tube, then for PAH sites Naphthalene shall be the next constituent to confirm/deny presence. Use the following screening and sampling process.

Field Screening Process

- Establish an area background level with PID. All action limits are based on levels above background.
- Less than 2PPM - No Action
- 2 PPM or greater (PEL x CF)– Use detector tube to confirm Benzene
- If Benzene is confirmed and the concentration is between 1-5 PPM - Evacuate or Don Full Face (FF) Respirator
- Up to 50 PPM Benzene – Don FF Respirator
- Greater than 50 PPM Benzene– Evacuate
- If Benzene is not confirmed and concentration is < 25 PPM – No Action
- If Concentration is 25 PPM or greater – Use detector tube to confirm Naphthalene
- If Naphthalene is confirmed and concentration is between 25 and 37 PPM (PEL x CF) – Evacuate or Don FF Respirator
- Up to 250 PPM Naphthalene – FF Respirator
- Greater than 250 Naphthalene - Evacuate

Section 1.08 Odor Control

Work activities will create conditions that may generate dust and odor within the work area. Work practice will be suited to aid in controlling both dust and odor.

1. **Monitoring** – monitoring will be performed throughout the project to evaluate the effectiveness of these odor and dust control procedures and to make continuous and ongoing improvements in work practices. This monitoring will include routine inspections of the work and perimeter areas. Air monitoring for the work areas will occur morning, midday, and late afternoon throughout the work to ensure that concentration levels are below all thresholds.

2. **Record Keeping & Response Action** – Records will be maintained on-site during work activities, documenting air monitoring results.

    a. **TOV Data Evaluation and Response –** The primary constituents of concern that TOV readings will be monitored for include: Naphthalene, Benzene, and Xylene. It is important to note that Naphthalene has a very low odor threshold (0.084 ppm), causing strong odor prior to reaching the established OSHA Permissible Exposure Limit (PEL) of 10 ppm.

        i. If TOV results in excess of 1 parts per million (ppm) above established background levels on the site perimeter, additional odor control measures will be implemented (i.e.

additional water spray, foam application, revised work practices, etc.). If TOV results in excess of 2 ppm above the established background levels, field personnel will draw benzene tubes to confirm levels are below OSHA requirements found in the on-site HASP. If TOV results in excess of 5 ppm are observed above the established background level at the work perimeter, work will temporarily be halted until activities, including control measures, can be conducted in a manner which controls TOVs to less than 5 ppm at the exclusion perimeter.

b. Particulate Data Evaluation and Response – Airborne fugitive dust will be monitored downwind on the site perimeter using a Dusttrak Aerosol Monitor equipped with a particulate alarm system. If airborne fugitive dust is recorded greater than ten (10) microns, an alarm will sound triggering the need for additional dust suppression techniques. Additional work practices will be implemented including: additional water spray, foam application, revised work practices, etc.

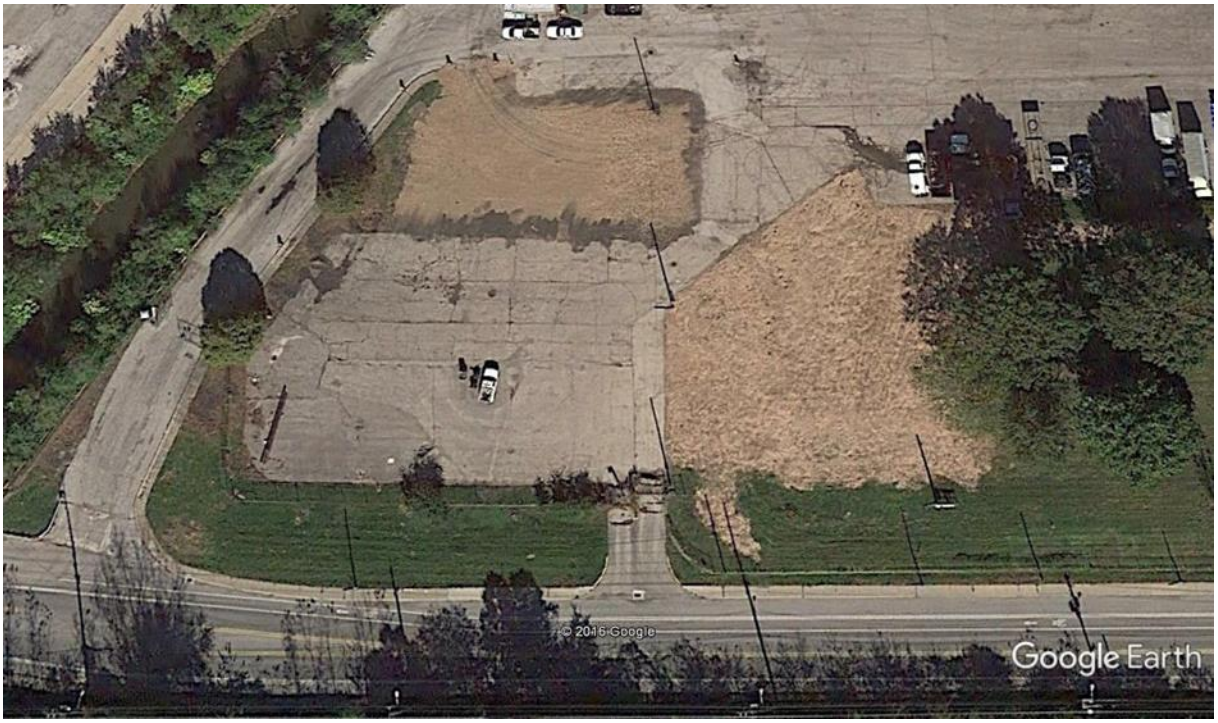
c. Foaming – The project team will have a foaming unit on-Site to apply if odorous or impacted material is uncovered or staged prior to direct disposal. The foam will be applied as needed to ensure that odors are kept at a minimum.

d. Record Keeping – Written monitoring logs will be kept and recorded on a daily basis through the duration of the excavation activities. If strong odors are observed, additional work zone monitoring will be conducted hourly.

Section 1.09 Site Map

2950 Prospect Street Indianapolis, Indiana 46202

Emergency Points: Vehicles Rally to Front Entrance



Section 1.10 Hospital Route

1500 N Ritter Ave., Indianapolis 46219

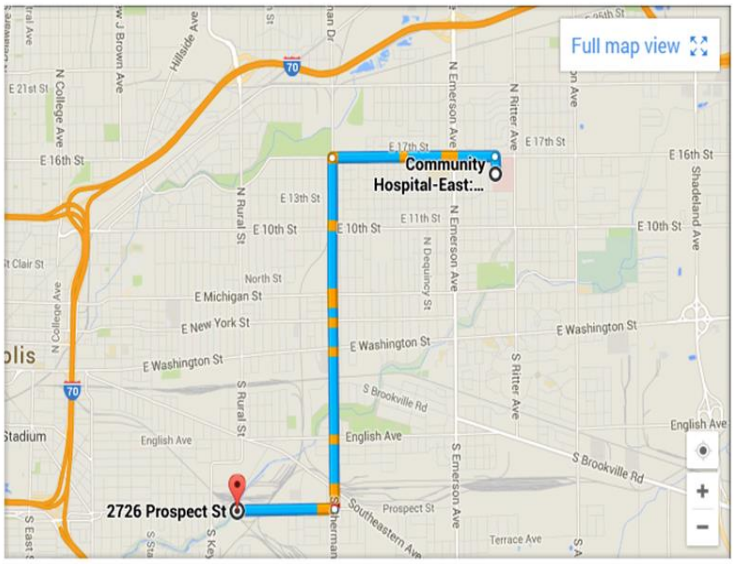
○ Community Hospital-East: Koerwitz Sara M MD
1500 N Ritter Ave, Indianapolis, IN 46219

1. Head east — 167 ft
2. Turn right toward E 16th St — 0.1 mi
3. Turn left onto E 16th St — 1.4 mi
4. Turn left onto N Sherman Dr — 2.5 mi
5. Turn right onto Prospect St — 0.8 mi

Destination will be on the right

◉ 2726 Prospect St
Indianapolis, IN 46203

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.



2.0 Project Background

Section 2.01 General Project Description

PRC is an urban waterway approximately 12 miles in length located in the south and east portions of the City of Indianapolis. The headwaters are approximately six miles upstream (northeast) of the Prospect Facility. Due to its location within Indianapolis, PRC receives surface and ground water discharges from a large urban and industrial watershed that covers a drainage area of approximately 14,000 acres. Among other things, discharges include intermittent CSOs from 46 locations within the watershed. Approximately 3,000-feet of PRC bisects the Prospect facility.

The PRC IM has been designed to address "hot spots" identified within PRC during previous investigation activities. These "hot spots" represent areas of elevated potential for ecological risk. The objectives of the PRC IM are to remove surficial impacted sediments, isolate groundwater and surface water interaction through the use of a low permeability cap, and restore the disturbed portions of the PRC in accordance with the restoration plan that was approved by the United States Army Corp of Engineers (USACE).

Section 2.02 Removal Action Objectives

The objectives of the PRC IM are to remove surficial impacted sediments from PRC and then to isolate surface water from impacted sediments and groundwater to improve ecological conditions. The design objective will be satisfied through the installation of a low-permeability barrier within the creek channel. Following installation of the low-permeability cap, the creek channel will be restored to stable conditions and armored to protect against erosion and scour.

The objectives of the IM will be satisfied by implementing the following scope of work:

- Reducing groundwater hydrostatic pressure beneath the low permeability cap by expanding the current groundwater capture system
    - Will include installation of water and product wells with associated piping to existing treatment system.
- Dewatering the areas identified for the IM (approximately 2,000 linear feet) via the use of a low head dam and a pump around system;
- Removing surficial impacts and disposing of this material off-Site under an approved waste profile and manifest;
- Installing a low permeability cap within the excavated areas to isolate any remaining underlying impacted sediment and groundwater from the surface water;
- Restoring and improving the creek channel in accordance with a USACE agency approved restoration plan; and,

Section 2.03 Project Roles and Responsibilities

All personnel and visitors on this site must comply with the requirements of this HASP. The specific responsibilities and authority of management, safety and health, and other personnel on this site are detailed in the following paragraphs. In general:

- The CM and PM has the responsibility and authority to direct all site activities.
- The H&S Manager has the responsibility and authority to develop and implement this HASP and verify compliance.
- Other site personnel must clearly understand and abide by the requirements of this HASP.
- The lines of authority & responsibility must be clearly communicated to all site personnel.

(a) Senior Manager/Project Manager

The Senior Manager and Project Manager are responsible for providing adequate resources (budget and staff) for project- specific implementation of the HASP. Responsibilities include:

- Ensuring all anticipated work activities are identified and described in this HASP.
- Ensure potential exposures to hazardous substances are identified and described in this HASP.
- Stopping, halting and/or rescheduling field activities if an unknown health and/or safety hazard is recognized.
- Adhering to August Mack Corporate H&S Programs and Policies.
- Select safe and competent subcontractors by choosing potential subcontractors based on technical ability and Health and Safety performance;
- Ensuring Health and Safety submittals, subcontract agreements, and appropriate site-specific safety procedures are in place and accepted prior field mobilization.
- Ensuring that acceptable certificates of insurance, including August Mack as named additional insured, are secured as a condition of subcontract award;
- Ensure copies of training and medical monitoring records, and site-specific safety procedures are being maintained in the project file accessible to site personnel.
- Provide oversight of subcontractor work practices.
- Ensure that the overall, job-specific, Health and Safety goals are fully and continuously implemented.

(b) Construction Manager

The CM is responsible for field operations and implementation of the work. The CM ensures the implementation of the HASP requirements and procedures in the field. The specific responsibilities of the CM are:

- Verify that workers understand how to do the work they have been assigned, this includes verifying their ability to utilize tools/equipment necessary to perform the work.
- Identify and point out hazards associated with the work being performed.
- Ensure workers understand the hazards associated with the work they have been assigned.
- Verify that workers have the correct tools and equipment to perform the work safely.
- Verify that workers have the correct PPE for the hazards they are exposed to and that the workers are wearing the PPE as required.
- Verify that workers adhere to policies, procedures and plans that apply to the work they are performing.
- Verify, through inspection, that the workers are performing work according to described work practices.
- Communicate to employees that they should stop work and inform you if they are unsure on how to perform work safely and/or if an unknown/unexpected hazard arises from the work being performed.
- If an injury occurs on the project, ensure the injured receive appropriate levels of care. Report the incident to the Senior Manager and the SSC immediately.
- Conduct daily safety tailgate meetings in the morning.

- Coordinate with the H&S Manager on current project safety and health.
- Ensuring site work complies with the requirements of this HASP.
- Stopping, halting and/or rescheduling field activities if an unknown health and/or safety hazard is recognized.
- Provide oversight of subcontractor work practices.
- Ensure adherence to August Mack Corporate Health and Safety Programs and Policies.

(c) Site Safety Officer (SSO)

The SSO has full responsibility and authority to develop and implement this HASP and to verify compliance. The SSO reports to the CM and is supported by the Corporate Health and Safety Manager. The SSO is on site or readily accessible to the site during all work operations and has the authority to halt site work if unsafe conditions are detected. The specific responsibilities of the SSO are:

- Managing the safety and health functions on this site.
- Serving as the site's point of contact for safety and health matters.
- Ensuring site monitoring, worker training, medical surveillance, and effective selection and use of PPE.
- Assessing site conditions for unsafe acts and conditions and providing corrective action.
- Assisting the preparation and review of this HASP.
- Maintaining effective safety and health records as described in this HASP.

(d) Site Workers

Site workers are responsible for:

- Complying with this HASP.
- Using the proper PPE.
- Reporting unsafe acts and conditions.
- Halting work when unrecognized hazards are identified.
- Following the lines of authority established for this project site.
- Understanding how to perform the work assigned to them. If a worker is unsure how to do something, the worker should discuss the work with their supervisor.
- Site workers should understand the hazards associated with the work they are performing and be able to identify potential hazards.
- Halt work if an unanticipated hazard arises during the course of work. Notify the supervisor of changing work conditions.
- Halt work and inform the supervisor if the correct PPE to protect workers from the hazards is unavailable.
- Wear PPE assigned based on the hazards present.
- Halt work and inform the supervisor if site workers do not have the correct tool or equipment to perform the work safely or if the tool or equipment begins to malfunction.
- Watch out for fellow employees.
- Do not cut corners or rush to get work done and in the process compromise safety.
- Attend all required trainings and meetings.
- Follow all procedures, policies, and plans.
- Report all incidents to the supervisor immediately.

(e) Subcontractors

A list of contractors will be provided in this HASP once contractors are selected.
Contractors are responsible for:

- Complying with this HASP.

- Using the proper PPE.
- Reporting unsafe acts and conditions.
- Halting work when previously unrecognized hazards are identified.
- Providing documentation that employees are qualified to perform the work as specified by the requirements of this HASP.

3.0 Emergency Response

Section 3.01 Pre-Emergency Planning

The table below lists potential emergency occurrences for Drilling and Well Installation projects. Should other potential emergencies be identified, the SSO shall add the potential emergency situation to the list and communicate the list to Site Workers.

Potential Site Emergencies		
Type of Emergency	**Source of Emergency**	**Location of Source**
Personal Injury	Equipment, vehicles, environmental conditions and/or Tools	Site Wide – Heavy equipment operation, hand tools, hazardous chemicals, water hazards
Personal Illness	Contaminants of Concern	Site Wide – contaminated materials
Fire or Explosion	Underground Utilities	Site Wide – Excavation equipment. Identified by public and private utility locate
Fire or Explosion	Fuel Source	Site Wide – Heavy Equipment and Vehicles
Electrocution	Underground and Overhead Utilities	Site Wide – Heavy Equipment Identified Site Safety Officer

Section 3.02 Emergency Equipment

Site personnel are trained to respond to incipient level fires and minor chemical releases. If the response requires a higher level of training, site workers shall implement the emergency response plan.

Emergency Equipment & Emergency PPE		
Emergency Equipment		
Specific Type	**Quantity Stocked**	**Location Stored**
Spill Kit	1 When potential for chemical spills.	Equipment Trailer/Truck

Emergency Equipment & Emergency PPE

Fire Extinguisher	1 Minimum when 5 gallons or greater flammable liquid present or hot work.	Equipment Trailer/Truck
First Aid/Bloodborne Pathogen Kit & Eye Wash	1	Equipment Trailer/Truck
Emergency PPE		
Specific Type	**Quantity Stocked**	**Location Stored**
Protective Gloves	1	First Aid & BBP Kit
Respirator	1 Per Emergency Responder	Employee Equipment Storage
Chemical resistant suites, gloves, boots	1 Per Emergency Responder	Employee Equipment Storage
Emergency Ring Buoys	1 Per work area when working near water	Within Work Zone on Stands
Personal Floatation Devices	1 Per Personnel Working In Water	Worn by Individual

Section 3.03 Emergency Response Plan

The SSO has been designated the Emergency Response Coordinator. He/she is responsible for implementing the emergency response plan and coordinates emergency response activities on this site. He/she provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures, including protection of the public and notification of appropriate authorities.

In the event of an emergency, site personnel are evacuated and do not participate in emergency response activities. As a result, this emergency response plan is designed to comply with 29 CFR 1910.38.

Section 3.04 Incident Response

In fires, explosions, or chemical releases, actions to be taken include the following:

- Notify appropriate response personnel;
- Shut down operations and evacuate the immediate work area;
- Account for personnel at the designated assembly area(s);
- Assess the need for site evacuation, and evacuate the site as warranted;
- Implement Incident Notification, Reporting and Investigation procedure; and
- Notify and submit reports to clients as required in contract.
- Small fires or spills posing minimal safety or health hazards may be controlled with onsite spill kits or fire extinguishers without evacuating the site. When in doubt evacuate. Follow the incident reporting procedures described in this HASP.

Section 3.05 Emergency Responders

- Site workers have been trained in First Aid, Adult CPR and Automated External Defibrillator operations.
- Emergency medical treatment is needed when there is a life-threatening injury (such as severe bleeding, loss of consciousness, breathing or heart has stopped). When in doubt if an injury is life-threatening or not, treat it as needing emergency medical treatment.
- Notify 911 or other appropriate emergency response authorities as listed in the Emergency Contacts table located in Section 1.
- The SSO will assume charge during a medical emergency until the ambulance arrives or until the injured person is admitted to the emergency room.
- Prevent further injury, perform decontamination (if applicable) where feasible; lifesaving and first aid or medical treatment takes priority.
- Initiate first aid and CPR where feasible.
- Follow the Incident Reporting procedures in Section 14 of this HASP.

Section 3.06 Evacuation Signals

- The SSO shall determine the appropriate method for communicating the need to evacuate the work areas to the site workers.
- In most situations, the need to evacuate will be a verbal communication.
- Occasionally workers communicate via cell phones or radios.

- The SSO may determine that the need for a signal is necessary due to the arrangement of the work site. In those situations, an air horn may be used to communicate the need to evacuate.
- If the project site has an emergency alert system, the signal tones shall be communicated to the site workers prior to starting work on the first day.

Section 3.07 Evacuation

- Evacuation routes, assembly areas, and severe weather shelters (and alternative routes and assembly areas) are to be specified on the site map.
- Evacuation route(s) and assembly area(s) will be designated by the SSO before work begins.
- Personnel will assemble at the assembly area(s) upon hearing the emergency signal for evacuation.
- The SSO and a "buddy" will remain on the site after the site has been evacuated (if safe) to assist local responders and advise them of the nature and location of the incident.
- The SSO will account for all personnel in the onsite assembly area.
- A designated person will account for personnel at alternate assembly area(s).
- The SSO will follow the incident reporting procedures in the as described in this HASP.

Section 3.08 Storm Shelters

Inclement weather, including severe thunderstorms and tornados, may occur at the project site.

During lightning storms, all work must stop. Seek shelter immediately inside of a safe location.

Field crew members shall carry clothing appropriate for bad weather. In severe weather conditions, (i.e., high wind or electrical storms), the field crews should leave the area and find shelter until the weather abates and field activities can continue or until a decision is made to halt the field activities.

The lightning safety policy is 30-30: seek refuge when thunder sounds within 30 seconds after a lightning flash, and do not resume activity until 30 minutes after the last thunder clap. Alternately, lightening detectors or reliable applications (i.e. Weather Bug Spark) can be used to determine the nearest lightning strike and when to take shelter.

Other precautions include:

- Know where to go and how long it will take to get there. If possible, take refuge in a large building or vehicle. Do not go into a shed in an open area.
- The inclination to see trees as enormous umbrellas is the most frequent and most deadly mistake. Do not go under a large tree that is standing alone. Likewise, avoid poles, antennae and towers.
- Stay away from lakes, streams, pools, or any water.
- Stay away from railroad tracks that can carry lightning charges for long distances.
- If the area is wide open, go to a valley or ravine, but be aware of flash flooding.
- If you are caught in a level area such as a prairie or field during an electrical storm, and you feel your hair stand on end, drop to your knees, bend forward and put your hands on your knees or crouch. The idea is to make you less vulnerable by being as low to the ground as possible and taking up as little ground space as possible. Lying down is dangerous, since the wet earth can conduct electricity. Do not touch the ground with your hands.
- Do not use telephones during electrical storms, except in the case of emergency.
- High wind can create hazards by blowing material around a worksite or strong gusts can increase risk for falling when working at heights. Ensure all loose material is secure to prevent wind from moving the

objects and suspend all work from ladders, scissor and aerial lifts, scaffolds, and work platforms if wind speeds increase to 20 MPH or higher.

4.0 Safety Planning and Communication

Section 4.01 Pre-Task Planning

Prior to initiating work activities, each day the SSO, is responsible for reviewing the daily activities, Activity Hazard Analysis's, and site hazards with the site workers. This process consists of understanding the scope of the work, determining how to set up the work zones and equipment storage areas, inspecting this site for hazards including overhead and underground utilities.

Section 4.02 Daily Tailgate Meeting

Prior to beginning field activities each day, the SSO shall conduct a Tailgate Meeting with all site workers to review the hazards of the planned activities. All participants shall document his/her attendance at the Tailgate Meeting on the Tailgate Meeting Form.

Section 4.03 STOP Work

All employees have the right and authority to stop work if an unsafe action or condition is observed. When an apparent imminent danger is observed, immediately stop work and alert all affected individuals. Remove all affected personnel from the danger, notify the Site Supervisor and SSO, and do not allow work to resume until adequate corrective measures are implemented. When repeated non-compliance or unsafe conditions are observed, notify the Corporate Health and Safety Manager and Project Manager.

Section 4.04 Take 5 Program

AME has implemented a safety awareness program intended to improve the recognition and control of hazards encountered in the field. The Take 5 program consists of employees taking 5 minutes to perform 5 steps prior to starting a job. At the beginning of each job Take 5 minutes to perform these 5 steps towards accident prevention.

Take 5 for safety

- Stop, step back and observe your work area
- Walk through the task
- Identify hazards
- Control and communicate the hazards
- Safely complete the task

5.0 Personal Protective Equipment

PPE must be worn by employees when actual or potential hazards exist and engineering controls or administrative practices cannot adequately control those hazards.

A PPE assessment has been conducted by the Corporate Health and Safety Manager based on project tasks (see PPE specifications below). Below are items that need to be followed when using any form of PPE:

- Employees must be trained to properly wear and maintain the PPE.
- Employees must be trained in the limitations of the PPE.
- In work areas where actual or potential hazards are present at any time, PPE must be worn by employees working or walking through the area.
- Areas requiring PPE should be posted or employees must be informed of the requirements in an equivalent manner.
- PPE must be inspected prior to use and after any occurrence to identify any deterioration or damage.
- PPE must be maintained in a clean and reliable condition.
- Damaged PPE shall not be used and must either be repaired or discarded.
- PPE shall not be modified, tampered with, or repaired beyond routine maintenance.

Section 5.01 Levels of PPE

Level A - To be selected when the greatest level of skin, respiratory, and eye protection is required.

- Positive pressure, full face-piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA, approved by the National Institute for Occupational Safety and Health (NIOSH).
- Totally-encapsulating chemical-protective suit.
- Coveralls.(1)
- Long underwear.(1)
- Gloves, outer, chemical-resistant.
- Gloves, inner, chemical-resistant.
- Boots, chemical-resistant, steel toe and shank.
- Hard hat (under suit).(1)
- Disposable protective suit, gloves and boots (depending on suit construction, may be worn over totally-encapsulating suit).
- Footnote (1) Optional, as applicable.

Level B - The highest level of respiratory protection is necessary but a lesser level of skin protection is needed.

- Positive pressure, full-face piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).
- Hooded chemical-resistant clothing (overalls and long-sleeved jacket; coveralls; one or two-piece chemical-splash suit; disposable chemical-resistant overalls).
- Coveralls.(1)
- Gloves, outer, chemical-resistant.
- Gloves, inner, chemical-resistant.
- Boots, outer, chemical-resistant steel toe and shank.
- Boot-covers, outer, chemical-resistant (disposable).(1)
- Hard hat.(1)
- Face shield.(1)
- Footnote (1) Optional, as applicable.

Level C - The concentration(s) and type(s) of airborne substance(s) is known and the criteria for using air purifying respirators are met.

- Full-face or half-mask, air purifying respirators (NIOSH approved).
- Hooded chemical-resistant clothing (overalls; two-piece chemical-splash suit; disposable chemical-resistant overalls).
- Coveralls.(1)
- Gloves, outer, chemical-resistant.
- Gloves, inner, chemical-resistant.
- Boots (outer), chemical-resistant steel toe and shank.(1)
- Boot-covers, outer, chemical-resistant (disposable).(1)
- Hard hat.(1)
- Escape mask.(1)
- Face shield.(1)
- Footnote (1) Optional, as applicable.

Level D - A work uniform affording minimal protection: used for nuisance contamination only.

Coveralls.

- Gloves.(1)
- Boots/shoes, chemical-resistant steel toe and shank.
- Boots, outer, chemical-resistant (disposable).(1)
- Safety glasses or chemical splash goggles.(1)
- Hard hat.(1)
- Escape mask.(1)
- Face shield.(1)
- Footnote (1) Optional, as applicable.

The table below outlines PPE to be used according to task based on project-specific hazard assessment. If a task other than the tasks described in this table needs to be performed, contact the Corporate Health and Safety Manager so this table can be updated.

Section 5.02 Project Required PPE

General PPE to be worn onsite at all times include Hard Hat, Safety Glasses, Hi Vis Vest or shirts, Safety shoes or boots. Other PPE, such as hearing protections and work gloves, shall be worn based on the task being performed. See the PPE table in Section 1 for task specific PPE requirements.

General:

- No eating, drinking, chewing or smoking permitted within the exclusion areas.
- Hearing protection should be worn when conversations cannot be held at distances of 3 feet or less without shouting.
- Cartridge change-out schedule is at least every 8 hours (or one work day) for vapor cartridges.
- Prescription safety glasses shall have permanent hard side shields and ANSI approved frames and lenses or over glasses are required.
- Work clothes are defined as clothing suitable for the weather and work conditions. The minimum for field work shall be short/long sleeve shirt, long trousers, and leather or other protective work shoes or boots. Shorts, T-shirts, rolled up sleeves or open shirts are not considered acceptable work clothes.
- Shaded or tinted safety glasses are only acceptable to wear when working outside during daylight conditions.

Section 5.03 Respiratory Protection

Implement the following when using respiratory protection:

- Respirator users must have completed appropriate respirator training within the past 12 months.
- Respirator users must complete the respirator medical monitoring protocol and been approved for the specific type of respirator to be used.
- Tight-fitting face piece respirator (negative or positive pressure) users must have passed an appropriate fit test within past 12 months.
- Respirator use shall be limited to those activities identified in this plan. If site conditions change that alters the effectiveness of the specified respiratory protection notify the Corporate Health and Safety Manager of the condition.
- Tight-fitting face piece respirator users shall be clean-shaven and shall perform a user seal check before each use.
- Respirator users shall notify the SSO of any detection of vapor or gas breakthrough.
- Respirators in regular use shall be cleaned and disinfected as often as necessary to ensure they are maintained in a clean and sanitary condition.
- Respirators shall be properly stored to protect against contamination and deformation.
- Field repair of respirators shall be limited to routine maintenance. Defective respirators shall be removed from service.

Respirator Change-Out Schedule

Contaminant	Change-Out Schedule
NA	NA
NA	NA

6.0 Project Specific Hazards

Section 6.01 Activity Hazard Analysis (AHA)

An AHA must be developed for each anticipated job activity. The AHA shall define the work tasks required to perform each activity, along with potential hazards and recommended control measures for each hazard. Workers are briefed on the AHA before performing the work and their input is solicited prior, during, and after the performance of work to further identify the hazards posed and control measures required. AHAs for anticipated activities are included at the end of this HASP.

Section 6.02 Contaminants of Concern

The typical contaminants of concern on environmental investigation sites include:

Contaminant of Concern	Exposure Limit	IDLH
Benzene	PEL 1 PPM STEL 5 PPM	500 PPM (CA)
Naphthalene	PEL 10 PPM STEL 15 PPM	250 PPM
Toluene	PEL 200 PPM C 300 PPM	500 PPM
Xylene	PEL 100 PPM STEL 150 PPM	900 PPM
Arsenic	PEL 0.010 mg/m^3	NA
Lead	PEL 0.050 mg/m^3	100 mg/m^3

Project personnel are potentially exposed to these contaminants when airborne aerosol, mists, or dust concentrations are generated in personnel breathing zones. The potential routes of exposure include inhalation of contaminated airborne dust and ingestion. See the Chemical Health Hazard section in the Appendix for health hazards associated with the standard contaminants of concern.

Section 6.03 Clearing and Grubbing

Occasionally Remedial Construction projects include clearing, grubbing and deforestation activities. This work can include spraying vegetation with weed killer, using outdoor power tools such as weed trimmers and chainsaws. This work can also include clearing equipment such as, forestry mowers, bush hogs, and chippers. Below are basic safety tips to consider when performing clearing and grubbing activities.

- Establish a safe work area based on the activity being performed. No unauthorized personnel shall enter the work area and the area shall be large enough to ensure pedestrians outside of the work area are not exposed to the hazards of the work activity.
- Spotters shall be used during the falling of trees. The spotter shall stand outside of the fall path and ensure no personnel or equipment enter the fall path of the tree.
- Workers engaged in chainsaw activities shall don hard hats, face shields, safety glasses, hearing protection long sleeve shirts and pants, work gloves, steel toe boots, leather leg guards.
- Any attempted repair or unjamming of equipment requires the equipment to be placed in the off position and the isolated from start up by removing the ignition wire or spark plug wire.
- Do not attempt to unjam mowers or chippers unless the equipment is off and energy is isolated to prevent startup.

- Operate equipment per the manufacturer's instructions.

Section 6.04 Demolition

Demolition work involves many of the same hazards that arise during other construction activities. However, demolition also involves additional hazards due to a variety of other factors. Some of these include: lead-based paint, sharp or protruding objects and asbestos-containing material. Prior to any demolition activity, the Demolition Competent Person shall document a Demolition Engineering survey (Attachment to this HASP) to determine the condition of the structure to be demolished and the effect the demolition will have on any surrounding structures. Below are basic safety tips to consider when performing demolition work.

- Brace or shore up the walls and floors of structures which have been damaged and which employees must enter.
- Inspect personal protective equipment (PPE) before use.
- Select, wear and use appropriate PPE for the task.
- Inspect all stairs, passageways, and ladders; illuminate all stairways.
- Shut off or cap all electric, gas, water, steam, sewer, and other service lines; notify appropriate utility companies.
- Guard wall openings to a height of 42 inches; cover and secure floor openings with material able to withstand the loads likely to be imposed.
- Floor openings used for material disposal must not be more than 25% of the total floor area.
- Use enclosed chutes with gates on the discharge end to drop demolition material to the ground or into debris containers.
- Demolition of exterior walls and floors must begin at the top of the structure and proceed downward.
- Structural or load-supporting members on any floor must not be cut or removed until all stories above that floor have been removed.
- All roof cornices or other ornamental stonework must be removed prior to pulling walls down.
- Employees must not be permitted to work where structural collapse hazards exist until they are corrected by shoring, bracing, or other effective means.

Section 6.05 Drilling

Below are the hazard controls and safe work practices to follow when working around or performing drilling.

- Do not drill until both a public and private locate has been performed.
- The drill rig is not to be operated in inclement weather.
- The driller is to verify that the rig is properly leveled and stabilized before raising the mast.
- Personnel should be cleared from the sides and rear of the rig before the mast is raised.
- The driller is not to drive the rig with the mast in the raised position.
- The driller must check for overhead power lines before raising the mast. A minimum distance of 10 feet (3 meters) between mast and overhead lines (<50 kV) is recommended.
- Increased separation may be required for lines greater than 50 kV.
- Personnel should stand clear before rig startup.
- The driller is to verify that the rig is in neutral when the operator is not at the controls.
- Do not wear loose-fitting clothing, watches, etc., that could get caught in moving parts.
- Do not smoke or permit other spark-producing equipment around the drill rig.
- The drill rig must be equipped with a kill wire or switch, and personnel are to be informed of its location.
- The driller is to verify that the rig is properly maintained.
- The driller is to verify that all machine guards are in place while the rig is in operation.
- The driller is responsible for housekeeping (maintaining a clean work area).
- The drill rig should be equipped with at least one fire extinguisher.

- If the drill rig comes into contact with electrical wires and becomes electrically energized, do not touch any part of the rig or any person in contact with the rig, and stay as far away as possible. Notify emergency personnel immediately.
- Conduct a pre-use inspection of the drill rig using the GeoProbe pre-use inspection attached to this HASP.
- Use an approved cutting device to cut open the liner. Stabilize the liner to facilitate cutting and do not cut towards yourself. Always wear cut resistant gloves when cutting core liners.

Section 6.06 Drum Handling and Movement

Below are the hazard controls and safe work practices to follow when overseeing the movement of drums or when handling drums:

- Ensure that personnel are trained in proper lifting and moving techniques to prevent back injuries.
- Ensure drum bungs and lids are secured and drums are labeled prior to moving.
- Moving drums containing material shall only be performed using a drum dolly or other material handling equipment. Workers shall not attempt to manually move drums containing material.
- Do not use a GeoProbe to move drums unless the unit is specifically designed to do so.
- When using material handling equipment to move drums, ensure that drums are secure and are not in the operator's view of the roadway.
- Prior to handling, all personnel should be warned about hazards of handling and instructed on the proper way to move drums.
- Before moving anything, determine the most appropriate sequence in which the various drums should be moved (e.g. small containers may have to be removed first to permit heavy equipment to enter and move the drums).

Section 6.07 Electrical Safety

Below are the hazard controls and safe work practices to follow when using electrical tools, extension cords, and/or other electrical-powered equipment or when exposed to electrical hazards.

- Only qualified personnel are permitted to work on unprotected energized electrical systems.
- Only authorized personnel are permitted to enter high-voltage areas.
- Employees who might from time to time work in an environment influenced by the presence of electrical energy must complete Awareness Level Electrical Safety Training.
- Do not tamper with electrical wiring and equipment unless qualified to do so. All electrical wiring and equipment must be considered energized until lockout/tagout procedures are implemented.
- Inspect electrical equipment, power tools, and extension cords for damage prior to use. Do not use defective electrical equipment, remove from service.
- EFS has selected Ground Fault Circuit Interrupters (GFCIs) as the standard method for protecting employees from the hazards associated with electric shock.
- Extension cords must be equipped with third-wire grounding. Cords passing through work areas must be covered, elevated or protected from damage. Cords should not be routed through doorways unless protected from pinching. Cords should not be fastened with staples, hung from nails, or suspended with wire.
- Electrical power tools and equipment must be effectively grounded or double-insulated and Underwriters Laboratory (UL) Listed for the work environment (i.e. outdoor use if being used outdoors).
- Operate and maintain electric power tools and equipment according to manufacturers' instructions.
- Maintain safe clearance distances between overhead power lines and any electrical conducting material unless the power lines have been de-energized and grounded, or where insulating barriers have been

installed to prevent physical contact. Maintain at least 10 feet (3 meters) from overhead power lines for voltages of 50 kV or less, and 10 feet (3 meters) plus 0.4 inches (1.0 cm) for every 1 kV over 50 kV.

- Temporary lights shall not be suspended by their electric cord unless designed for suspension.
- Lights shall be protected from accidental contact or breakage.
- Protect all electrical equipment, tools, switches, and outlets from environmental elements.

Section 6.08 Excavation

Excavation and trenching are among the most hazardous construction operations. OSHA defines an excavation as any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. A trench is defined as a narrow underground excavation that is deeper than it is wide, and is no wider than 15 feet (4.5 meters).

Cave-ins pose the greatest risk and are much more likely than other excavation related accidents to result in worker fatalities. Other potential hazards include falls, falling loads, hazardous atmospheres, and incidents involving mobile equipment. Trench collapses cause dozens of fatalities and hundreds of injuries each year.

Do not enter an unprotected trench. Trenches 5 feet (1.5 meters) deep or greater require a protective system unless the excavation is made entirely in stable rock. Trenches 20 feet (6.1 meters) deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/ or approved by a registered professional engineer.

There are different types of protective systems. Sloping involves cutting back the trench wall at an angle inclined away from the excavation. Shoring requires installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins. Shielding protects workers by using trench boxes or other types of supports to prevent soil cave-ins. Designing a protective system can be complex because you must consider many factors: soil classification, depth of cut, water content of soil, changes due to weather or climate, surcharge loads (eg., spoil, other materials to be used in the trench) and other operations in the vicinity.

Excavations and trenches be inspected daily and as conditions change by a competent person prior to worker entry to ensure elimination of excavation hazards. The Site Supervisor is the Competent Person unless otherwise designated in the HASP.

Safe access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations 4 feet (1.22 meters) or deeper. These devices must be located within 25 feet (7.6 meters) of all workers.

General Trenching and Excavation Rules

- Keep heavy equipment away from trench edges.
- Keep surcharge loads at least 2 feet (0.6 meters) from trench edges.
- Know where underground utilities are located.
- Test for low oxygen, hazardous fumes and toxic gases.
- Inspect trenches at the start of each shift.
- Inspect trenches following a rainstorm.
- Do not work under raised loads.

Section 6.09 Hand and Power Tools

Below are the hazard controls and safe work practices to follow when personnel or subcontractors are using hand and power tools.

- Tools shall be inspected prior to use and damaged tools will be tagged and removed from service.
- Hand tools will be used for their intended use and operated in accordance with manufacturer's instructions and design limitations.
- Maintain all hand and power tools in a safe condition.
- Use PPE (such as gloves, safety glasses, earplugs, and face shields) when exposed to a hazard from a tool.
- Do not carry or lower a power tool by its cord or hose.
- Portable power tools will be plugged into GFCI protected outlets.
- Portable power tools will have a three-wire grounded plug or be double insulated.
- Disconnect tools from energy sources when they are not in use, before servicing and cleaning them, and when changing accessories (such as blades, bits, and cutters).
- Safety guards on tools must remain installed.
- Store tools properly in a place where they will not be damaged or come in contact with hazardous materials.
- Tools used in an explosive environment must be rated for work in that environment (that is, intrinsically safe, spark-proof, etc.).
- Only approved cutting devices listed in section 8.10 Knife Use are permitted. Wear cut resistant gloves when using cutting devices.

Section 6.10 Heavy Equipment Operation

Only authorized employees qualified by training or previous experience are allowed to operate heavy equipment such as skid steers, backhoes, front end loaders, bulldozers, roller compactors, and excavators.

- Equipment must be checked at the beginning of each shift to ensure the equipment is in safe operating condition and free of apparent damage using the equipment inspection checklist in the appendix of this HASP. Documentation of this inspection must be maintained onsite at all times.
- Equipment must be on a stable foundation such as solid ground or cribbing; outriggers, if applicable, are to be fully extended.
- Equipment must not be used to lift personnel; loads must not be lifted over the heads of personnel.
- Equipment, or parts thereof, that are suspended must be substantially blocked or cribbed to prevent shifting before personnel are permitted to work under or between them. All controls shall be in a neutral position, with the motors stopped and brakes set.
- Equipment that is operating in reverse must have a reverse signal alarm distinguishable from the surrounding noise or a signal person when the operator's view is obstructed.
- When equipment is used near energized power lines, the closest part of the equipment must be at least 10 feet from the power lines < 50 kilovolt (kV). Provide an additional 4 feet for every 10 kV over 50 kV.

A person must be designated to observe clearances and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance visually. All overhead power lines must be considered to be energized until the electrical utility authorities indicate that they are not energized.

- Operators loading/unloading from vehicles are responsible for seeing that vehicle drivers are in the vehicle cab or in a safe area.
- The parking brake shall be set whenever equipment is parked; wheels must be chocked when parked on inclines.

- When not in operation, the blade/bucket must be blocked or grounded; the master clutch must be disengaged when the operator leaves the cab. When equipment is unattended, power must be shut off, brakes set, blades/buckets landed, and shift lever in neutral.
- Never approach operating equipment from the rear. Always make positive contact with the operator, and confirm that the operator has stopped the motion of the equipment.
- Never approach the side of operating equipment; remain outside of the swing and turning radius.
- Maintain distance from pinch points of operating equipment.
- Because heavy equipment may not be equipped with properly functioning reverse signal alarms, never turn your back on any operating equipment.
- Never climb onto operating equipment or operate contractor/subcontractor equipment.
- Never ride contractor/subcontractor equipment unless it is designed to accommodate passengers and is equipped with firmly attached passenger seat.
- Lift plans will be required before beginning the following activities:
- Lifting objects exceeding 70 percent of the equipment's load capability.
- All lifts where slopes are involved that compromise the load capability of the equipment performing the lift.
- All lifts where personnel are required to set or place materials or equipment beyond the need for simple tag lines.

Spotters are required in the following situations:

- During positioning of equipment and end-dump trucks.
- During work in congested areas.
- When access for equipment is necessary from public roads.
- Where more than one piece of equipment is being operated simultaneously in the same general work area.
- When an operator is working in an isolated area without radio communication. All equipment spotters will be required to wear reflective/high-visibility safety vests.

Section 6.11 Lock Out Tag Out

The OSHA standard for The Control of Hazardous Energy (Lockout/Tagout), addresses the practices and procedures necessary to disable machinery or equipment, thereby preventing the release of hazardous energy while employees perform servicing and maintenance activities. The standard outlines measures for controlling hazardous energies—electrical, mechanical, hydraulic, pneumatic, chemical, thermal, and other energy sources. The following steps shall be followed anytime demolition or maintenance activities occur where workers are potentially exposed to hazardous energy.

Before Lockout/Tagout

- All personnel in the affected area must be notified.
- The personnel must be aware of the hazards of that energy and how that energy can be controlled.
- The types and amounts of energy and power the equipment must be identified.

Equipment Shutdown

- Determine the sequence to isolate equipment from other operating equipment.
- If at a jobsite, consult the facility's procedures for shutting down and de-energizing the equipment.
- Shut down the system using the normal operating controls according to the manufacturers' procedures.

- Try to start equipment- it should not be able to be reactivated using the operating or any other control. The external breaker should be locked out in an open circuit mode to prevent energy from reenergizing the equipment.

Equipment Isolation

- Isolate all energy sources- secondary power supplies as well as the main one (fuel line valves, compressed air feed valves, engine cooling system, etc.). The equipment must be isolated from any energy sources.
- Never pull an electrical switch while under load, or, in other words, while the electrical device is receiving power.

Applying Lockout/Tagout Devices

- Lock and tag all energy isolation devices.
- Use a lockout device if a lock cannot be place directly on the energy control.
- When more than one person is servicing one piece of equipment, use a lockout device that allows multiple locks, or a hasp
- Fill out completely, sign, date, and fasten the tag on the lockout.

Control of Stored Energy

- Check the equipment for stored energy. Where applicable, take any of the following steps that are necessary to guard against energy left in the equipment after it has been isolated from its energy sources.
- Inspect the system to verify all parts have stopped moving.
- Relieve trapped pressure and bleed the lines and leave vent valves open.
- Release the tension on springs or block the movement of spring-driven parts.
- Drain process piping and close valves to prevent the flow.
- Verify that extreme heat or cold has dissipated.

Verify the Isolation of Equipment

- Make sure that danger areas are cleared of personnel
- Verify that the main disconnect cannot be moved to the ON position.
- Press a start button and other activating controls to verify that the equipment won't start.
- Shut off all machine controls when the testing is complete.

Perform the Work

- The equipment should not be at a zero energy state. Work can begin.

Removing the Lock/Tags

- Safety guards must be put back in place.
- Work must be complete and tools put away and accounted for.
- Workers must be positioned for safety for startup to proceed.
- The controls must be positioned correctly for startup and machine operation ready.
- The only person who applied the lock/tag should remove it. Each padlock used on equipment lockout should have only one key issued to the assigned person.

Section 6.12 Monitoring Well Installation and Development

Below are the hazard controls and safe work practices to follow when performing monitoring well installation and development.

- Wells will be installed in accordance with standard EPA procedures.

- The threaded connections on casing and screen sections will be water-tight.
- A record of the finished well construction details, including types of materials used, depths of top and bottom of screen and casing, depth of top and bottom of any materials added to the annular space between the screen and casing and the well borehole, or any additional casings, etc., will be compiled.
- All soils and liquids generated during well installations will be drummed for proper disposal according to investigative derived waste procedures or as otherwise noted in the site sampling and analysis plan.
- Well screens generally will be constructed of 10-slot or 20-slot Schedule 40 PVC and will be 5 to 10 feet in length depending on saturated thickness of unconsolidated sediments. The exact slot size and length will be determined by the field team leader. Stainless steel may be required under certain contaminant conditions.
- New monitoring wells will be developed by surging and pumping after the well has been completely installed.
- Development water will be handled in accordance with investigative derived waste procedures, and stored in a portable tank in the waste staging area.
- All equipment will be properly decontaminated as needed following decontamination procedures outlined in the decontamination section of this HASP.
- Only new, sealed materials will be used in constructing wells.
- Care will be taken when making downhole measurements to ensure the proper heights of sand, seal, and grout are achieved.
- Personnel will follow the drilling health and safety procedures outlined in this HASP during well installation and development activities.
- Wear cut resistant gloves when cutting and handling cut ends of PVC pipe.

Section 6.13 Pressure Washing

Below are the hazard controls and safe work practices to follow when pressure washing.

- Follow the manufacturer's safety and operating instructions for the pressure washer.
- Inspect pressure washer before use and confirm dead man trigger is fully operational.
- The trigger should never be tied down.
- Never point the wand at yourself or another worker.
- The wand must be at least 42 inches (1.1 meter) from the trigger to the tip and utilize greater than 10 degree tips.
- The operator must maintain good footing.
- Non-operators must remain a safe distance from the operator.
- No unauthorized attachment may be made to the unit.
- Do not modify the wand.
- All leaks or malfunctioning equipment must be repaired immediately or the unit taken out of-service.
- Polycoated Tyvek or equivalent, 16-inch-high steel-toed rubber boots, safety glasses, hard hat with face shield, and inner and outer nitrile gloves must be worn.

Section 6.14 Saw Cutting

When operating any concrete saw, there are a number of safety concerns. In general:

- Saw only as deep as job conditions require.
- Saw in a straight line. Mark the cutting line clearly so the operator can follow the line without difficulty without twisting the saw from side to side to force it back on line.

- Make sure the blade is in line with the pointer. If the pointer needs adjusting, bend the pointer so it lines up with the blade.
- Use a garden hose or sprayer to wet the area during saw cutting operations
- While Cutting, Lower the blade slowly, one notch at a time, allowing the blade to cut its own way down to desired depth. Then with a little forward pressure, allow the diamond or abrasive blade to cut as fast as possible without forcing the blade to rise out of the cut.
- If the saw should stall for any reason, raise the blade out of the cut before starting the saw again. When lowering the blade in a partially made cut, use care that the blade is aligned with the cut before lowering the blade again.
- Conventional diamond blades MUST be used wet. They will be destroyed almost instantly if used without water or with an inadequate water supply.
- Always keep the guards in place.
- Keep all parts of your body away from blade and other moving parts.
- Shut off engine and allow cooling before refueling.
- Keep other persons away from saw operation.
- Use caution when loading and unloading saw.
- Do not operate gasoline engines in enclosed areas unless properly ventilated.

Section 6.15 Rigging

Chains, slings or other rigging devices shall be adequately rated for the weight of the object/material being lifted. All chains, slings and hooks used shall have been inspected and tagged with the most recent inspection date along with the load rating. Chains, slings and hooks shall be visually inspected prior to use for obvious damage.

Section 6.16 Utilities

(a) Overhead Utilities

When work occurs within the vicinity of overhead utilities and there is the potential to contact power lines, the voltage of the power lines must be determined. Contact the utility company responsible for maintaining the lines and request the voltage of the lines and inform them of the work to be performed.

No work is to be conducted within 45 feet of overhead power lines without first contacting the utility company to determine the voltage of the system. No aspect of any piece of equipment is to be operated within 45 feet of overhead power lines without first making this determination.

Operations adjacent to overhead power lines are PROHIBITED unless one of the following conditions is satisfied:

- Power has been shut off, positive means (such as lockout) have been taken to prevent the lines from being energized, lines have been tested to confirm the outage, and the utility company has provided a verification of the outage.
- The minimum clearance from energized overhead lines is as shown in the table below, or the equipment will be repositioned and blocked to ensure that no part, including cables, can come within the minimum clearances shown in the table.

Minimum Clearance Distances	
Voltage (nominal, kV, alternating current)	**Minimum Clearance Distance (feet)**
Up to 50	10
Over 50 to 200	15

Over 200 to 350	20
Over 350 to 500	25
Over 500 to 750	35
Over 750 to 1,000	45
Over 1,000	As established by the power line owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution

(These distances have been determined to eliminate the potential for arcing based on the line voltage.)

- The power line(s) has been isolated through the use of insulating blankets which have been properly placed by the utility. If insulating blankets are used, the utility will determine the minimum safe operating distance; get this determination in writing with the utility representative's signature.
- All inquiries regarding electric utilities must be made in writing and a written confirmation of the outage/isolation must be received by the PM prior to the start of work.

(b) Underground Utilities

All subsurface projects must have utilities located prior to ground disturbing activities. No subsurface activities shall occur where the area has not been cleared by a public and private utility locate unless authorized by the Project Manager and Corporate Health and Safety. Utility locating for projects that penetrate the ground, excluding raking (this includes inside of structures) must include the following activities:

- Obtain any and all information from the property owner regarding the presence of underground utilities including but not limited to, surveys, diagrams, schematics, and other documents.
- A public utility locate must be scheduled for the project site 48 – 72 hours prior to the start of work. Call 811 to schedule a public utility locate. http://www.call811.com/

Underground facilities shall be marked in accordance with the following designated color code:

- Proposed Excavation **White**: Pre-marking of the outer limits of the proposed excavation or marking the centerline and width of proposed lineal installations of buried facilities.
- Temp Survey Markings **Pink**: Temporary Survey Markings.
- Electric **Red**: Electric power lines, cables or conduit, and lighting cables.
- Gas - Oil – Steam **Yellow**: Gas, oil, steam, petroleum, or other hazardous liquid or gaseous materials.
- Communication CATV **Orange**: Communications, cable TV, alarm or signal lines, cables or conduits.
- Water **Blue**: Water, irrigation, and slurry lines.
- Reclaimed Water **Purple**: Slurry and reclaimed.
- Sewer **Green:** Sewers, drainage facilities or other drain lines.

A private utility locate for the entire area where the disturbance is planned must be performed prior to the start of ground disturbing work. The private utility locate must be conducted by an approved subcontractor and must be performed using at a minimum, the appropriate Ground Penetrating Radar (GPR) method and Electromagnetic Induction (EM).

- Electromagnetic Induction methods shall consist of both direct connect induction, indirect induction and passive power and radio detection.
- The GPR mapping method is the preferred method for excavations, trenching, areas where UST's maybe present and larger ground disturbing work areas where the location of utilities are not known.

- Real time GPR is acceptable for small jobs where the presence of utilities is known and to clear individual drill locations that are spread out over a large area.
- If site drawings are not available and the duration of subsurface activities extends to multiple site visits, the AME project team shall create a site diagram (to be included with the project documentation) identifying the suspected locations of the utilities and/or anomalies discovered during the utility locate.
- A final verification of utility locations shall be performed internally by use of Electromagnetic Induction. Direct and indirect induction along with a passive power and radio sweeps shall be performed on the boring area (Requirement for Environmental Field Services Only).
- All utilities and anomalies shall be identified on the ground surface by either marking paint or flags. No subsurface work shall be performed if utilities are not marked.
- Once public and private utilities have been located, the site supervisor shall complete the dig permit and receive verbal approval from the Project Manager prior to subsurface activities begin. The Dig Permit is located in the attachments to this HASP.

When subsurface work occurs within three (3) feet of the identified underground utilities or an anomaly, soft digging techniques must be used for the entire footprint of the area to be disturbed (within the 3 foot distance). Do not use the following equipment within three feet of a known utility or anomaly **(never to find or expose a utility)**:

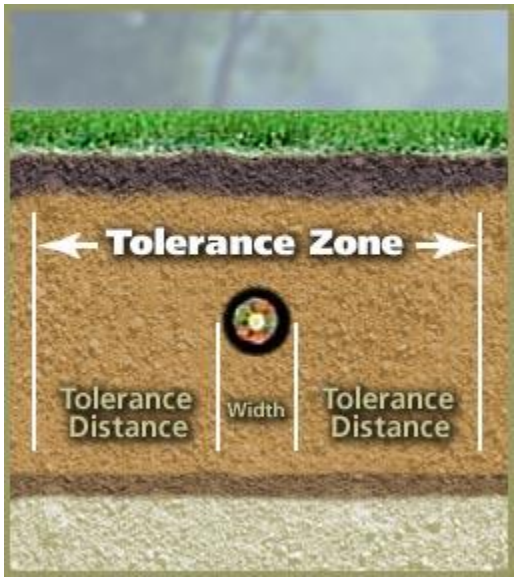
- Drill rig
- Mechanical Auger
- Excavator/power shovel/backhoe/skid steer/bulldozer
- Jack hammer/concrete saw (except to cut through concrete where the depth or the utility is known from the private utility locate)
- Pick ax
- Post hole diggers
- Hand auger
- Spud bar
- Trencher

When subsurface work must cross an identified utility or anomaly or when an identified underground utility or anomaly is within the footprint of the excavation, or within 3 feet of a drill boring, soft digging techniques must be used to identify the exact location of the utility or anomaly.

Exposing an underground utility shall be performed by use of one of the following techniques:

- Air knife – uses compressed air to create a powerful jet of air to break up soil. Soil/dirt and rocks are typically vacuumed as the stream of air loosens the earth in the excavation area. Air Knife excavation produces noise levels in excess of 90 dba's and can create a hazard of flying debris.
- Hyrdo Excavation - uses water to create a powerful stream of water to break up soil. The slurry is vacuumed as the stream of air loosens the earth in the excavation area. Hydro excavation produces noise levels in excess of 90 dba's and can create a hazard of flying debris.
- Blunt edge shovel

The exposing of an underground utility shall be performed by soft digging (using one of the three approved techniques described above) to the side of the utility marking and attempting to locate the utility by approaching from the side. Do not dig directly down on top of the utility. Do not assume to know the depth of an underground utility, they can be found at any depth. While most utilities can be located in the first three – four feet, they can be found at tens of feet deep.



Section 6.17 Well Abandonment

There are a variety of methods for abandoning a monitoring well. The process typically begins with opening the well lid and using a GeoProbe to assist in removing the well casing. Casings can be pulled up and cut and then pushed back down the well to where the top of the casing is at least three feet below the well surface. Once the casing is removed or cut, sand and or bentonite is then placed into the well to seal the well. The well pad will then be demolished with either the GeoProbe or a sledge hammer. General hazards to performing this task include:

- Strains and sprains from lifting heavy object, like the bags of sand.
- Hand tool use.
- Flying objects.
- Noise.
- The following controls should be utilized when abandoning a well.
- Wear hand protection when using cutting devices.
- Inspect hand tools prior to use.
- If using a reciprocating saw, adjust the blade so that there is only enough blade exposed to cut the diameter of the pipe.
- Wear hard hat, steel toe boots, safety glasses, and hearing protection at a minimum.
- If using tools that produce flying debris, like a pneumatic hammer, wear a face shield.
- Utilize a wheel barrel to move heavy objects.

Section 6.18 Working Around Water

Precautions must be taken when working near or around any substantial amount of water. The most immediate danger is of drowning. Factors that can contribute to this are:

- Shock from sudden immersion in cold water
- Weight of waterlogged clothing
- Life jacket not being worn (or not inflating)
- Incapacity following injury – caused by striking an object during a fall, or whilst in the water.
- Fatigue or hypothermia where rescue is not immediate.

Employees working over or near water, where the danger of drowning exists, shall be provided with U.S. Coast Guard-approved life jacket or buoyant work vests. When working on or near water consideration must also be given to the health implications of falls into the water. The water may possibly be the existing sewage discharge points.

Primary construction activities will occur "in the dry" work area as the creek is being diverted by the combination of a pump and dam system. If employees do have to enter water for pump maintenance, boom deployment or any other reason, they will wear required life vests and always have a spotter available with an additional life ring. The Storm Response Plan will be followed to ensure that no workers are put at risk during storm events.

Section 6.19 Storm Response Plan

A Storm and Emergency Response Plan will be executed in the event that PRC IM Dewatering operations are unable to effectively manage creek flow conditions.

1. Selected dewatering subcontractor will manage flows up to 10 MGD by continually pumping and diverting creek flow from upstream of the temporary dam structure and discharging water downstream of the construction footprint via above grade piping. Flow conditions will be tracked in real-time throughout the duration of the by-pass.
2. Continual monitoring of precipitation and inclement weather will occur to ensure that Site workers are aware of upcoming weather conditions and their potential impact on Site conditions. Weather monitoring will be completed by the on-Site Health and Safety Manager.
3. Flow conditions in conjunction with the daily weather forecast will be utilized to determine when to suspend activities within the creek channel.
4. If periods of rain are expected and flow conditions reach 85% of the maximum flow capacity of the by-pass pumps, then the Project team will initiate evacuation of all personnel and equipment from the creek channel.
5. Radios will be utilized to communicate the evacuation of work areas and if radios are not readily available then a blow-horn will be sounded for notification of unsafe conditions and evacuation.
6. Pumps will continue to maintain 10 MGD during a high flow event. Flow above 10 MGD will likely overtake the low head dam and pass through the work area.
7. Once flow conditions return to levels at or below 10 MGD with no further precipitation forecasted, the project team will begin the process of drying out the construction area and resuming construction activities.
8. The project team will progressively evaluate the Storm Response Plan during implementation of the IM to create efficient and safe evacuation procedures.

7.0 Air Screening and Personal Monitoring

When performing site monitoring, record all the information on the Air Sampling Log located in the Appendix of this HASP or maintain electronic data logging reports. Note date and time, describe monitoring location (for example, in breathing zone, at source and site location), and what the reading is. If any action levels are reached, note it in the field logbook and note the action taken.

Exposure records (air sampling) must be preserved for the duration of employment plus thirty years. Ensure that copies of the monitoring records are maintained in the project files and a copy is sent to the Corporate Health and Safety Manager.

Section 7.01 Breathing Zone and Work Area Screening

Subsurface Investigations will rarely produce exposures exceeding a Permissible Exposure Limit (PEL) or Threshold Limit Value (TLV), however the potential exists. The Site Safety and Health Office shall screen the breathing zone of site workers and the perimeter of the Exclusion Zone utilize a Photo Ionizing Detector (PID) at a minimum of once per hour. The frequency shall increase to every 20 minutes if odors are created from the work activity or visible contamination is discovered. Results of screening shall be documented on the air monitoring log sheet located in this HASP.

If breathing zone monitoring indicates an exposure above the action limit, the work crew shall evacuate the area for 15 minutes to allow the contaminant to disperse. Upon re-entry to the area, if the monitored air is still above the action limit, confirmation sampling shall occur. The following outlines the minimum sampling requirements for the standard projects and contaminates encountered on AME projects.

Polyaromatic Hydrocarbons

For site where Polyaromatic Hydrocarbons are the contaminant of concern (including gasoline), Benzene shall be the initial trigger for screening due to its low permissible exposure limit of 1 ppm. If Benzene is not confirmed by the use of a detector tube, then Naphthalene shall be the next constituent to confirm/deny presence. Use the following screening and sampling process for PAH's.

Field Screening Process*

- Establish an area background level with PID. All action limits are based on levels above background.
- Less than 2PPM - No Action
- 2 PPM (PEL X CF) or greater above background readings – Use detector tube to confirm Benzene
- If Benzene is confirmed and the concentration is between 1-5 PPM - Evacuate or Don Full Face (FF) Respirator
- Up to 50 PPM Benzene – Don Full Face Respirator
- Greater than 50 PPM Benzene– Evacuate
- If Benzene is not confirmed and concentration is < 25 PPM – No Action
- If Concentration is 25 PPM or greater above background – Use detector tube to confirm Naphthalene

- If Naphthalene is confirmed and concentration is between 25 and 37 PPM (PEL X CF) – Evacuate or Don Full Face Respirator
- Up to 250 PPM Napthalene – Full Face Respirator
- Greater than 250 Naphthalene - Evacuate

Confined Space Entry Air Sampling

Air monitoring is required during confined space entry. The following acceptable atmospheric conditions must be met prior to entry.

- Oxygen > 19.5% and < than 23.5%
- Lower Explosive Limit must be < 10%
- Hydrogen Sulfide must be < 10 PPM
- Carbon Monoxide must be < 25 PPM

Heavy Metals

For sites where heavy metals are a concern and inhalation of dusts containing heavy metals is possible, Action Limits for dust in the air will be determined by the Health and Safety Manager. Personal and area sampling with a dust/aerosol monitor may be required.

Section 7.02 Screening and Sampling Equipment

Equipment/Instrumentation

Use PID to periodically monitoring the breathing zone and perimeter of the Exclusion Zone.

- PID 11.7 EV Lamp use 0.6 Correction Factor (CF) (Multiply PID Reading by CF)
- PID 10.6 EV Lamp use 0.5 CF
- Sensydine Detector Tube and Pump: BENZENE-IN PRESENCE OF GASOLINE AND/OR OTHER AROMATIC HYDROCARBONS - Tube: 118SE
- Sensydine Detector Tube and Pump: NAPHTHALENE - Tube: 153U - Range: 10-100 PPM

8.0 General Health and Safety Hazards and Controls

Section 8.01 Asbestos

Asbestos is the name given to a group of naturally occurring minerals that are resistant to heat and corrosion. Asbestos has been used in products, such as insulation for pipes (steam lines for example), floor tiles, building materials, and in vehicle brakes and clutches. Asbestos includes the mineral fibers chrysotile, amosite, crocidolite, tremolite, anthophyllite, actinolite and any of these materials that have been chemically treated or altered. Heavy exposures tend to occur in the construction industry and in ship repair, particularly during the removal of asbestos materials due to renovation, repairs, or demolition.

Prior to any demolition work, the structure must have an asbestos survey performed by a certified/licensed asbestos inspector. If asbestos is found or suspected, no demolition activates may proceed until the asbestos is removed by a trained, certified and or licensed asbestos abatement worker. At no time should a site worker attempt to remove or disturb asbestos containing material.

Section 8.02 Blood Borne Pathogens (BBP)

Exposure to blood-borne pathogens may occur when rendering first aid or cardiopulmonary resuscitation (CPR), or when coming into contact with potentially infectious material (PIM).

- Employees trained in first-aid/CPR or are trained on the hazards and precautions associated with blood-borne pathogens annually. Site workers shall abide by the following precautions to prevent exposure to BBP.
- Observe universal precautions to prevent contact with blood or other PIMs. Where differentiation between body fluid types is difficult or impossible, consider all body fluids to be potentially infectious materials.
- Always wear protective gloves when performing first-aid.
- Remove contaminated PPE as soon as possible before leaving a work area.
- If necessary, decontaminate all potentially contaminated equipment and surfaces with chlorine bleach as soon as possible.
- Always wash your hands and face with soap and running water after contacting PIMs.
- Employees exposed to PIM will be provided a confidential medical examination to determine any health effects from the exposure.

Section 8.03 Chemical Storage

The following are general guidelines for storing chemicals and other hazardous materials:

- Keep acids away from bases.
- Keep oxidizers (nitric acid, nitrates, peroxides, chlorates) and organics away from inorganic reducing agents (metals).
- Keep containers closed.
- Do not store paper or other combustibles near flammables.
- Have a fire extinguisher available.

(a) Storage of Flammable/Combustible Liquids

Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids.

- Approved safety cans shall be used for the handling and use of flammable liquids in quantities of 5 gallons (22.7 liters) or less. Do not use plastic gas cans.
- Flammable or combustible liquids shall not be stored in areas used for stairways, exits or areas normally used for the passage of people.
- A 10 lb. fire extinguisher must be maintained in areas where 5 or more gallons of a flammable/combustible liquid is stored.

(b) Storage of Chemical Injection Chemicals/Materials

When chemical injection remediation technologies are being used at a site, the following storage guidelines must be followed:

- Some injection chemicals, such as strong oxidizers, may have stringent storage requirements per local or National Fire Codes. Verify that appropriate storage provisions are in place prior to starting work.
- Counties and cities may have requirements specific to storing these chemicals. Also, storage and use of certain chemicals such as potassium permanganate and hydrogen peroxide may be subject to the new Chemical Facility Anti-Terrorism Standards of the Department of Homeland Security – the applicability depends on the chemical, quantity/concentration, and type of facility. Please contact the project Environmental Manager to determine whether chemicals are subject to these standards.
- Injection chemicals must be stored in a designated, secured area with spill prevention capabilities.
- Review MSDS or other information to determine potential incompatible materials. Incompatible materials shall not be stored together. Ensure all containers are labeled.

Section 8.04 Confined Space Entry

Many workplaces contain areas that are considered "confined spaces" because while they are not necessarily designed for people, they are large enough for workers to enter and perform certain jobs. A confined space also has limited or restricted means for entry or exit and is not designed for continuous occupancy. Confined spaces include, but are not limited to, tanks, vessels, silos, storage bins, hoppers, vaults, pits, manholes, tunnels, equipment housings, ductwork, pipelines, etc.

OSHA uses the term "**permit-required confined space**" (permit space) to describe a confined space that has one or more of the following characteristics:

☐ Contains or has the potential to contain a hazardous atmosphere.

☐ Contains a material that has the potential to engulf an entrant.

- ☐ Has walls that converge inward or floors that slope downward and taper into a smaller area which could trap or asphyxiate an entrant

- ☐ Or contains any other recognized safety or health hazard, such as unguarded machinery, exposed live wires, or heat stress.

Entry into a permit required confined space requires a trained entry team consisting of an Entrant, Attendant and Supervisor.

Authorized entrants are required to:

- ☐ Know space hazards, including information on the means of exposure such as inhalation or dermal absorption, signs of symptoms and consequences of the exposure;

- ☐ Use appropriate personal protective equipment properly;

- ☐ Maintain communication with attendants as necessary to enable them to monitor the entrant's status and alert the entrant to evacuate when necessary;

- ☐ Exit from the permit space as soon as possible when:

- ☐ Ordered by the authorized person;

- ☐ He or she recognizes the warning signs or symptoms of exposure;

- ☐ A prohibited condition exists; or

- ☐ An automatic alarm is activated.

- ☐ Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist.

The attendant is required to:

- ☐ Remain outside the permit space during entry operations unless relieved by another authorized attendant;

  Perform non-entry rescues when specified by the employer's rescue procedure;

- ☐ Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences and physiological effects;

- ☐ Maintain communication with and keep an accurate account of those workers entering the permit space;

- ☐ Order evacuation of the permit space when:

☐ A prohibited condition exists;

☐ A worker shows signs of physiological effects of hazard exposure;

☐ An emergency outside the confined space exists; and

☐ The attendant cannot effectively and safely perform required duties.

☐ Summon rescue and other services during an emergency;

☐ Ensure that unauthorized people stay away from permit spaces or exit immediately if they have entered the permit space;

☐ Inform authorized entrants and the entry supervisor if any unauthorized person enters the permit space; and

☐ Perform no other duties that interfere with the attendant's primary duties. Entry supervisors are required to:

☐ Know space hazards including information on the mode of exposure, signs or symptoms and consequences;

☐ Verify emergency plans and specified entry conditions such as permits, tests, procedures and equipment before allowing entry;

☐ Terminate entry and cancel permits when entry operations are completed or if a new condition exists;

☐ Verify that rescue services are available and that the means for summoning them are operable;

☐ Take appropriate measures to remove unauthorized entrants; and

☐ Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.

Permit Required Confined Space Rescue

The OSHA standard requires employers to ensure that responders are capable of responding to an emergency in a timely manner. Employers must provide rescue service personnel for entry into all Permit Required Confined Spaces.

The standard also requires that all rescuers be trained in first aid and CPR. At a minimum, one rescue team member must be currently certified in first aid and CPR. Employers must ensure that practice rescue exercises are performed yearly and that rescue services are provided access to permit spaces so they can practice rescue operations. Rescuers also must be informed of the hazards of the permit space.

Harnesses and retrieval lines

Authorized entrants who enter a permit space must wear a chest or full body harness with a retrieval line attached to the center of their backs near shoulder level or above their heads. Wristlets may be used if the employer can demonstrate that the use of a chest or full body harness is not feasible or creates a greater hazard.

Also, the employer must ensure that the other end of the retrieval line is attached to a mechanical device or a fixed point outside the permit space. A mechanical device must be available to retrieve someone from vertical type permit spaces more than five feet (1.524 meters) deep.

If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or other written information must be made available to the medical facility personnel treating the exposed entrant.

The following requirements apply Confined Space Entries:

- ☐ Do not enter permit-required confined spaces without being trained and without having a permit to enter. Utilize the permit found in the appendix of this HASP.
- ☐ The space must be evaluated to determine safe entry conditions.
- ☐ Before entry, identify any physical hazards.
- ☐ Before and during entry, test and monitor for oxygen content, flammability, toxicity or explosive hazards as necessary.
- ☐ Use fall protection, rescue, air-monitoring, ventilation, lighting and communication equipment according to entry procedures.
- ☐ Maintain contact at all times with a trained attendant either visually, via phone, or by two-way radio. This monitoring system enables the attendant and entry supervisor to order you to evacuate and to alert appropriately trained rescue personnel to rescue entrants when needed.
- ☐ The entry supervisor must cancel entry permits when an assignment is completed or when new conditions exist. New conditions must be noted on the canceled permit and used in revising the permit space program. The standard requires that the employer keep all canceled entry permits for at least one year.

Section 8.05 Driving Safety

Follow the guidelines below when operating a vehicle:

- Refrain from using a cellular phone while driving. Pull off the road, put the vehicle in park and turn on flashers before talking on a cellular phone.
- Never e-mail or text message while driving a vehicle.
- Obey speed limits; be aware of blind spots or other hazards associated with low visibility. Practice defensive driving techniques, such as leaving plenty of room between your vehicle and the one ahead of you.
- Maintain focus on driving. Eating, drinking, smoking, adjusting controls can divert attention from the road. Take the time to park and perform these tasks when parked rather than while driving.

Ensure vehicle drivers are familiar with the safe operation of vehicles of the type and size to be operated. Large vehicles such as full size vans and pick-ups have different vision challenges and handling characteristics than smaller vehicles.

Section 8.06 Electrical Safety

Below are the hazard controls and safe work practices to follow when using electrical tools, extension cords, and/or other electrical-powered equipment or when exposed to electrical hazards.

- Only qualified personnel are permitted to work on unprotected energized electrical systems.
- Only authorized personnel are permitted to enter high-voltage areas or areas where electrical substations are present.
- Do not tamper with electrical wiring and equipment unless qualified to do so. All electrical wiring and equipment must be considered energized until lockout/tagout procedures are implemented.
- Inspect electrical equipment, power tools, and extension cords for damage prior to use. Do not use defective electrical equipment, remove from service.
- Ground Fault Circuit Interrupters (GFCIs) must be utilized when using electrically powered equipment.
- GFCIs shall be used on all 120-volt, single phase 15 and 20-amphere receptacle outlets which are not part of the permanent wiring of the building or structure.
- An assured equipment grounding conductor program may be required under the following scenarios:
- GFCIs cannot be utilized.
- Client requires such a program to be implemented.
- Extension cords must be equipped with third-wire grounding. Cords passing through work areas must be covered, elevated or protected from damage. Cords should not be routed through doorways unless protected from pinching. Cords should not be fastened with staples, hung from nails, or suspended with wire.
- Electrical power tools and equipment must be effectively grounded or double-insulated.
- Operate and maintain electric power tools and equipment according to manufacturers' instructions.
- Temporary lights shall not be suspended by their electric cord unless designed for suspension.
- Lights shall be protected from accidental contact or breakage.
- Protect all electrical equipment, tools, switches, and outlets from environmental elements.

Section 8.07 Field Vehicles

- Field vehicles may be personal vehicles, rental vehicles, fleet vehicles, or project vehicles.
- Utilize a rotary beacon on vehicle if working adjacent to active roadway.
- Familiarize yourself with rental vehicle features prior to operating the vehicle:
- Vision Fields and Blind Spots
- Vehicle Size
- Mirror adjustments
- Seat adjustments
- Cruise control features, if offered
- Pre-program radio stations and Global Positioning System (GPS), if equipped.
- Always wear seatbelt while operating vehicle.
- Adjust headrest to proper position.
- Tie down loose items if utilizing a van or pick-up truck.
- Close car doors slowly and carefully. Fingers can get pinched in doors.
- Park vehicle in a location where it can be accessed easily in the event of an emergency. If not possible, carry a phone.
- Ensure back-up alarms are functioning, if equipped. Before backing a vehicle, take a walk around the vehicle to identify obstructions or hazards. Use a spotter when necessary to back into or out of an area.
- Maintain the vehicle free from garbage and loose items that could roll around on the floor, objects may get behind a pedal and prevent the pedal from being depressed to the floor.
- Verify safety systems of the vehicle, such as lights, wipers and brakes are operational prior to use.

Section 8.08 Fire Extinguishers and General Fire Prevention Practices

Fire extinguishers shall be provided so that the travel distance from any work area to the nearest extinguisher is less than 100 feet (30.5 meters). When 5 gallons (19 liters) or more of a flammable or combustible liquid is being used, a 10 lb. extinguisher must be within 50 feet (15.2 meters).

- Extinguishers must be maintained in a fully charged and operable condition.
- Extinguishers must be visually inspected each month.
- Extinguishers must undergo a maintenance check each year.
- The area in front of extinguishers must be kept clear.

Section 8.09 General Practices and Housekeeping

The following are general requirements applicable to all portions of the work:

- Site work should be performed during daylight hours whenever possible.
- Good housekeeping must be maintained at all times in all project work areas.
- Common paths of travel should be established and kept free from the accumulation of materials.
- Keep access to aisles, exits, ladders, stairways, Scaffolding, and emergency equipment free from obstructions.
- Provide slip-resistant surfaces, ropes, or other devices to be used.
- Specific areas should be designated for the proper storage of materials.
- Tools, equipment, materials, and supplies shall be stored in an orderly manner.
- As work progresses, scrap and unessential materials must be neatly stored or removed from the work area.

- Containers should be provided for collecting trash and other debris and shall be removed at regular intervals.
- All spills shall be quickly cleaned up; oil and grease shall be cleaned from walking and working surfaces.
- Do not fight or horseplay while conducting the firm's business.
- When ascending or descending stairways, use the handrail and take one step at a time.
- Do not apply compressed air to any person or clothing.

Section 8.10 Groundwater Sampling and Level Measurements

Below are the hazard controls and safe work practices to follow when personnel or subcontractors are performing groundwater sampling and/or water level measurements.

- Full coolers are heavy. Plan in advance to have two people available at the end of the sampling effort to load full coolers into vehicles. If two people won't be available use several smaller coolers instead of fewer large ones or make sure you have a device to assist in moving the cooler, like a cart.
- Wear the appropriate PPE when sampling, including safety glasses, nitrile gloves, and steel toe boots (see PPE section of this HASP).
- Open well casing and allow the headspace of the well to air out prior to sampling to minimize any vapor inhalation.
- Use caution when opening well lids. Wells may contain poisonous spiders and hornet or wasp nests.
- Utilize safe lifting practices when unloading equipment.
- Avoid sharp edges on well casings.
- If dermal contact occurs with groundwater or the acid used in sample preservation, immediately wash all affected skin thoroughly with soap and water.
- Avoid eating and drinking onsite and during sampling.
- Containerize all purge water and transport to the appropriate storage area.
- Use two people to transport full coolers/containers whenever possible. If two people are not available use a dolly to move coolers.
- If the coolers weigh more than 50 pounds they should not be lifted by one person.

Section 8.11 Logging and Screening Soil Samples

Below are the hazard controls and safe work practices to follow when logging and screening soil samples.

- Establish an organized and stable working surface.
- If cutting open core liners, wear cut resistant gloves and secure the core liner to prevent movement. Never cut in a direction towards yourself and use an approved cutting device.
- Don nitrile gloves when handling contaminated materials.
- Ensure a clear walking path around the working area.

- Contain soil to prevent the spread of contamination. Do not use your hands to brush debris, use tools like a brush.
- Place plastic on the working surface to prevent the spread of contamination.
- Decontaminate all working surfaces contacted by contaminated soil.
- Use good hygiene and wash your hands.
- Remove nitrile gloves by never touching the contaminated surface of the gloves with your hands.

Section 8.12 Hazard Communication

The SSO is responsible for ensuring the following activities occur:

- Maintain an inventory of chemicals brought on.
- Maintain a binder of all M/SDSs in the chemical inventory.
- Request or confirm locations of material/safety data sheets (MSDSs/SDSs) from the client, contractors, and subcontractors for chemicals to which employees potentially are exposed.
- Before or as the chemicals arrive on site, obtain an M/SDS for each hazardous chemical and include on the chemical inventory and add the M/SDS to the M/SDS Binder for the project.
- Label chemical containers with the identity of the chemical and with hazard warnings, and store properly.
- Provide employees the required chemical-specific HAZCOM training.
- Store all materials properly, giving consideration to compatibility, quantity limits, secondary containment, fire prevention, and environmental conditions.

Section 8.13 Knife Use

Open-bladed knives (for example, box cutters, utility knives, pocket knives, machetes, and multi- purpose tools with fixed blades such as a Leatherman™) can only be used by trained personnel who have reviewed and signed off on the Knife Use AHA attached to this HASP. Otherwise, only approved safety utility knives, tube splitters, and scissors shall be used.

Section 8.14 Ladders

- Ladders shall be maintained free of oil, grease, and other slipping hazards.
- Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer's rated capacity.
- Ladders shall be used only for the purpose for which they were designed.

- Non-self-supporting ladders shall be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder (the distance along the ladder between the foot and the top support).
- Ladders shall be used only on stable and level surfaces unless secured to prevent accidental displacement.
- Ladders shall not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement. Slip-resistant feet shall not be used as a substitute for care in placing, lashing, or holding a ladder that is used upon slippery surfaces including, but not limited to, flat metal or concrete surfaces that are constructed so they cannot be prevented from becoming slippery.
- Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways, shall be secured to prevent accidental displacement, or a barricade shall be used to keep the activities or traffic away from the ladder.
- The area around the top and bottom of ladders shall be kept clear.
- Ladders shall not be moved, shifted, or extended while occupied.
- Ladders shall have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized electrical equipment,
- The top or top step of a stepladder shall not be used as a step.
- Cross-bracing on the rear section of stepladders shall not be used for climbing unless the ladders are designed and provided with steps for climbing on both front and rear sections.
- Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.
- Portable ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, shall either be immediately marked in a manner that readily identifies them as defective, or be tagged with "Do Not Use" or similar language, and shall be withdrawn from service until repaired.
- When ascending or descending a ladder, the user shall face the ladder.
- Each employee shall use at least one hand to grasp the ladder when progressing up and/or down the ladder.
- An employee shall not carry any object or load that could cause the employee to lose balance and fall.

Section 8.15 Lighting

Lighting shall be evaluated when conducting work inside buildings, confined spaces, or other areas/instances where supplemental light may be needed (e.g., work before sunrise or after sunset). A light meter can be used to evaluate the adequacy of lighting. The following are common requirements for lighting and the conditions/type of work being performed:

- While work is in progress outside construction areas shall have at least 33 lux (lx);
- Construction work conducted inside buildings should be provided with at least 55 lux light;
- The means of egress shall be illuminated with emergency and non-emergency lighting to provide a minimum 11 lx measured at the floor. Egress illumination shall be arranged so that the failure of any single lighting unit, including the burning out of an electric bulb will not leave any area in total darkness.

Section 8.16 Manual Lifting

Back injuries are the leading cause of disabling work and most back injuries are the result of improper lifting techniques or overexertion. Use the following to mitigate the hazards associated with lifting.

- When possible, the task should be modified to minimize manual lifting hazards.

- Lifting of loads weighing more than 50 pounds (18 kilograms) shall be evaluated by the SSO. Typical bags of sand and concrete weigh up to 50 pounds. Drillers are capable of lifting these individually, however if the movement of more than one bag at a time is needed, then the use of mechanical lifting devices should be considered.
- Using mechanical lifting devices is the preferred means of lifting heavy objects such as forklifts; cranes, hoists, and rigging; hand trucks; and trolleys, wheel barrels, drums dollies.
- Personnel shall seek assistance when performing manual lifting tasks that appear beyond their physical capabilities.
- In general, the following steps must be practiced when planning and performing manual lifts: Assess the situation before you lift; ensure good lifting and body positioning practices; ensure good carrying and setting down practices.
- Use safe lifting techniques:
- Stand close to the load with your feet spread shoulder width apart;
- one foot should be slightly in front of the other for balance;
- squat down bending at the knees (not your waist);
- tuck your chin while keeping your back as vertical as possible;
- get a firm grasp of the object before beginning the lift;
- Slowly begin straightening your legs, lifting slowly. Never twist your body during this step.
- Once the lift is complete, keep the object as close to the body as possible.
- If the load's center of gravity moves away from your body, there is a dramatic increase in stress to the lumbar region of the back.

Section 8.17 Personal Hygiene

Good hygiene is essential for personal health and to reduce the potential of cross-contamination when working on a hazardous waste site. Implement the following:

- Keep hands away from nose, mouth, and eyes during work;
- Keep areas of broken skin (chapped, burned, etc.) covered; and
- Wash hands with soap and water prior to eating, smoking, or applying cosmetics.

Section 8.18 Substance Abuse

Employees who work under the influence of controlled substances, drugs, or alcohol may prove to be dangerous or otherwise harmful to themselves, other employees, clients, the company, the company's assets and interests, or the public. AME does not tolerate illegal drug use, or any use of drugs, controlled substances, or alcohol that impairs an employee's work performance or behavior. Prohibitions onsite include:

- Use or possession of Alcohol on company property or at projects where employed.
- Abuse of prescription or nonprescription drugs.
- Use or possession of illegal drugs or drugs obtained illegally.
- Sale, purchase, or transfer of legal, illegal or illegally obtained drugs.
- Arrival at work under the influence of legal or illegal drugs or alcohol.

It is a violation of this drug-free workplace policy to have any detectable amount of prohibited substances in the employee's bloodstream while on the Company premises or of those of its customers, or while conducting company business. The substances that will be tested for are amphetamines, cannabinoids, cocaine, opiates, phencyclidine (PCP), and alcohol. Testing for the presence of alcohol will be conducted by analysis of breath,

saliva, and blood. Testing for the presence of the metabolites of drugs will be conducted by the analysis of urine. The Company will conduct drug and/or alcohol testing under any of the following circumstances:

- PRE-EMPLOYMENT/PRE DUTY: The Company will, as a potential employer, request an applicant to submit to a drug and/or alcohol test.
- RANDOM TESTING: Some employee classifications will be selected at random for drug and/or alcohol testing at any interval determined by the Company. In addition, some job specific sites will require random drug and/or alcohol testing at intervals determined by that company.
- FOR-CAUSE TESTING: The Company will ask an employee to submit to a drug and/or alcohol test at any time it feels that the employee may be under the influence of drugs or alcohol.
- POST-INCIDENT TESTING: Any employee involved in an on-the-job incident resulting in a fatality or injury resulting in medical will be asked to submit to a drug and/or alcohol test. A near miss that involves property damage or potential injury will be investigated on a case-by-case basis by the Company and post near miss testing will be determined in a timely manner. Post incident testing may also occur based on the requirements of our clients.

One of the goals of the Company's drug-free workplace program is to encourage employees to voluntarily seek help with alcohol and/or drug problems. However, when an individual knowingly violates this policy, the consequences are swift and severe.

Any employee that willingly violates the policy will be subject to discipline up to and including termination at the Company's discretion. If not terminated, the employee may be required to enter rehabilitation at the employee's expense. An employee required to enter rehabilitation who fails to successfully complete it and/or repeatedly violates that policy will be terminated from employment.

In situations where an employee enters rehabilitation, they must sign and abide by the terms set forth in the Return-to-Work Agreement, as developed by the Company, in order to continue employment.

Section 8.19 Slips, Trips and Falls

Slips happen where there is too little friction or traction between the footwear and the walking surface. Trips happen when your foot collides (strikes, hits) an object causing you to lose the balance and, eventually fall.

- Both slips and trips result from some a kind of unintended or unexpected change in the contact between the feet and the ground or walking surface. This shows that good housekeeping, quality of walking surfaces (flooring), selection of proper footwear, and appropriate pace of walking and awareness of hazards are critical for preventing slips trips and falls.
- Good housekeeping is the first and the most important (fundamental) level of preventing falls due to slips and trips. It includes:
- Cleaning all spills immediately.
- Marking spills and wet areas.
- Mopping or sweeping debris from floors.
- Removing obstacles from walkways and always keeping them free of clutter.
- Covering cables that cross walkways.
- Keeping working areas and walkways well lit.
- Replacing used light bulbs and faulty switches.
- You can reduce the risk of slipping on wet flooring by:

- Taking your time and paying attention to where you are going.
- Adjusting your stride to a pace that is suitable for the walking surface and the tasks you are doing.
- Walking with the feet pointed slightly outward.
- Making wide turns at corners.
- You can reduce the risk of tripping by:
- Keeping walking areas clear from clutter or obstructions.
- Keeping flooring in good condition.
- Always using installed light sources that provide sufficient light for your tasks.
- Using a flashlight if you enter a dark room where there is no light.
- Ensuring that things you are carrying or pushing do not prevent you from seeing any obstructions, spills, etc.

Below are the hazard controls and safe work practices to follow when personnel or subcontractors are exposed to unprotected heights.

- Fall protection systems must be used to eliminate fall hazards when performing construction activities at a height of 6 feet (1.8 meters) or greater and when performing general industry activities at a height of 4 feet (1.2 meters) or greater.
- Employees exposed to fall hazards must complete initial fall protection training by completing either the 10-Hour Construction Safety Awareness training course or the Fall Protection training module. Staff must also and receive project-specific fall protection training. Staff shall not use fall protection systems for which they have not been trained.
- The SSO or designee must evaluate the site for fall hazards and provide project- specific fall protection training to all staff exposed to fall hazards.
- Inspect personal fall arrest system components prior to each use. Do not use damaged fall protection system components at any time, or for any reason. Fall protection equipment and components shall be used only to protect against falls, not to hoist materials. Personal fall arrest systems that have been subjected to impact loading shall not be used. SSO shall periodically inspect fall protection equipment using the Fall Protection Inspection Log form.
- Personal fall arrest systems shall be configured so that individuals can neither free-fall more than 6 feet (1.8 meters) or contact any lower level.
- Only attach personal fall arrest systems to anchorage points capable of supporting at least 5,000 pounds (2268 kg). Do not attach personal fall arrest systems to guardrail systems or hoists.
- Remain within the guardrail system when provided. Leaning over or stepping across a guardrail system is not permitted. Do not stand on objects (boxes, buckets, bricks, blocks, etc.) or ladders to increase working height on top of platforms protected by guardrails.
- Only one person shall be simultaneously attached to a vertical lifeline and shall also be attached to a separate independent lifeline.

Section 8.20 Noise

Work activities may produce noise levels in excess of 85 decibels, A-weighted, (dBA) and thus requiring the implementation of the hearing conservation program. Areas or equipment emitting noise at or above 90dBA shall be evaluated to determine feasible engineering controls. When engineering controls are not feasible, administrative controls can be developed and appropriate hearing protection will be provided. Consideration should be given to remove all non-essential personnel to a distance from the source so as their exposure is < 90 dba.

- Areas or equipment emitting noise levels at or above 85 dBA, hearing protection must be worn.

- Employees exposed to 85 dBA or a noise dose of 50% must participate in the Hearing Conservation program including initial and annual (as required) audiograms.
- Employees who are exposed at or above the action level of 85 dBA are required to participate in annual Hearing Conservation awareness training.
- Hearing protection will be maintained in a clean and reliable condition, inspected prior to use and after any occurrence to identify any deterioration or damage, and damaged or deteriorated hearing protection repaired or discarded.
- In work areas where actual or potential high noise levels are present at any time, hearing protection must be worn by employees working or walking through the area.

Section 8.21 Vacuum Truck Operation

There are numerous potential hazards associated with vacuum truck operations, including but not limited to:

- Sources of ignition
- Flammable atmospheres
- Potential hazards associated with the surrounding area
- Toxic vapors and their PEL's and STEL's including H2S
- Hazards of mixing of materials
- Slips, trips, and falls
- Spills and releases
- Fires and explosions
- Accidents within the facility or on the highway
- Suction at the end of the hose
- Inadvertent movement of hoses in walking or working areas
- Noise
- Body position and ergonomics when handling the hoses
- Working in confined spaces

Vacuum hose constructed of conductive material or thick walled hose with imbedded conductive wiring, shall be used when transferring flammable and combustible liquids when the potential for a flammable atmosphere exists in the area of operations. Conductive hose shall provide suitable electrical

conductance less than or equal to 1 mega ohm per 100 feet (as determined by the hose manufacturer).

The complete vacuum transfer system needs to be bonded so that there is a continuous conductive path from the vacuum truck through the hose and nozzle to the tank or source container and grounded to dissipate stray currents to earth (ground). Always ground the truck. Prior to starting transfer operations, vacuum trucks need to

be grounded directly to the earth or bonded to another object that is inherently grounded (due to proper contact with the earth) such as a large storage tank or underground piping. A safe and proper ground to earth may be achieved by connecting to any properly grounded object including but not limited to any one or more of the following examples:

- A metal frame of a building, tank, or equipment that is grounded.
- An existing facility grounding system such as that installed at a loading rack.
- Fire hydrants metal light posts, or underground metal piping with at least 10' of contact with earth.
- A corrosion free metal ground rod of suitable length and diameter (approximately 9' long and

5/8-in. diameter), driven 8' into the earth (or to the water table, if less).

Section 8.22 Temperature

Temperature extremes may present very real hazards for workers who spend significant time outside. Field workers are particularly vulnerable to heat and cold stress depending on their acclimation for the project conditions and possible requirements for wearing required protective clothing. Untreated, the symptoms and effects of either heat or cold stress grow increasingly serious. Additionally, workers experiencing heat or cold stress are at a greater risk for other accidents.

(a) Heat Stress

Workers who are exposed to extreme heat or work in hot environments may be at risk of heat stress. Exposure to extreme heat can result in occupational illnesses and injuries. Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. Heat can also increase the risk of injuries in workers as it may result in sweaty palms, fogged-up safety glasses, and dizziness. Burns may also occur as a result of accidental contact with hot surfaces or steam.

Workers at greater risk of heat stress include those who are 65 years of age or older, are overweight, have heart disease or high blood pressure, or take medications that may be affected by extreme heat.

Use the following as a guide as to the risk for Heat Stress and when to implement Protective Measures. Also, SSOs are encouraged to download OSHA's Heat Safety smart phone applications. It can be downloaded from the Android and iPhone App store or at the OSHA website https://www.osha.gov/SLTC/heatillness/heat_index/heat_app.html. For projects with high risk for heat related illnesses, such as high temperatures where workers are wearing a high level of PPE, the Site Safety Officer shall evaluate the work load and utilize a wet globe heat stress monitor to determine a work rest schedule in accordance with ACGIH Threshold Limit Values.

Heat Index	Risk Level	Protective Measures
Less than 91°F	Lower (Caution)	Basic heat safety and planning
91°F to 103°F	Moderate	Implement precautions and heighten awareness
103°F to 115°F	High	Additional precautions to protect workers
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures

(i) Heat Stroke

Heat stroke is the most serious heat-related disorder. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Heat stroke can cause death or permanent disability if emergency treatment is not given.

Symptoms	First Aid

• Hot, dry skin or profuse sweating
• Hallucinations
• Chills
• Throbbing headache
• High body temperature
• Confusion/dizziness
• Slurred speech
	• Call 911 and notify their supervisor.
	• Move the sick worker to a cool shaded area.
	• Cool the worker using methods such as:
	  ○ Soaking their clothes with water.
	  ○ Spraying, sponging, or showering them with water.
	  ○ Fanning their body.

(ii) Heat Exhaustion

Heat exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating. Workers most prone to heat exhaustion are those that are

elderly, have high blood pressure, and those working in a hot environment.

Symptoms	First Aid
• Heavy sweating • Extreme weakness or fatigue • Dizziness, confusion • Nausea • Clammy, moist skin • Pale or flushed complexion • Muscle cramps • Slightly elevated body temperature • Fast and shallow breathing	• Have them rest in a cool, shaded or air-conditioned area. • Have them drink plenty of water or other cool, nonalcoholic beverages. • Have them take a cool shower, bath, or sponge bath.

(iii) Heat Syncope

Heat syncope is a fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

Symptoms	First Aid
• Light-headedness • Dizziness • Fainting	• Have them rest in a cool, shaded or air-conditioned area. • Have them drink plenty of water or other cool, nonalcoholic beverages.

(iv) Heat Cramps

Heat cramps usually affect workers who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Symptoms	First Aid

• Muscle pain or spasms usually in the abdomen, arms, or legs.	• Stop all activity, and sit in a cool place.
	• Drink clear juice or a sports beverage.
	• Do not return to strenuous work for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke.
	• Seek medical attention if any of the following apply:
	  ○ The worker has heart problems.
	  ○ The worker is on a low-sodium diet.
	  ○ The cramps do not subside within one hour.

(v) Heat Rash

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather.

Symptoms	First Aid
• Heat rash looks like a red cluster of pimples or small blisters. • It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.	• Try to work in a cooler, less humid environment when possible. • Keep the affected area dry. • Dusting powder may be used to increase comfort.

(vi) General Precautions

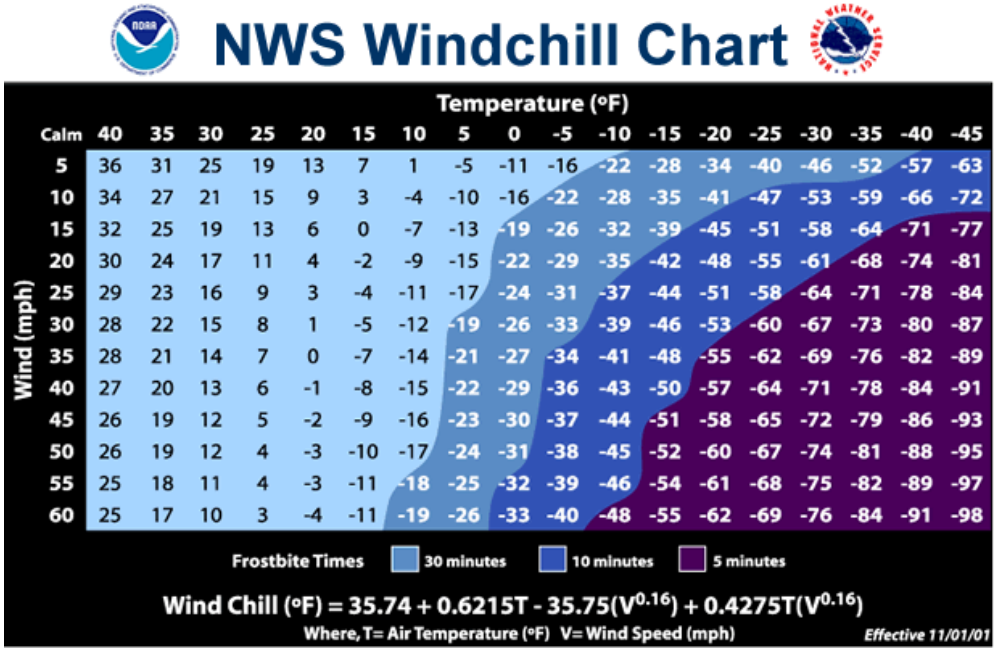
Workers should avoid exposure to extreme heat, sun exposure, and high humidity when possible. When these exposures cannot be avoided, workers should take the following steps to prevent heat stress:

- Wear light-colored, loose-fitting, breathable clothing such as cotton.
- Avoid non-breathing synthetic clothing.
- Gradually build up to heavy work.
- Schedule heavy work during the coolest parts of day.
- Take more breaks in extreme heat and humidity.
- Take breaks in the shade or a cool area when possible.
- Drink water frequently. Drink enough water that you never become thirsty. Approximately 1 cup every 15-20 minutes.
- Avoid alcohol, and drinks with large amounts of caffeine or sugar.
- Be aware that protective clothing or personal protective equipment may increase the risk of heat stress.
- Monitor your physical condition and that of your coworkers.

(b) Cold Stress

Workers who are exposed to extreme cold or work in cold environments may be at risk of cold stress. Extreme cold weather is a dangerous situation that can bring on health emergencies in susceptible people, such as outdoor workers and those who work in an area that is poorly insulated or without heat. What constitutes cold stress and its effects can vary across different areas of the country. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered factors for "cold stress." Whenever temperatures drop decidedly below normal and as wind speed increases, heat can more rapidly leave your body. These weather-related conditions may lead to serious health problems.

Use the chart below to determine workers risk to Cold Stress.



(i) Hypothermia

When exposed to cold temperatures, your body begins to lose heat faster than it can be produced. Prolonged exposure to cold will eventually use up your body's stored energy. The result is hypothermia, or abnormally low body temperature. A body temperature that is too low affects the brain, making the victim unable to think clearly or move well. This makes hypothermia particularly dangerous because a person may not know it is happening and will not be able to do anything about it.

Symptoms	First Aid

• Early symptoms may include:
  ○ Shivering
  ○ Fatigue
  ○ Loss of coordination
  ○ Confusion and disorientation
• Late Symptoms may include:
  ○ No shivering
  ○ Blue skin
  ○ Dilated pupils
  ○ Slowed pulse and breathing
  ○ Loss of consciousness
	• Alert the supervisor and request medical assistance.
	• Move the victim into a warm room or shelter.
	• Remove their wet clothing.
	• Warm the center of their body first-chest, neck, head, and groin-using an electric blanket, if available; or use skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.
	• Warm beverages may help increase the body temperature, but do not give alcoholic beverages. Do not try to give beverages to an unconscious person.
	• After their body temperature has increased, keep the victim dry and wrapped in a warm blanket, including the head and neck.
	• If victim has no pulse, begin cardiopulmonary resuscitation (CPR).

(ii) Cold Water Immersion

Cold water immersion creates a specific condition known as immersion hypothermia. It develops much more quickly than standard hypothermia because water conducts heat away from the body 25 times faster than air. Typically people in temperate climates don't consider themselves at risk from hypothermia in the water, but hypothermia can occur in any water temperature below 70°F. Survival times can be lengthened by wearing proper clothing (wool and synthetics and not cotton), using a personal flotation device (PFD, life vest, immersion suit, dry suit), and having a means of both signaling rescuers (strobe lights, personal locator beacon, whistles, flares, waterproof radio) and having a means of being retrieved from the water. Below you will find links with information about cold water survival and cold water rescue.

(iii) Frostbite

Frostbite is an injury to the body that is caused by freezing. Frostbite causes a loss of feeling and color in the affected areas. It most often affects the nose, ears, cheeks, chin, fingers, or toes. Frostbite can permanently damage body tissues, and severe cases can lead to amputation. In extremely cold temperatures, the risk of frostbite is increased in workers with reduced blood circulation and among workers who are not dressed properly.

Symptoms	First Aid
• Reduced blood flow to hands and feet (fingers or toes can freeze) • Numbness • Tingling or stinging • Aching • Bluish or pail, waxy skin	• Get into a warm room as soon as possible. • Unless absolutely necessary, do not walk on frostbitten feet or toes-this increases the damage. • Immerse the affected area in warm-not hot-water (the temperature should be comfortable to the touch for unaffected parts of the body). • Warm the affected area using body heat; for example, the heat of an armpit can be used to warm frostbitten fingers. • Do not rub or massage the frostbitten area; doing so may cause more damage. • Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming. Affected areas are numb and can be easily burned.

(iv) Trench Foot

Trench foot, also known as immersion foot, is an injury of the feet resulting from prolonged exposure to wet and cold conditions. Trench foot can occur at temperatures as high as 60 degrees F if the feet are constantly wet. Injury occurs because wet feet lose heat 25-times faster than dry feet. Therefore, to prevent heat loss, the body constricts blood vessels to shut down circulation in the feet. Skin tissue begins to die because of lack of oxygen and nutrients and due to the buildup of toxic products.

Symptoms	First Aid
• Reddening of the skin • Numbness • Leg cramps • Swelling • Tingling pain • Blisters or ulcers • Bleeding under the skin • Gangrene (the foot may turn dark purple, blue, or gray)	• Remove shoes/boots and wet socks. • Dry their feet. • Avoid walking on feet, as this may cause tissue damage.

(v) General Precautions

Workers should avoid exposure to extremely cold temperatures when possible. When cold environments or temperatures cannot be avoided, workers should follow these recommendations to protect themselves from cold stress:

- Wear appropriate clothing.
- Wear several layers of loose clothing. Layering provides better insulation.
- Tight clothing reduces blood circulation. Warm blood needs to be circulated to the extremities.
- When choosing clothing, be aware that some clothing may restrict movement resulting in a hazardous situation.
- Make sure to protect the ears, face, hands and feet in extremely cold weather.
- Boots should be waterproof and insulated.
- Wear a hat; it will keep your whole body warmer. (Hats reduce the amount of body heat that escapes from your head.)
- Move into warm locations during work breaks; limit the amount of time outside on extremely cold days.
- Carry cold weather gear, such as extra socks, gloves, hats, jacket, blankets, a change of clothes and a thermos of hot liquid.
- Include a thermometer and chemical hot packs in your first aid kit.
- Avoid touching cold metal surfaces with bare skin.
- Monitor your physical condition and that of your coworkers.

Section 8.23 Biological

Biological hazards are everywhere and change with the region and season. Whether it is contact with a poisonous plant, a poisonous snake, or a bug bite, do not take bites or stings lightly. If there is a chance of an allergic reaction or infection, seek medical attention.

(a) Insects

Bees and other stinging insects may be encountered almost anywhere and may present a serious hazard, particularly to people who are allergic. Watch for and avoid nests. Keep exposed skin to a minimum. Carry a kit if you have had allergic reactions in the past, and inform your supervisor and/or a buddy. If you are stung, contact the SSO.

The Brown Recluse spider can be found most anywhere in the United States. It varies in size in shape, but the distinguishing mark is the violin shape on its body. They are typically non-aggressive. Keep an eye out for irregular, pattern-less webs that sometimes appear almost tubular built in a protected area such as in a crevice or between two rocks. The spider will retreat to this area of the web when threatened.

The Black Widow, Red Widow and the Brown Widow are all poisonous. Most have globose, shiny abdomens that are predominantly black with red markings (although some may be pale or have lateral stripes), with moderately long, slender legs. These spiders are nocturnal and build a three-dimensional tangled web, often with a conical tent of dense silk in a corner where the spider hides during the day.

Brown Recluse

Black Widow

Every year employees are exposed to tick bites at work and at home putting them at risk of illness. Ticks typically are in wooded areas, bushes, tall grass, and brush. Ticks are black, black and red, or brown and can be up to one-quarter inch (6.4 mm) in size.

Tick

In some geographic areas exposure is not easily avoided. Wear tightly woven light-colored clothing with long sleeves and pant legs tucked into boots; spray only outside of clothing with permethrin or permanone and spray skin with only DEET; and check yourself frequently for ticks.

Where site conditions (vegetation above knee height, tick endemic area) or when tasks (having to sit or kneel in vegetation) diminish the effectiveness of the other controls mentioned above, Tyvek shall be used.

Lyme disease is a rash that might appear that looks like a bull's eye with a small welt in the center. RMSF is a rash of red spots under the skin 3 to 10 days after the tick bite. In both RMSF and Lyme disease, c s, fever, headache, fatigue, stiff neck, and bone pain may develop. If symptoms appear, again contact the SSO.

Precautions for avoiding insects

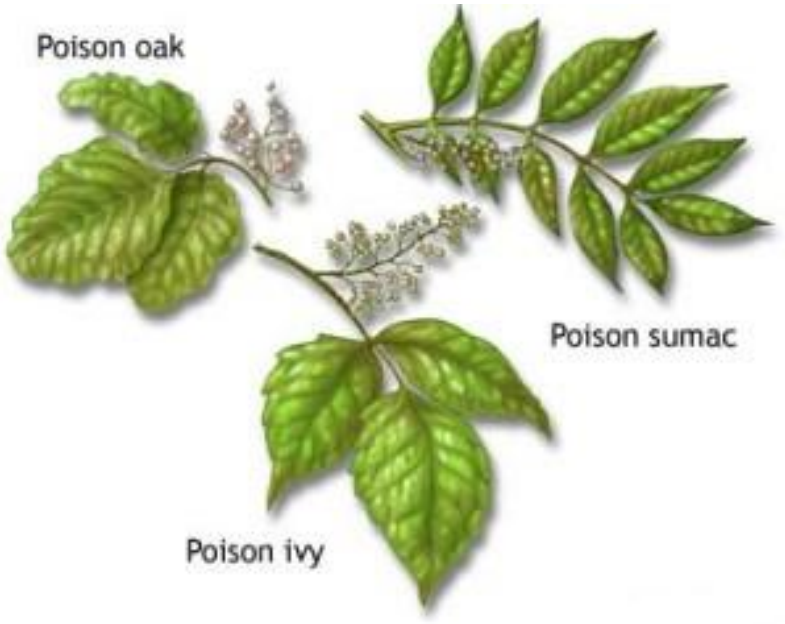
- Wear long-sleeved shirts and long pants whenever you are in areas where stinging and biting insects are a concern.
- Tuck pant legs into socks to eliminate the potential for tick and spiders to crawl up your pant legs.
- Spray clothing with repellents containing permethrin or N, N-diethyl-meta-toluamide (DEET).
- Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET.
- Repellents may irritate the eyes and mouth, so avoid applying repellent to the hands.
- Inspect or shake out any clothing, shoes, towels, or equipment before use.
- Wear protective clothing such as a long-sleeved shirt and long pants, hat, gloves, and boots when handling stacked or undisturbed piles of materials.
- Minimize the empty spaces between stacked materials.
- Remove and reduce debris and rubble from around the outdoor work areas.
- Trim or eliminate tall grasses from around outdoor work areas.
- Store apparel and outdoor equipment in tightly closed plastic bags.
- Keep your tetanus boosters up-to-date (every 10 years). Spider bites can become infected with tetanus spores.
- Avoid areas where insect nests or hives have been identified.

(b) Poisonous Plants

Poison ivy, poison oak, and poison sumac typically are found in brush or wooded areas. They are more commonly found in moist areas or along the edges of wooded areas. Shrubs are usually 12 to 30 inches high, or can also be a tree-climbing vine, with triple leaflets and short, smooth hair underneath. Plants are red and dark green in spring and summer, with yellowing leaves anytime especially in dry areas. Leaves may achieve bright reds in fall, but plants lose its (yellowed, then brown) leaves in winter, leaving toxic stems. All parts of the plant remain toxic throughout the seasons. These plants contain urushiol, a colorless or pale yellow oil that oozes from any cut or crushed part of the plant, including the roots, stems and leaves and causes allergic skin reactions when contacted. The oil is active year round.

Become familiar with the identity of these plants (see below). Wear protective clothing that covers exposed skin and clothes. Avoid contact with plants and the outside of protective clothing. If skin contacts

a plant, wash the area with soap and water immediately. If the reaction is severe or worsens, seek medical attention.



Contamination with poison ivy, sumac or oak can happen through several pathways, including:

- Direct skin contact with any part of the plant (even roots once above ground foliage has been removed).
- Contact with clothing that has been contaminated with the oil.
- Contact from removing shoes that have been contaminated (shoes are coated with urushiol oil).
- Sitting in a vehicle that has become contaminated.
- Contact with any objects or tools that have become contaminated.
- Inhalation of particles generated by weed whacking, chipping, or vegetation clearing.

If you must work on a site with poison ivy, sumac or oak the following precautions are necessary:

- Do not drive vehicles onto the site where it will come into contact with poison ivy, sumac or oak.
- Vehicles which need to work in the area, such as drill rigs or heavy equipment must be washed as soon as possible after leaving the site.
- All tools used in the poison ivy, sumac or oak area, including those used to cut back poison oak, air monitoring equipment or other test apparatus must be decontaminated. If on-site decontamination is not possible, use plastic to wrap any tools or equipment until they can be decontaminated.
- Personal protective equipment, including poly coated Tyvek coveralls, gloves, and boot covers must be worn.
- PPE must be placed into plastic bags and sealed if they are not disposed immediately into a trash receptacle.
- As soon as possible following the work, shower to remove any potential contamination. Any body part with suspected or actual exposure should be washed with Zanfel, Tecnu or other product designed for removing urushiol. If you do not have Zanfel or Tecnu wash with cold water. Do not take a bath, as the oils can form and invisible film on top of the water and contaminate your entire body upon exiting the bath.

- Tecnu may also be used to decontaminate equipment.
- Use IvyBlock or similar products to prevent poison oak, ivy and sumac contamination.

(c) Animals

Feral Dogs

Avoid all dogs – both leashed and stray. If a dog approaches, stay still. If you are threatened by a dog, remain calm, do not scream and avoid eye contact. If you say anything, speak calmly and firmly. Do not turn and run, try to stay still until the dog leaves, or back away slowly until the dog is out of sight or you have reached safety (e.g. vehicle). If attacked, retreat to vehicle or attempt to place something between you and the dog. If you fall or are knocked to the ground, curl into a ball with your hands over your head and neck and protect your face. If bitten, seek medical treatment and follow the Incident/Injury reporting procedure outlined in the HASP. Report the incident to the local authorities.

Snakes

Snakes typically are found in underbrush and tall grassy areas. If you encounter a snake, stay calm and look around; there may be other snakes. Turn around and walk away on the same path you used to approach the area. If bitten by a snake, wash and immobilize the injured area, keeping it lower than the heart if possible. Call 911 immediately. Do not apply ice, cut the wound, or apply a tourniquet. Try to identify the type of snake: note color, size, patterns, and markings. If bitten, seek medical treatment and follow the Incident/Injury reporting procedure outlined in the HASP.

Other Wildlife

Projects are performed in a variety of outdoor environments, including fields, arid areas, grasslands, and wetlands, urban and rural spaces. Each area presents hazards from indigenous wild animals. All wild animals can be dangerous if the animal feels threatened. If wildlife is impeding work, you should not disturb the animal as the animal may leave the area if left alone. If the animal does not exit the area, you should contact the site owner or local animal control to have the animal removed from the site. Under no circumstances should anyone attempt to remove the animal or provoke the animal.

9.0 Training

Section 9.01 HAZWOPER

All employees engaging in hazardous waste operations or emergency response shall receive appropriate training as required by 29 CFR 1910.120 and 29 CFR 1926.65. At a minimum, the training shall have consisted of instruction in the topics outlined in 29 CFR 1910.120 and 29 CFR 1926.65. Personnel who have not met these training requirements shall not be allowed to engage in hazardous waste operations or emergency response activities.

(a) Initial Training

General site workers engaged in hazardous waste operations shall, at the time of job assignment, have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations, unless otherwise noted in the above-referenced standards.

Employees who may be exposed to health hazards or hazardous substances at treatment, storage, and disposal (TSD) operations shall receive a minimum of 24 hours of initial training to enable the employee to perform their assigned duties and functions in a safe and healthful manner.

Employees engaged in emergency response operations shall be trained to the level of required competence in accordance with 29 CFR 1910.120.

(b) Three-Day Actual Field Experience

General site workers for hazardous waste operations shall have received three days of actual experience (on-the-job training) under the direct supervision of a trained, qualified supervisor and shall be documented. If the field experience has not already been received and documented at a similar site, this supervised experience shall be accomplished and documented at the beginning of the assignment of the project.

(c) Refresher Training

General site workers and TSD workers shall receive 8-hours of refresher training annually (within the previous 12-month period) to maintain qualifications for fieldwork. Employees engaged in emergency response operations shall receive annual refresher training of sufficient content and duration to maintain their competencies or shall demonstrate competency in those areas at least annually.

(d) Eight-Hour Supervisory Training

On site management or supervisors who will be directly responsible for, or supervise employees engaged in hazardous waste site operations, will have received at least 8 hours of additional specialized training on managing such operations.

Section 9.02 First Aid/Cardiopulmonary Resuscitation

First aid and CPR training consistent with the requirements of a nationally recognized organization such as the American Red Cross Association or National Safety Council shall be administered by a certified trainer. Projects located in isolated areas not in close proximity to emergency medical services capable of responding to the potential injuries that may occur on the project based on the hazards and risk, shall have at least one person trained in First Aid and CPR.

Section 9.03 Competent Person

An OSHA "competent person" is defined as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them" [29 CFR 1926.32(f)]. By way of training and/or experience, a competent person is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation, and has the authority to correct them. Some standards add additional specific requirements which must be met by the competent person.

The Site Supervisor is the site competent person and has received training related to the health and safety topics applicable to this project.

Section 9.04 Heavy Equipment Operation

Site workers operating heavy machinery such as skid steers, bulldozers, excavators, backhoes and roller compactors have been trained in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to illness or injury. Operators are certified either by training or verification of experience to operate heavy equipment. Retraining shall occur periodically and whenever violations with operating procedures or accidents occur.

Section 9.05 Respiratory Protection

Site workers are trained at least every 12 months. This annual retraining refreshes workers on the information and skills you need to use a respirator correctly. Training includes:

- What the respirator can and cannot do to protect you;
- How to properly inspect, put on and take off, and use your respirator;
- How to check the seal of your respirator (also called a "user seal check");
- How to use the respirator effectively in emergency situations, including situations in which the respirator doesn't work properly;
- How to recognize medical signs and symptoms that may limit or prevent you from using a respirator;

- How improper fit, usage, or maintenance can reduce your respirator's ability to protect you;
- What the procedures are for maintenance and storage of the respirator; and
- What the requirements are for federal OSHA's or your State OSHA's Respiratory Protection Standards.
- OSHA requires additional retraining when:
- Changes in your workplace or the type of respirator you use make your previous training out-of-date. For example, Why you need to use the respirator;
- You get a new work assignment that has different respiratory hazards and respirator requirements from your old job; or
- You can't remember the information and skills you need to properly use your respirator. This could occur when you use a respirator only a few times a year; or
- A situation comes up in which retraining is necessary to ensure safe respirator use. For example, your supervisor sees that you're not using your respirator properly.

10.0 Medical Surveillance

All site workers participating in hazardous waste operations or emergency response (HAZWOPER) will maintain an adequate medical surveillance program in accordance with 29 CFR 1910.120 or 29 CFR 1926.65 and other applicable OSHA standards. Documentation of employee medical qualification (e.g., physician's written opinion) will be maintained in the project files and made available for inspection.

Section 10.01 Hazardous Waste Operations and Emergency Response

Personnel expected to participate in on site HAZWOPER tasks are required to have a current medical qualification for performing this work. Medical qualification shall consist of a qualified physician's written opinion regarding fitness for duty at a hazardous waste site, including any recommended limitations on the employee's assigned work. The physician's written opinion shall state whether the employee has any detected medical conditions that would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use.

Section 10.02 Job or Site-Specific Medical Surveillance

Due to the nature of hazards for a particular job or work site, specialized medical surveillance may be necessary such as Lead and PCB's.

Section 10.03 Respirator User Qualification

Personnel required to wear respirators must have a current medical qualification to wear respirators. Medical qualification shall consist of a qualified physician's written opinion regarding the employee's ability to safely wear a respirator in accordance with 29 CFR 1910.134.

Section 10.04 Hearing Conservation

Personnel working in hazardous waste operations or operations that fall under 29 CFR 1910.95 and exposed to noise levels in excess of the 85dBA time-weighted average shall be included in a hearing conservation program that includes annual audiometric testing.

11.0 Site Controls

Site control is established to prevent the spread of contamination throughout the site and to ensure that only authorized individuals are permitted into potentially hazardous areas.

The SSO will implement site control procedures including the following bulleted items.

- Establish support, contamination reduction, and exclusion zones. Delineate with flags or cones as appropriate. Support zone should be upwind of the site. Use access control at entry and exit from each work zone.
- Establish onsite communication consisting of the following:
- Line-of-sight and hand signals; Air horn; and
- Two-way radio or cellular telephone if available.
- Establish offsite communication.
- Establish and maintain the “buddy system.”

Section 11.01 Remediation Work Area Zones

A three-zone approach will be used to control areas where site contaminants exist. Access will be allowed only after verification of appropriate training and medical qualification. The three-zone approach shall include an EZ, Contamination Reduction Zone (CRZ) and a Support Zone (SZ). The three-zone approach is not required for construction work performed outside contaminated areas where control of site contamination is not a concern.

Specific work control zones shall be established as necessary during task planning. Site work zones should be modified in the field as necessary, based on such factors as equipment used, air monitoring results, environmental conditions, or alteration of work plans. The following guidelines shall be used for establishing and revising these preliminary zone designations.

Section 11.02 Support Zone

The SZ is an uncontaminated area (trailers, offices, field vehicles, etc.) that will serve as the field support area for most operations. The SZ provides field team communications and staging for emergency response. Appropriate sanitary facilities and safety and emergency response equipment will be located in this zone. Potentially contaminated personnel/materials are not allowed in this zone. The only exception will be appropriately packaged and decontaminated materials, or personnel with medical emergencies that cannot be decontaminated.

Section 11.03 Contamination Reduction Zone

The CRZ is established between the EZ and the SZ, upwind of the contaminated area where possible. The CRZ provides an area for decontamination of personnel, portable handheld equipment and tools, and heavy equipment. In addition, the CRZ serves as access for heavy equipment and emergency support services.

Section 11.04 Exclusion Zone

The EZ is where activities take place that may involve exposure to site contaminants and/or hazardous materials or conditions. This zone shall be demarcated to prevent unauthorized entry. More than one EZ may be established if there are different levels of protection to be employed or different hazards that exist in the same work area. The EZ shall be large enough to allow adequate space for the activity to be completed, including field personnel and equipment, as well as necessary emergency equipment.

The EZ shall be demarcated with some form of physical barrier or signage. The physical barrier or signage shall be placed so that they are visible to personnel approaching or working in the area. Barriers and boundary markers shall be removed when no longer needed.

Section 11.05 Other Controlled Areas

Other work areas may need to be controlled due to the presence of an uncontrolled hazard, to warn workers of requirements, or to prevent unauthorized entry. Examples include general construction work areas, open excavations, high noise areas, vehicle access areas, and similar activities or limited access locations. These areas shall be clearly demarcated with physical barriers (fencing, cones, reinforced caution tape or rope) as necessary and posted with appropriate signage.

Section 11.06 Site Preparedness

A site map showing topographic features, prevailing wind direction, drainage, and the location of buildings, containers, impoundments, pits, ponds, and tanks should be obtained or created and included in the site specific Health and Safety Plan. The site map will enable the project team with:

- Planning activities.
- Assigning personnel.
- Identifying access routes, evacuation routes, and problem areas.
- Identifying areas of the site that require use of personal protective equipment.
- Supplementing the daily safety and health briefings of the field teams.

The map should be prepared prior to site entry and updated throughout the course of site operations to reflect:

- Accidents.
- Changes in site activities.
- Emergencies.
- Hazards not previously identified.
- New materials introduced on site.
- Vandalism.
- Weather conditions.

Section 11.07 Work Zones

On projects where site workers are potentially exposed to hazardous substances, (like vapors, gases, mists, or airborne particulate matter contaminated site media) site controls shall be established to delineate areas of

contamination from clean areas. These work zones shall consist of an Exclusion Zone (EZ), Contaminant Reduction Zone (CRZ), and a Support Zone (SZ). No entry will be allowed within the EZ without HAZWOPER training, authorization from the Site Safety Officer (SSO), appropriate PPE, and medical clearance. Decontamination will be performed when site personnel are leaving and/or removing equipment from the EZ. Entry and exit from the EZ will be from a centralized location.

The identification of work zones can be accomplished by use of the following control and warning devices.

- Cones
- Signs/placards
- Hazard warning/caution tape
- Pedestrian guardrails
- Fencing (chain link, snow fence)
- Traffic barrels
- Jersey barriers
- Other barriers, such as A frame or parade barriers

The work zones shall be established based on the risk associated with the hazardous substance of concern and the complexity of the project. At a minimum the following site controls shall be implemented for Remedial Construction Projects.

- The Exclusion Zone shall be established around the entire excavation/demolition area including the area necessary to move equipment, supplies and personnel required to perform all work activities. The exclusion zone should be marked with traffic cones, caution tape, traffic barrels or other demarcation devices.
- The Contamination Reduction Zone shall surround the Exclusion Zone and provide sufficient space for movement and decontamination of equipment, supplies and personnel from the Exclusion Zone to the Support Zone.
- Signage shall be placed around the exterior of the Contaminant Reduction Zone stating that only authorized personnel are allowed beyond that point.
- All open excavations should be secured overnight using snow fencing, traffic barrels, jersey barriers, or other devices that prevent access to the excavation.

12.0 Decontamination

Decontamination areas will be established for work in potentially contaminated areas to prevent the spread of contamination. Decontamination areas should be located upwind of the exclusion zone where possible and should consider any adjacent or nearby projects and personnel. The SSO must establish and monitor the decontamination procedures and their effectiveness. Decontamination procedures found to be ineffective will be modified by the SSO. The SSO must ensure that procedures are established for disposing of materials generated on the site.

At sites where minimal surficial and/or airborne contamination is present, such as most subsurface investigations and groundwater sampling projects, modified Level D PPE will be used. Modified Level D PPE consists of hardhat, steel-toe boots, work pants or jeans, and safety glasses with side-shields. Disposable PPE is typically used as part of sampling, such as nitrile or similar gloves. In cases where there is the increased potential for contact with contaminated media (e.g., hollow-stem auger drilling in areas of heavy contamination), Tyvek coveralls shall be required in addition to the Modified Level D PPE to prevent exposure to contaminated media.

The decontamination station for most Modified Level D projects will consist of plastic sheeting (ground protection), plastic bucket of wash water for boots, and a tap water for rinsing. In addition, paper towels and an ample supply of tap water should be available for personnel decontamination (e.g., hand washing, etc.). General personnel decontamination procedures for Modified Level D PPE are as follows:

- Step 1 - Deposit all equipment used in EZ onto/into poly sheeting or poly-lined containers in the Contaminant Reduction Zone. Equipment will be decontaminated following the procedures identified in the upcoming sections.
- Step 2 – Inspect work uniform or coveralls for surface contamination and physically remove any debris.
- Step 3 Perform wet decontamination of work boots if contacted contaminated media or debris.
- Step 4 Remove gloves and other disposable contaminated PPE and place in trash.

Section 12.01 Decontamination Personnel Protection

Decontamination workers who initially come in contact with personnel and equipment leaving the Exclusion Zone will require more protection from contaminants than decontamination workers who are assigned to the last station in the decontamination line. In some cases, decontamination personnel should wear the same levels of PPE as workers in the Exclusion Zone. In other cases, decontamination personnel may be sufficiently protected by wearing one level lower protection (e.g., wearing Level C protection while decontaminating workers who are wearing Level B). Appropriate equipment and clothing for protecting decontamination personnel should be selected by a qualified health and safety expert.

No eating, drinking, or smoking is permitted in contaminated areas and in exclusion or decontamination zones.

Section 12.02 Contamination Prevention

Preventing or avoiding contamination of personnel, tools, and equipment will be considered in planning work activities at all field locations. Good contamination prevention and avoidance practices will assist in preventing worker exposure and result in a more efficient decontamination process. Procedures for contamination prevention and avoidance include the following:

- Do not walk through areas of obvious or known contamination;
- Do not directly handle or touch contaminated materials;
- Make sure there are no cuts or tears in PPE;
- Fasten all closures in suits and cover them with duct tape, if appropriate;
- Take particular care to protect any skin injuries;
- Stay upwind of airborne contamination, where possible;
- Do not eat or drink in contaminated work areas;
- Do not carry food, beverages, tobacco, or flame-producing equipment into contaminated work areas;
- Minimize the number of personnel and amount of equipment in contaminated areas to that necessary for accomplishing the work;
- Choose tools and equipment with nonporous exterior surfaces that can be easily cleaned and decontaminated;
- Cover monitoring and sampling equipment with clear plastic, leaving openings for the sampling ports, as necessary; and
- Minimize the amount of tools and equipment necessary in contaminated areas.

Proper planning for equipment decontamination can result in increased efficiency of the job, quality samples, and decreased potential for contaminants leaving the job site. Prior to performing environmental field projects, it is essential that the level of decontamination required be understood by site personnel, as well as contractors or others on the job site. Additionally, the anticipated equipment required for decontamination must be discussed prior to mobilizing to the project site.

Section 12.03 Recommended Decontamination Equipment

Plastic sheeting, sealed pads with drains, or other appropriate methods for containing and -collecting contaminated wash and rinse solutions spilled during decontamination.

- Collection containers, such as drums, for placing decontamination fluids and PPE.
- Large galvanized tubs, sawhorses or racks for facilitating decontamination of large downhole equipment (e.g., augers/drill rods, etc.).
- Children's wading pools, or buckets to hold wash and rinse solutions. These should be at least large enough for the intended job.
- Wash solutions (such as Liquinox and water) and clean buckets.
- Rinse solutions such as tap water and deionized water. For some projects, solvents such as methanol or hexane, may be may be required for cleaning or rinsing.
- Long-handled, soft-bristled brushes to help wash and rinse off contaminants.
- Pressurized spray-containers or other containers to store wash and/or rinse solutions.
- Paper or cloth towels.

Section 12.04 Decontamination Pad Specifications

Prior to conducting any field sampling activities an equipment decontamination pad must be established. In some cases, such as when conducting hand sampling using a bucket auger or groundwater sampling, the decontamination pad will be moved from location to location. In other cases, such as larger drilling projects and remediation projects, a central decontamination pad will be established. Regardless of size, the decontamination pad constructed for field cleaning of sampling, drilling, and remediation equipment should meet the following specifications.

- The pad should be constructed in an area free of known contamination.
- The pad should not leak.
- Temporary pads should be composed of single pieces of impermeable material like polyethylene/plastic sheeting (visqueen). There should be no seams in the sheeting, and it should be of sufficient thickness so as not to tear during routine decontamination procedures.
- The pad should be placed on a level or nearly level paved surface and should facilitate the removal of water. The latter can be accomplished by constructing one corner of the pad slightly lower than the others or by creating a pit or sump. Any pit or sump must be lined.
- Sawhorses, racks, or large tubs or troughs should be used to elevate equipment, particularly larger equipment, to prevent it from being splashed.
- Water should be removed from the pad frequently.
- The pad should be of sufficient size so as to collect any overspray during equipment decontamination. The decontamination area should have a backsplash and sidewalls to help prevent any overspray.

Section 12.05 Equipment Decontamination Procedures

Portions of equipment that is coming into direct contact with potentially contaminated media (e.g., backhoe/excavator buckets or arms, etc.) must be decontaminated prior to exiting the EZ.

- The decontamination pad should be large enough and constructed so that the equipment can be effectively decontaminated.
- Any significant particulate contaminant on the equipment will be manually removed by scraping, brushing, or other means.
- Once large material is removed, decontamination of equipment must be conducted by brushing/wiping using detergent followed by a tap water rinse, or using a hot pressure washer with detergent and rinsing with tap water.
- All decontamination water will be contained and disposed of in an appropriate manner.

13.0 Spill Control

Personnel working at the project site shall be knowledgeable of the potential health, safety and environmental concerns associated with petroleum and other substances that could potentially be released at the project site.

In the event of a large quantity spill notify emergency services. Personnel discovering a spill shall (only if safe to do so):

- Stop or contain the spill immediately (if possible) or note source. Shut off the source (e.g., pump, treatment system) if possible. If unsafe conditions exist, then leave the area, call emergency services, inform nearby personnel, notify the site supervisors, and initiate incident reporting process. The SSO shall be notified immediately.
- Extinguish sources of ignition (flames, sparks, hot surfaces, cigarettes).
- Clear personnel from the spill location and barricade the area.
- Use available spill control equipment in an effort to ensure that fires, explosions, and releases do not occur, recur, or spread.
- Use sorbent materials to control the spill at the source.
- Construct a temporary containment dike of sorbent materials, cinder blocks, bricks or other suitable materials to help contain the spill.
- Attempt to identify the character, exact source, amount, and extent of the released materials.
- Identification of the spilled material should be made as soon as possible so that the appropriate cleanup procedure can be identified.
- Assess possible hazards to human health or the environment as a result of the release, fire or explosion.
- Follow incident notification, reporting, and investigation section of this plan.

14.0 Incident Reporting

Site workers must report all incidents to the SSO immediately. Incidents shall be investigated immediately and all impacted by the incident shall be suspended until the incident is investigated and measures implemented to prevent recurrence.

The following define the types of incidents that must be reported and investigated.

- Accident - an act not planned, nor wanted that resulted in a personal injury.
- Incident - a fact or event not planned nor wanted that will occasionally result in an unintentional injury or health related problems, will occasionally result in damages to property, products, or to the environment, loss of production and/or an increase in legal responsibilities. Incidents include accidents, injuries, illnesses, injury free events, and near misses.
- Illness - when an employee is exposed to a condition in the work environment that results in the employee experiencing a disease or medical condition.
- Injury Free Event - a near miss that resulted in property damage.
- Injury - an employee is involved in an accident or incident to the extent that he or she requires diagnostic testing, first aid or medical treatment.
- Near Miss Incident - an accident that has not produced injuries or material damages.

Section 14.01 Incident Reporting and Investigation process

Employees must either resolve unsafe conditions in a safe manner or report the condition to their supervisor immediately.

- Employees shall halt work if any unsafe conditions or actions are observed. Employees observing an unsafe work activity have the authority and duty to stop the work and correct the unsafe action or condition.
- Employee shall report any observable violation of policies or actions performed by others that appear to be a reckless/careless in nature.
- All incidents shall be reported within 24 hours.
- Employees must complete the incident investigation report and participate in the incident investigation within 48 hours of an incident.
- Injured employees must complete the state specific worker's compensation form within 24 hours and submit the form to Corporate Human Resources.
- The SSO shall initiate the incident investigation according to this procedure.
- All incident investigation reports shall be submitted to the Corporate Health and Safety Manager.
- The Corporate Health and Safety Manager will record and track incidents.
- Corrective actions shall be tracked for completion and reviewed in the monthly office safety meeting.
- Corporate Health and Safety will maintain all incident investigation reports and supporting documentation.
- Injuries/Illnesses, as determined by Corporate Health and Safety, shall be recorded on the OSHA 300 Log for each office location.

APPENDICES

August Mack
ENVIRONMENTAL

Health and Safety Plan Sign Off Form			
Project/Site Name		Project Number	
Name	Signature	Company	Date

August Mack
ENVIRONMENTAL

Daily Tailgate/Toolbox Talk Form				
TAKE 5 For Safety – Go home in one Piece!				
1. Pause	2. Identify	3. Explain	4. Control	5. Execute

Date:	Project:
Presenter:	
Tasks to be performed:	

Potential Hazards			
☒ Slip, Trip and Falls	☐ Manual Lifting	☐ Cuts/abrasions	☐ Utilities
☐Noise	☐ Heavy Equipment	☐ Traffic	☐ Chemical
☐ Inhalation Hazards	☐ Pinch Points	☐ Fire/explosion	☐ Biological
☐ Struck by hazards	☐Caught in/Between	☐ Heat/Cold	☐ Electrical
☐ Excavation	☐ Confined Spaces	☐ Pressure	☐ Flying Debris
☐ Welding/cutting	☐ Elevated Loads	☐ Falling Objects	☐ Water/Drowning
☐ Weather	☐ Burns	☐ Electrical	☐ Working at heights

Hazard Controls			
Hazard Elimination	**Engineering Controls**	**Administrative Controls**	**PPE**
☐ Utility Locate	☐Sloping/Benching	☐Fire Watch	☐Level D
☐Lockout Tagout	☐Shoring/Shielding	☐Electrical Inspection	☐Level C
☐Hazard Relocation	☐Barricades	☐Tool Inspection	☐Respirator
☐Work Relocation	☐Ventilation	☐Equip. Inspection	☐Hearing Protection
☐Enclose Hazard	☐Air Monitoring	☐Qualified Operator	☐Cut Gloves
☐Barrier	☐Bonding/Grounding	☐Training	☐Chemical Gloves
☐Chemical segregation	☐Dust Suppression	☐Work/rest schedule	☐Hi-Vis
☐Intrinsically Safe	☐Warning/alarms	☐Traffic Control	☐Goggles
☐Non Sparking Tools	☐GFCI	☐Permits	☐Flotation Device

Emergency Response					
☐FA/CPR Trained Personnel	☒First Aid Kit and BBP Kit	☐Eye wash ☐ Emergency Shower	☐Evacuation Rally Point	☐Severe Weather Shelter	☐Route to Hospital

Training					
☐HAZWOPER	☐Confined Space	☐Respirator	☐Forklift	☐Heavy Equipment	☐Competent Person

Comments

Signature	
Supervisor:	Date:

Safety Observation

Activity Observed:			
☐Safe Behavior	☐Unsafe Behavior	☐Safe Condition	☐Unsafe Condition
Lesson Learned from Observation:			

Daily Tailgate/Toolbox Talk Sign Off			
Print Name	Signature	Company	Date

August Mack
ENVIRONMENTAL

Utility Locate Record

Indiana IUPPS: 800-382-5544 Illinois JULIE: 800-892-0123 Ohio: 800-362-2764 Michigan: 800-482-7171

Pennsylvania (PA1 call) 1-800-242-1776

Job Number: _____ Date Called In: _____

Time Called In: _____ Name of Caller: _____

Job Location: _____

(Street address) (City or nearest to site) (State)

Property Owner: _____

County: _____ Township: _____

Nearest Cross Street: _____ Direction from site: _____

Work Start Date: _____ Work Start Time: _____

Type of Work: _____ How Deep (ft): _____

Area of Work (Entire Site, etc…):_____

Date & Time Work Ticket is Effective: _____

Ticket Expiration: _____

Assigned Ticket / Reference Number: _____

MEMBER UTILITIES NOTIFIED

NON-MEMBER UTILITIES

(List office, name of utility, phone number, person spoken with, reference number

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Air Monitoring Log

Project Name/Number:

Persons Sampled - list names of site workers sampled:

Date	Sampling Performed By	Task/Activity	Sampling Equipment	Chemical of Concern	Sample Results

GeoProbe Daily Inspection Checklist

GEOPROBE DIRECT PUSH MACHINE INSPECTION FORM: (SONIC RIG N/A)

COMPANY NAME: LOCATION: DATE OF INSPECTION:

EQUIPMENT INFORMATION				CREW INFORMATION	JOB INFORMATION
UNIT NUMBER	CURRENT HOURS	NEXT SERVICE HOUR	UNIT SERIAL #	SUPERVISOR:	JOB NAME:
INSPECTOR:		GEOPROBE MODEL #			

ENGINE COMPARTMENT	Y	N	NA	COMMENTS
ENGINE OIL LEVEL ADD |----------| FULL				
ENGINE COOLANT LEVEL ADD |----------| FULL				
HYD. OIL LEVEL (SITE GLASS) BTM |----------| TOP				
HYD. DRAIN PLUG CAP IN PLACE				
HYD. FILL CAP INSTALLED				
RADIATOR CLEANLINESS				
MASTER DISCONNECT SECURE, CLEAN, FUNCTIONING				
BATTERY CLEAN AND SECURE				
FUSE AND RELAY BOX CLEAN, SECURE, CLOSED				
BELT IN GOOD CONDITION AND PROPER TENSION				
AIR FILTER COVER SECURE, ORIENTATED CORRECTLY				
FUEL CAP INSTALLED				
HYDRAULIC OIL COOLER CLEAN				
HYD LINES OVERALL CONDITION AND FREE OF LEAKS				
WIRING SECURE, CONDITION, FRAYS, CORROSION, ETC				
MACHINE CHASSIS				
TRACKS' CONDITION AND CORRECT TENSION				
GREASE CHASSIS AS REQD				
INSPECT HYD CYLINDERS FOR LEAKS				
HYD LINES OVERALL CONDITION AND FREE OF LEAKS				
HYD MANIFOLDS FOR SECURITY, LEAKS, DAMAGE				
EMERGENCY STOPS CONDITION & OPERATION				
FIRE EXTINGUISHER				
STROBE LIGHT OPERATION				
WIRING SECURE, CONDITION, CORROSION, ETC				
CHECK FOR LOOSE OR MISSING FASTENERS				
FRAME FOR DAMAGE, CRACKS, ETC				
REMOTE SYSTEMS				
WIRELESS TX CONDITION, BATTERIES, OPERATION				
WIRELESS RX SECURITY, CONDITION, OPERATION				
TETHER REMOTE – CABLE, BOX, CONDITION				
REMOTE E-STOP FUNCTIONALITY				

CONTROL PANEL	Y	N	NA	COMMENTS
CLEANLINESS				
MD3 DISPLAY CONDITION & MESSAGES				
ALARM / WARNING LIGHT OPERATION				
MANUAL LEVERS IN NEUTRAL AND SECURE				
ROCKER SWITCHES, CONDITION, OPERATION				
AUX FLOW CONTROLS				
GAUGES WORKING				
ENABLE SWITCH OPERATION AND CONDITION				
OVERLAY CONDITION AND READABILITY				
HYDRAULICS FREE OF LEAKS AND SECURE				
ELECTRICAL HARNESS SECURITY & CONDITION				
FOOT				
SLIDES ADJUSTED, SECURE, LUBRICATED				
HYDRAULICS FREE OF LEAKS AND SECURE				
CHECK FOR LOOSE OR MISSING FASTENERS				
GH HAMMER CHARGED, SECURE, CONDITION				
PULL LATCH SECURITY AND CONDITION				
ELECTRICAL HARNESS SECURITY & CONDITION				
E- STOP PULL CABLE ADJUSTMENT, OPERATION				
MACHINE ACCESSORIES				
MOYNO PUMP OR OTHER				
DROP HAMMER SECURE, HYD HOSES, LUBRICATED				
WIRE ROPE CONDITION, SECURE, LAY ON DRUM				
WINCH MAST SHIVES SECURED ROTATING FREELY				
MAST CYLINDER UPPER ROLL PIN INSTALLED				
WINCH DRUM BACKING PLATE / TENSIONER				
WINCH SAFETY HOOK CONDITION, & OPERATION				
EXTRUDER INSTALLATION CORRECT AND SECURE				
PRESSURE WASHER INSTL CORRECT AND SECURE				
RACKS, TRAYS, & ETC INSTL CORRECT & SECURE				
SAFETY CAGE, CONDITION, OPERATION				

MACHINE DISCREPANCIES	SAFETY CRITICAL *(y/n)*	CORRECTIVE ACTION

FIELD / UNIT NOTES

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WWW.GEOPROBE.COM

Subsurface Dig Permit

PROJECT INFORMATION

Project Number:	Date:	Activity:
Site Address:		
Field Technician:	Project Manager:	

UTILITIES PRESENT

Yes = ✓	Gas	☐	Electric	☐	Water	☐	Product/System Lines	☐	
No = x	Sewer	☐	Storm	☐	Telecomm	☐		Other	☐

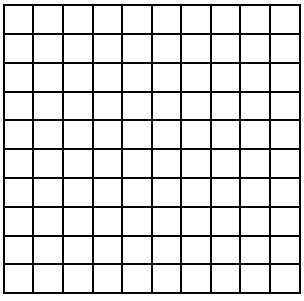
DESCRIBE THE LOCATION OF ALL UTILITIES PRESENT AT THE SITE.

Utility	Location	Runs	Additional Information

Example: NEC = Northeast Corner; C = Centrally; ES = East Side; E/W = East to West; SE/NW = Southeast to Northwest

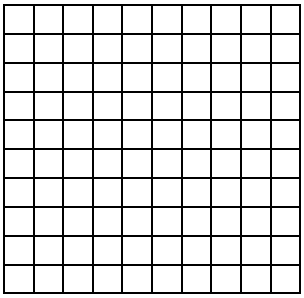
WORK AREA INFORMATION

Depict utilities/anomalies located within the boring/excavation locate area (10'x10' box)



Soft Digging Used

_____



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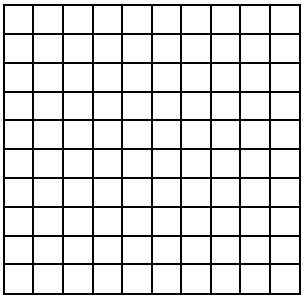


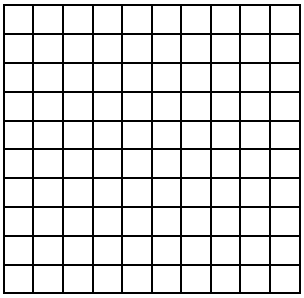
Soft Digging Used

_____

Approved by: Date: Time:

Utility	Location	Runs	Additional Information

Example: NEC = Northeast Corner; C = Centrally; ES = East Side; E/W = East to West; SE/NW = Southeast to Northwest



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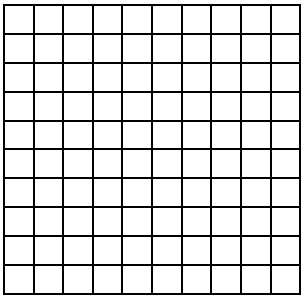

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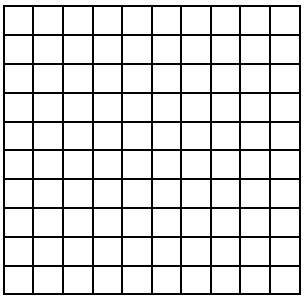

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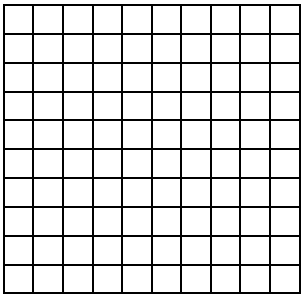

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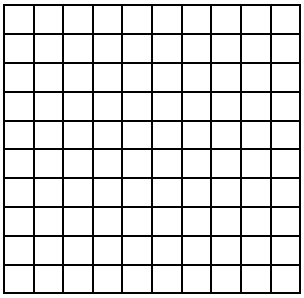

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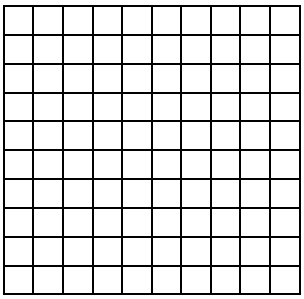

Soft Digging Used

Incident Report and Investigation Form

Injury☐ Illness☐ Near Miss/Injury Free Event☐

Date of Incident: Time of Incident: Check if time cannot be determined ☐

Location of Incident:

Section 1: Employee/Witness Information

Near Miss/Injury Free Event

Full Name:	Job title:	Date Reported:

Injury/Illness

Full Name:	Date of Birth:	Male ☐ Female☐
Street:	City:	Zip:
Date Hired:	Time Work Began:	Date Reported:

Section 2: Injury Details

Physician Name:	Emergency Rm. Yes☐ No☐	Hospitalized: Yes☐ No☐
Treatment Facility:	Street:	City:
State:	Zip:	Nature of Inj/Ill:
Injured Body Part:	Object that caused harm:	First Aid Given: Yes☐ No☐
Description of Treatment:		

Section 3: Incident Description

What Occurred?

What Activity was being performed?

Section 4: Investigation Results

Unsafe Acts – Check all that apply

Operating equipment without authority	☐	Failure to warn others of hazards	☐
Failure to secure	☐	Inadequate communication	☐
Operating at an unsafe speed	☐	Improper lifting	☐
Making safety device inoperable	☐	Improper position of task	☐
Removing safety device	☐	Servicing equipment in operation	☐
Using defective equipment	☐	Horseplay	☐
Failure to use PPE	☐	Under the influence of alcohol/drugs	☐
Used wrong tool/equipment	☐	Not following established procedures	☐
Cutting corners (inattention to details)	☐	Unaware of the hazard	☐
Inattention to hazard	☐	Other	☐

Unsafe Conditions – Check all that apply

Inadequate guards and barriers	☐	Poor housekeeping	☐
Inadequate/ improper protective equipment	☐	Noise Exposure	☐
Defective tools or equipment	☐	Radiation exposure	☐
Congested or restricted area	☐	Temperature extremes	☐
Inadequate warning system	☐	Inadequate illumination	☐
Fire and explosion hazard	☐	Inadequate ventilation	☐
Slippery surface	☐	Uneven surfaces	☐
Deterioration	☐	Other	☐

Management System Failure – Check all that apply

Lack or procedures	☐	Improper layout or design	☐
Inadequate procedures	☐	Unsafe design or construction	☐
Lack of enforcement	☐	Poor work practices	☐
Inadequate preventative maintenance	☐	Inadequate environmental controls	☐
Inadequate training	☐	Inadequate/ineffective communication	☐
Inadequate supervision	☐	Other	☐

Incident Scene – Attach Picture of incident scene or site diagram

Incident Root Cause(s)

Incident Corrective Action(s) to Prevent Recurrence

Section 5: Signatures and Approvals

Investigator/Office Safety Representative:	Date:
Employee:	Date:
Office Manager:	Date:
Corporate H&S:	Date:

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Heavy Equipment Inspection

EQUIPMENT I.D. NO.:_____ **EQUIPMENT NAME:**_____ **WEEK OF:**_____

Falling Object Protective Sturcture (FOP)	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAYY
Roll Over Protective Structure (ROP)							
Seat Belts							
Operator Seat Bar							
Side Shields, Screens or Cab Windows (No Cracks,etc.)							
Lift Arm Restraining Device							
Grab Handles							
Back-Up Alarm - Working							
Lights							
Guards							
Horn							
Anti-Skid Tread Steps Clear of Mud							
Safety Signs (i.e. counterbalance swing area)							
Fire Extinguisher							
General Condition							
Fuel Connection							
Oil (full and no leaks)							
Clear Of Extra Materials							
Controls function properly							

Damaged Parts							
Hydraulic System (full and no leaks)							
Parking Brake							
Lift Arm and Bucket							
Tires/ Tracks							
Steering							
Inspector's Name and Employee No.							

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Confined Space Entry Permit

A. Site Information

Site Name	Address
Project Number	Date
Description of Space	Purpose of entry
Entry Time	Exit Time

B. Identified Hazards (Check all that apply)

- ❑ Atmospheric (or potential to contain atmospheric hazards)
- ❑ Engulfment Hazard
- ❑ Entrapment Hazard
- ❑ Configuration Hazard
- ❑ Moving mechanical parts
- ❑ Electrical
- ❑ Pressure
- ❑ Heat or steam
- ❑ Slip, Trip or Fall Hazard
- ❑ Extreme Noise

Elimination of all Hazard constitute a Non Permit Confined Space condition

C. Monitoring Record

Time	% O_2	% LEL	Organic (ppm)	Other

Monitoring Equipment:_____
Cal. Date:_____
Tested By:_____

D. Safety Equipment

- ❑ Hard hat
- ❑ Safety boots
- ❑ Safety eyewear
- ❑ First aid kit
- ❑ Chemical protective clothing
- ❑ Air-supplied respirator_____
- ❑ Air-purifying respirator_____
- ❑ Respirator cartridge/filters_____
- ❑ Fire extinguisher_____
- ❑ Emergency SCBA
- ❑ Harness/lifeline/hoist
- ❑ Explosion-proof lights
- ❑ Spark-proof tools
- ❑ Intrinsically safe monitoring equipment
- ❑ Other

E. Hazard Controls

- ❑ Warning signs posted and barricades in place?
- ❑ Ventilation system operable?
- ❑ Mechanical systems locked, blocked & tagged?
- ❑ Electrical systems locked out & tagged?
- ❑ Piping blanketed or disconnected?
- ❑ Ignition sources isolated?
- ❑ Decontamination provisions in place?
- ❑ Inerting procedures established?
- ❑ Communication system? (Specify)
  _____
- ❑ Other contractors notified of permit?

F. Confined Space Team

Authorized Entrants:
_____
_____
Authorized Attendant:
_____
Supervisor:
_____
Emergency Rescue Personnel:
_____

G. Authorization for Entry

I certify that all precautions have been taken as required by the AME Confined Space Entry Program for safe entry and work in this confined space.

_____ _____
Entry Supervisor Signature Date

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Hot Work Permit

Date: ____/____/____ Location: _____ Area: _____

Nature of Job: _____

The supervisor must inspect the proposed work area and check precautions to prevent fire.

PRECAUTIONS

General Precautions

- ☐ Sprinklers in service (if applicable)
- ☐ Equipment is in good condition/defect free
- ☐ Area (affected) personnel notified

Work on Walls or Ceilings

- ☐ Construction is noncombustible and without combustible covering or insulation
- ☐ Combustibles moved away from opposite side

Work on Enclosed Equipment

- ☐ Equipment cleaned of all combustibles
- ☐ Containers purged of flammable vapors
- ☐ Adequate air flow through enclosed equipment to be provided with cutting and welding is done

Precautions within 35 Feet of Work

- ☐ Floors/ground kept clear of combustibles
- ☐ Combustible areas wet down, covered with damp sand, metal, or fireproof sheets
- ☐ No combustible materials or flammable liquids
- ☐ Combustibles and flammable liquids protected with fire-proof tarps or metal shields
- ☐ All wall and floor openings covered
- ☐ If work is elevated, fire-proof tarps suspended beneath work to collect sparks and protect pedestrians

Fire Watch

- ☐ To be provided during and for 30 minutes after operation
- ☐ Supplied with extinguishers
- ☐ Trained in use of equipment and in sounding alarms

APPROVALS

I have personally examined the above and certify that the checked precautions have been taken.

Signed: _____ (Supervisor Approving Work)

Permit Expires on ____/____/____ at ____:____ AM/PM

Employee Performing Hot Work

Signed: _____ (Supervisor Approving Work)

Time Started: ____:____ AM/PM Time Stopped __:____ AM/PM

CANCEL

Permit Close-Out

Work area and all adjacent areas to which sparks and heat might have spread (such as floors above and below and on opposite sided of walls) were inspected for at least 30 minutes after the work was completed and were fire safe.

Signed: _____ (Supervisor Approving Work)

After signing, return permit to the Corporate Health and Safety Manager.

Excavation Checklist

Company:		Project:
Trench Depth:	Length/Width:	Type of Protective System:
Site location/Description (weather, soil type, etc.):		
Signature of competent persons:	Date:	Time:

Yes	No	N/A	Excavation
			Excavations and protective systems inspected by competent person daily before start of work.
			Competent person has authority to remove workers from excavation immediately.
			Surface encumbrances supported or removed.
			Necessary PPE, including hard hats, worn by all employees.
			Spoils, materials, and equipment set back a minimum of two feet from edge of
			Barriers provided at all remote excavations, wells, pits, shafts, etc.
			A means of egress is provided for all trenches four or more feet deep and is within twenty-five feet of every employee.
			Walkways and bridges over excavations six feet or more deep equipped with guardrails.
			Warning vests or other highly visible PPE provided and worn by employees
			Employees prohibited from working or walking under suspended loads.
			Employees prohibited from working on faces of sloped or benched excavations
			Warning systems established and used when mobile equipment is operating near edge of excavation.

Yes	No	N/A	Utilities
			Utility companies contacted and/or utilities located.
			Exact location of utilities marked when near excavation.
			Underground installations protected, supported or removed when excavation is open.

Yes	No	N/A	Wet Conditions
			Precautions taken to protect employees from accumulation of water.
			Water removal equipment monitored by competent person.
			Surface water controlled or diverted.
			Inspection made after each rainstorm by competent person.

Yes	No	N/A	Hazardous Atmosphere
			Atmosphere tested when there is a possibility of oxygen deficiency or build-up of hazardous gases.
			Oxygen content is between 19.5% and 21%.
			Ventilation provided to prevent flammable gas build-up to 20% of lower
			Continuous testing conducted to ensure that the atmosphere remains safe.
			Emergency response equipment readily available where a hazardous
			Employees trained to use personal protective and emergency response
			Safety harness and lifeline individually attended when employees enter deep confined excavation.

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Employee Training and Medical Clearance

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Chemical Health Hazards

Lead

Chemical name: Plumbum

Physical Characteristics: Lead is a heavy, ductile, soft, gray solid.

Exposure Limits: NIOSH's recommended exposure limit (REL for 10-hour TWA) is less than 0.050 mg/m^3 with air concentrations being maintained so that a worker's blood level remains less than 0.060 mg Pb/100 g of whole blood. OSHA permissible exposure limit (PEL for 8-hour TWA) is to be less than 0.050 mg/m^3. NIOSH standards report lead as an immediate danger to life or health (IDLH) above 100 mg/m^3. It should be noted that women of child bearing potential with lead blood levels higher than 10 µg/dl are at risk or delivering a child with lead blood levels higher than the current CDC guideline of 10 µg/dl which could lead to cognitive impairment of the child.

Routes of Exposure: Lead can be absorbed through the skin or eyes, ingested, and/or inhaled.

Symptoms of acute exposure: Symptoms associated with lead exposure include, but are not limited to: weakness, exhaustion, insomnia, facial pallor, anorexia, weight loss, malnutrition, constipation, abdominal pain, colic, anemia, gingival lead line, tremor, paralysis wrist and/or ankles, encephalopathy, kidney disease, eye irritation, and hypertension.

Long term health effects:

Organs targeted by lead include eyes, gastrointestinal tract, central nervous system, peripheral nervous system, kidneys, blood, and gingival tissue. Lead is also a known human carcinogen.

First Aid: Treatments for lead exposure include the following: for eyes, irrigate immediately; for skin, promptly flush the skin with soap and water; for respiratory tract, move to fresh air at once or if breathing has stopped, perform artificial respiration and contact medical personnel immediately; for ingestion, seek medical attention immediately.

Arsenic

Chemical Name: Arsenic

Physical Characteristics: Arsenic is a silver-gray or tin-white, brittle, odorless solid.

Exposure Limits: NIOSH's recommended exposure limit (REL for 10-hour TWA) is 0.002 mg/m^3 and OSHA's permissible exposure limit (PEL for 8-hour TWA) is to be less than 5 mg/m^3.

Routes of Exposure: Arsenic can be absorbed through the skin or eyes, ingested, and/or inhaled.

Symptoms of acute exposure: Symptoms associated with arsenic include, but are not limited to: ulceration of nasal septum, dermatitis, GI disturbance, respiratory irritation, hyperpigmentation of skin, and peripheral neuropathy.

Long term health effects: Organs targeted by arsenic include liver, kidneys, skin, lungs, and lymphatic system.

First Aid: First aid treatments for arsenic exposure include the following: for eyes, irrigate immediately; for skin, promptly flush skin with soap and water; for respiratory tract, move the exposed person to fresh air or if breathing has stopped, perform artificial respiration and contact medical personal immediately; for ingestion, seek medical attention immediately.

Naphthalene

Chemical Name: Naphthalene

Physical properties: Naphthalene is a colorless to brown solid with a mothball odor.

Exposure Limits: NIOSH standards report naphthalene as an immediate danger to life or health (IDLH) at 250 ppm and its recommended exposure limit (REL for a 10-hour TWA) is 10 ppm. The permissible exposure limit (PEL for an 8-hour TWA) set by OSHA is also 10 ppm. Naphthalene's generic soil screening level, calculated by the EPA, is 3,100 mg/kg for ingestion.

Routes of exposure: Naphthalene exposure occurs through ingestion, inhalation, direct skin or eye contact, and skin absorption.

Symptoms of acute exposure: Symptoms associated with naphthalene include, but are not limited to: eye irritation, headaches, confusion, excitement, malaise, nausea, vomiting, abdominal pain, bladder irritation, profuse sweating, jaundice, hematuria, renal shutdown, dermatitis, optical neuritis, corneal damage.

Long term health effects: Organs targeted by naphthalene include eyes, skin, blood, liver, kidneys, and central nervous system.

First Aid: First aid treatments for naphthalene exposure include the following: for eyes, irrigate immediately; for skin, promptly flush skin with soap and water; for respiratory tract, move the exposed person to fresh air or if breathing has stopped, perform artificial respiration and contact medical personal immediately; for ingestion, seek medical attention immediately.

Benzene

Chemical Name: Benzene

Physical properties: Benzene is a colorless to light-yellow liquid with an aromatic odor.

Exposure Limits: NIOSH standards report benzene as an immediate danger to life or health (IDLH) at 500 ppm and its recommended exposure limit (REL for a 10-hour TWA) is 0.1 ppm. The permissible exposure limit (PEL for an 8-hour TWA) and short-term exposure limit (STEL) set by OSHA are 1 ppm and 2.5 ppm respectively. Benzene's generic soil screening level, calculated by the EPA, is 22 mg/kg for ingestion and 0.8 mg/kg for inhalation.

Routes of exposure: Benzene exposure occurs through ingestion, inhalation, direct skin or eye contact, and skin absorption.

Symptoms of acute exposure: Symptoms associated with benzene include, but are not limited to: irritated eyes, skin, nose, and respiratory system, headaches, nausea, staggered gait, exhaustion, anorexia, and bone marrow depression.

Long term health effects: Organs targeted by benzene include eyes, skin, respiratory system, blood, central nervous system, and leukemia. Benzene is also a carcinogen.

First Aid: First aid treatments for benzene exposure include the following: for eyes, irrigate immediately; for skin, promptly flush skin with soap and water; for respiratory tract, move the exposed person to fresh air or if breathing has stopped, perform artificial respiration and contact medical personal immediately; for ingestion, seek medical attention immediately.

Toluene

Chemical Name: Methylbenzene

Physical properties: Toluene is a colorless liquid with a sweet, pungent, benzene-like odor.

Exposure Limits: NIOSH standards report toluene as an immediate danger to life or health (IDLH) at 500 ppm and its recommended exposure limit (REL for a 10-hour TWA) is 100 ppm. The permissible exposure limit (PEL for an 8-hour TWA) set by OSHA is 200 ppm. Toluene's generic soil screening level, calculated by the EPA, is 16,000 mg/kg for ingestion and 650 mg/kg for inhalation.

Routes of exposure: Toluene exposure occurs through ingestion, inhalation, direct skin or eye contact, and skin absorption.

Symptoms of acute exposure: Symptoms associated with toluene include, but are not limited to: irritated eyes and nose, exhaustion, confusion, euphoria, dizziness, headaches, dilated pupils, lacrimation, anxiety, muscle fatigue, insomnia, paresthesia, dermatitis, liver and kidney damage.

Long term health effects: Organs targeted by benzene include eyes, skin, respiratory system, central nervous system, liver, and kidneys.

First Aid: First aid treatments for toluene exposure include the following: for eyes, irrigate immediately; for skin, promptly flush skin with soap and water; for respiratory tract, move the exposed person to fresh air or if breathing has stopped, perform artificial respiration and contact medical personal immediately; for ingestion, seek medical attention immediately.

Xylene

Chemical Name: Xylene

Physical properties: Xylene is a colorless liquid with an aromatic odor.

Exposure Limits: NIOSH standards report xylene as an immediate danger to life or health (IDLH) at 900 ppm and its recommended exposure limit (REL for a 10-hour TWA) is 100 ppm. The permissible exposure limit (PEL for an 8-hour TWA) and short-term exposure limit (STEL) set by OSHA are 100 ppm and 150 ppm respectively. Xylene's generic soil screening level, calculated by the EPA, is 1.6E+05 mg/kg for ingestion and 410 mg/kg for inhalation.

Routes of exposure: Xylene exposure occurs through ingestion, inhalation, direct skin or eye contact, and skin absorption.

Symptoms of acute exposure: Symptoms associated with xylene include, but are not limited to: irritated eyes, skin, nose and throat, dizziness, excitement, drowsiness, incoordination, staggering gait, corneal vacuolization, anorexia, nausea, vomiting, abdominal pain, and dermatitis.

Long term health effects: Organs targeted by xylene include the eyes, skin, respiratory system, central nervous system, GI tract, blood, liver, and kidneys.

First Aid: First aid treatments for xylene exposure include the following: for eyes, irrigate immediately; for skin, promptly flush skin with soap and water; for respiratory tract, move the exposed person to fresh air or if breathing has stopped, perform artificial respiration and contact medical personal immediately; for ingestion, seek medical attention immediately.

Polyaromatic hydrocarbons (PAHs)

Chemical Name: Polycyclic aromatic hydrocarbons

Physical properties: Polyaromatic hydrocarbons are solid in their purest form and range from colorless to white or pale yellow-green.

Chemicals included as PAHs: benzopyrene, dibenzo(a,e)fluoranthene, acenaphthene, pyrene, 3-methylcholanthrene, indeno(1,2,3-cd)pyrene, Benzo(a)anthracene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene

Exposure Limits: Exposure limits have not been established.

Routes of exposure: Polyaromatic hydrocarbon exposure occurs through ingestion, inhalation, direct skin or eye contact, and skin absorption.

Symptoms of acute exposure: Symptoms associated with polyaromatic hydrocarbon exposure in animals include reproductive defects, decreased body weight, tumors, and damage to their skin, bodily fluids, and immune systems. Humans have not experienced these effects.

Long term health effects: Information is not available on the effects that polyaromatic hydrocarbons have on humans, but is believed cancer is related to its inhalation and skin absorption.

First Aid: Short-term exposure does not require first-aid treatment. People experiencing excess polyaromatic hydrocarbon exposure should contact their physician immediately.

Polynuclear Hydrocarbons (PNAs)

Chemical Name: Polynuclear aromatic hydrocarbons, polycyclic aromatic hydrocarbons

Physical properties: Polynuclear hydrocarbons are a subset of polyaromatic hydrocarbons and have various physical properties based on the number of fused benzene rings in their structure.

Chemicals included as PNAs: anthracene, chrysene, naphthalene, benzo[k]fluoranthene

Exposure Limits: Exposure limits have not been established.

Routes of exposure: Polynuclear hydrocarbon exposure occurs through ingestion, inhalation, direct skin or eye contact, and skin absorption.

Symptoms of acute exposure: Symptoms associated with polynuclear hydrocarbon exposure in animals include reproductive defects, decreased body weight, tumors, and damage to their skin, bodily fluids, and immune systems. Humans have not experienced these effects.

Long term health effects: Information is not available on the effects that polynuclear hydrocarbons have on humans, but is believed cancer is related to its inhalation and skin absorption.

First Aid: Short-term exposure does not require first-aid treatment. People experiencing excess polynuclear hydrocarbon exposure should contact their physician immediately

Volatile Organic Compounds (VOCs)

Physical properties: Volatile organic compounds refer to any carbon based chemicals that participate in atmospheric photochemical reactions.

Chemicals included as VOCs: formaldehyde, isopentane, xylenes, chloride, methylene, toluene, butoxyethanol, benzene

Exposure Limits: Exposure limits have not been established.

Routes of exposure: Volatile organic compound exposure occurs through ingestion, inhalation, direct skin or eye contact, and skin absorption.

Symptoms of acute exposure: Symptoms associated with volatile organic compounds include, but are not limited to: irritated eyes, nose, and throat, headaches, nausea, and damage to the liver, kidney, and central nervous system.

Long term health effects: Information is not available on the effects that volatile organic compounds have on humans, but is believed cancer is related to its inhalation and skin absorption.

First Aid: Short-term exposure does not require first-aid treatment. People experiencing excess volatile organic compound exposure should contact their physician immediately.

Organic Compounds

Physical properties: Organic compounds large class of gaseous, liquid, or solid chemical compounds whose molecules contain carbon.

***Chemicals included as organics*: Ammonia and Nitrates**

Exposure Limits: Exposure limits have not been established.

Routes of exposure: Organic compound exposure occurs through ingestion, inhalation, direct skin or eye contact, and skin absorption.

Symptoms of acute exposure: Symptoms associated with organic compounds include, but are not limited to: irritated eyes, nose, and throat, headaches, nausea, and damage to the liver, kidney, and central nervous system.

Long term health effects: Information is not available on the effects that organic compounds have on humans, but is believed cancer is related to its inhalation and skin absorption.

First Aid: Short-term exposure does not require first-aid treatment. People experiencing excess organic compound exposure should contact their physician immediately.

Inorganic Compounds

Physical properties: Inorganic compounds are those in which do not contain carbon, and are not consisting of or deriving from living matter.

***Chemicals included as inorganics*: Cyanide**

Exposure Limits: IOSH REL: ST 4.7 ppm (5 mg/m3) [skin] OSHA PEL†: TWA 10 ppm (11 mg/m3) [skin]

Routes of exposure: Inorganic compound exposure occurs through ingestion, inhalation, direct skin or eye contact, and skin absorption.

Symptoms of acute exposure: Symptoms associated with inorganic compounds include, but are not limited to: asphyxia; lassitude (weakness, exhaustion), headache, confusion; nausea, vomiting; increased rate and depth of respiration or respiration slow and gasping; thyroid, blood changes

Long term health effects: Information is not available on the effects that inorganic compounds have on humans, but is believed cancer is related to its inhalation and skin absorption.

First Aid: Short-term exposure does not require first-aid treatment. People experiencing excess inorganic compound exposure should contact their physician immediately.

Activity Hazard Analysis

Overall Risk Assessment Code (RAC) **M**

(Use highest code)

Project – Environmental Site Investigations	Date Prepared	Date Revised
	6/23/13	10/1/14
Activity GeoProbe Operation AHA	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Site/GeoProbe Setup	Struck By/caught between	• Only qualified equipment operator to unload GeoProbe. • Use spotter. • Unload on level ground surface.	

		• Secure transport vehicle or trailer (emergency break for vehicle, wheel chocks if trailer is disconnected or if the transport trailer is on a sloped surface). • Ensure all tools and rig equipment is secure prior to moving. • Establish site control or hazard warning devices around the unloading area (if unloading area is near the general public or other site workers) • Do not stand directly in front of GeoProbe as it descends from the transport vehicle/trailer.	L
	Underground equipment Utilities	• Investigate to ensure public and private underground utilities have been located by physically inspecting markings. • Ensure boring locations are at least 3-feet from marked underground utility lines.	M
	Overhead Utilities	• Inspect routes to drilling locations for overhead utility lines. • Maintain 20-foot distance for overhead utility lines or minimum clearance distances described in the Underground & Overhead Utility SOP. • GeoProbe mast must be in the down position while mobilizing GeoProbe to boring locations.	M
	General physical hazards	• Steel toed boots, hard hats, safety glasses, appropriate gloves (leather or mechanical), and hearing protection must be worn during GeoProbe operation. • No loose-fitting clothing, rings, watches, etc.; long hair to be restrained close to the head.	L
	Fire	• Smoking in designated areas only. • Fire extinguisher readily available.	L

Fueling Drill Rig	Fire	• No smoking during refueling. • Fire extinguisher readily available. • Do not lock the nozzle in the open position. • Remain with equipment at all times during refueling.	L
	Spills	• Ensure spill kit is available. • Properly clean up spills, if safe to do so. • Notify site supervisor if spill occurs. • Properly dispose of materials.	L
	Struck by vehicles and/or equipment	• Always make eye contact and get permission from vehicle or equipment operator before approaching or crossing the path of any vehicle or piece of equipment. • Follow traffic control plan. • Wear high-visibility safety vests. • Be aware of site traffic and pedestrians. • Establish a work zone large enough to protect those outside the work area from the hazards inside the work area.	L
Mobilizing drill rig and equipment to boring locations	Overturning of drill rig	• Ensure stable ground and adequate footing for machinery. Adequate ground preparation to support loads. • Establish drill pad if necessary. • Ensure drill rig is level and stabilized.	L
	Overhead Utilities	• Inspect routes to drilling locations for overhead utility lines. • Maintain 20-foot distance for overhead utility lines or minimum clearance distances described in the Underground & Overhead Utility SOP. • GeoProbe mast must be in the down position while mobilizing GeoProbe to boring locations..	M

	Struck by objects/Overhead hazard	• Tools and equipment secured prior to rig movement	L
	Falling/Crushing injuries	• Do not ride on the GeoProbe. • Do not utilize the GeoProbe to move objects it is not designed to haul.	L
Drilling Activities	Rotating / moving parts of drill rig	• Complete daily inspection of GeoProbe & equipment. • Ensure appropriate guards are installed or suitable barriers to protect personnel from moving parts. • Kill switch installed, clearly identified, and operational. • Test kill switch at the beginning of each shift. • Ensure all personnel know the location of and how to engage the kill switch. • Loose clothing, long hair, and jewelry to be safely secured. • Do not approach an operating GeoProbe without making eye contact and getting permission from the operator.	M
	Struck by drill auger	• Wear steel toe boots, hard hat, safety glasses.	L
	Dermal or inhalation exposure to contaminants	• Conduct air monitoring for potential hazardous atmospheres as described in the project's HASP. • Don PPE as prescribed in the project's written HASP.	L
	Slips, trips, and falls	• Ensure good footing. Remove mud from work boots when possible. • Maintain good housekeeping in work area (i.e. remove excess materials, tools, and trash that create a slip or trip hazard.	L

	Sprains and strains	• Use proper lifting techniques and get help with heavy or awkward loads. • Use two people to lift object > 50 pounds.	L
	Failure of drill rig components	• Defective components repaired prior to return to service. • Lockout/tag out procedures used prior to maintenance.	L
	Weather	• GeoProbe not to be operated in severe inclement weather such as lightning storms, high winds, or severe rain. Mast to be lowered in these conditions.	L
	Exposure to dust	• Fugitive dust suppressed with water or by other approved means.	L
	Noise	• Wear hearing protection while the GeoProbe is running.	L
Handling Probes and Augers	Cuts/abrasions	• Inspect equipment for sharp protrusions or debris. • Wear cut resistant gloves.	L
	Struck by	• Make sure the path is clear before moving tools. • Maintain housekeeping. • Wear protective steel toe boots.	L
	Stains/sprains	• Use proper lifting techniques. • Utilize the GeoProbe move tools. • Use two people to lift objects greater than 50 pounds.	L
	Contact with contamination	• Wear PPE as described in the Site Specific HASP.	L
Hoisting operations	Overhead hazards	• Ensure all personnel stand clear during hoisting. • Ensure rigging is not damaged and is rated for what is being lifted.	L
Waste Disposal	Contact with contaminated debris and water	• Wear PPE as described in the site HASP.	L

Drum Moving	Strains and Sprains	• Fill drum a maximum of 85% full. • Use a drum dolly or similar mechanical device to move the drum.	M
Decontamination	Contact with contaminated debris and water	• Perform Decontamination according to the Site HASP. • Wear poly coated tyvek with hood and booties, face shield and nitrile gloves if pressure washing.	L
EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED	
Various hand tools	Hazwoper (40 Hour)	Daily inspection of GEOPROBE	
Approved cutting device – liner cutters			

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): L

Project	Date Prepared	Date Revised
	10/1/14	
Activity Utility Locating and Clearing AHA	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Inspect site for evidence of utilities	Slips, Trips and Falls	• Inspect walking surfaces for terrain hazards or potholes that could cause a slip, trip or fall. • Identify and/or communicate fall hazards to project team. • Do not walk through tall grass or vegetation where the walking surface cannot be viewed. The area should be cut down prior to walking through it. • Wear appropriate work shoes or boots.	

		• Avoid working at times when it is dark or you should use additional lighting when necessary.	L
	Biological hazards Animals Insects Poisonous Plants	• Avoid all animals including domestic animals. • Be aware of insect nests and wear long pants, long sleeve shirts. • Apply insect repellant. • Use insect pesticide to eradicate insects that interfere with work activities. • Review the site HASP for understanding of biological hazards including poisonous plants. • If contacted by a poisonous plant, immediately decontaminate skin with soap and water. • If contact with poisonous plants are necessary, you must don chemical resistant suits and gloves. • Report all incidents involving biological hazards to the site safety officer.	L
	Heat/Cold Stress	• Monitor for Heat/Cold stress. • Dress appropriate for the weather. • Provide fluids to prevent worker dehydration. • Establish work/rest.	L
	Traffic	• Don a hi-visibility vest. • Do not enter the right of way or roads unless free of traffic.	L
Perform utility locating using GPR and/or Electromagnetic Induction	Slips, Trips and Falls	• Inspect walking surfaces for terrain hazards or potholes that could cause a slip, trip or fall. • Identify and/or communicate fall hazards to project team. • Do not walk through tall grass or vegetation where the walking surface cannot be viewed. The area should be cut down prior to walking through it. • Wear appropriate work shoes or boots. • Avoid working at times when it is dark or you should use additional lighting when necessary.	L
	Biological hazards	• Avoid all animals including domestic animals. • Be aware of insect nests and wear long pants, long sleeve shirts.	

		• Apply insect repellant. • Use insect pesticide to eradicate insects that interfere with work activities. • Review the site HASP for understanding of biological hazards including poisonous plants. • If contacted by a poisonous plant, immediately decontaminate skin with soap and water. • If contact with poisonous plants are necessary, you must don chemical resistant suits and gloves. • Report all incidents involving biological hazards to the site safety officer.	L
	Heat/Cold Stress	• Monitor for Heat/Cold stress. • Dress appropriate for the weather. • Provide fluids to prevent worker dehydration. • Establish work/rest.	L
	Traffic	• Don a hi-visibility vest. • Do not enter the right of way or roads unless free of traffic.	L
	Lifting – Strains/sprains	• Utilize proper lifting techniques when loading and unloading equipment. • Use a team lift if the weight of object is greater than 40 pounds or if the object is an awkward size or shape.	L
	Electrical	• Avoid opening electrical panels or outlets. • Don insulated gloves and tools if required to be exposed to live electrical wires. • Do not attempt to repair damaged electrical lines. • Maintain a minimum of ten feet from unprotected electrical lines.	L
	Gas leaks	• If leaks in gas or fuel lines are identified, immediately contact the public utility company responsible for the utility. • Evacuate the area and do not let anyone into the area until the leak is resolved. • Remove all sources of ignition from the area if it is safe to do so.	L

	Hazardous Chemicals	• All chemicals, including spray paints, must have an MSDS onsite. • Portions of the site may be contaminated with hazardous substances. Don nitrile gloves (or similar type of glove if handling soils. • Decontaminate shoes/boots if necessary.	L
Soft digging to clear/daylight utilities (air knife, hand dig w/shovel, hydro excavation)	Slips, Trips and Falls	• Inspect walking surfaces for terrain hazards or potholes that could cause a slip, trip or fall. • Identify and/or communicate fall hazards to project team. • Do not walk through tall grass or vegetation where the walking surface cannot be viewed. The area should be cut down prior to walking through it. • Wear appropriate work shoes or boots. • Avoid working at times when it is dark or you should use additional lighting when necessary.	L
	Biological hazards	• Avoid all animals including domestic animals. • Be aware of insect nests and wear long pants, long sleeve shirts. • Apply insect repellant. • Use insect pesticide to eradicate insects that interfere with work activities. • Review the site HASP for understanding of biological hazards including poisonous plants. • If contacted by a poisonous plant, immediately decontaminate skin with soap and water. • If contact with poisonous plants are necessary, you must don chemical resistant suits and gloves. • Report all incidents involving biological hazards to the site safety officer.	L
	Heat/Cold Stress	• Monitor for Heat/Cold stress. • Dress appropriate for the weather. • Provide fluids to prevent worker dehydration. • Establish work/rest.	L

	Traffic	• Don a hi-visibility vest. • Do not enter the right of way or roads unless free of traffic.	L
	Lifting – Strains/sprains	• Utilize proper lifting techniques when loading and unloading equipment. • Use a team lift if the weight of object is greater than 40 pounds or if the object is an awkward size or shape.	L
	Noise	• Utilize hearing protection during air knife and hydro excavation.	L
	Flying debris	• Wear safety glasses with side shield at a minimum. Upgrade to add a face shield during air knife or at any time debris is flying up towards the operators face.	L
	Abrasions/Cuts/Contusions	• Wear work gloves to prevent blisters or scratches • Wear steal toe boots or shoes. • Avoid contact with pressure lines/wands for air knife and hydro excavation.	L

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED
Locating Equipment EM and GPR	Equipment specific training	None
Air Knife or Hydrovac		

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) H

(Use highest code)

Project	Date Prepared	Date Revised
	8/13/2013	9/25/2014
Activity **Hand Augering AHA**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Digging Using a Hand Auger	Striking Underground Utilities	• Hand augering can only occur after a public and private utility locate has cleared the boring location. • Hand augering is not considered a soft digging technique. • Never use a hand auger to locate a utility.	H

	Struck By	• Wear steel toe boots. • Do not thrust the auger into the ground; the auger is intended to cut through the soil by twisting the handle.	L
	Cuts / Laceration	• Wear cut resistant gloves when handling the working end of the auger.	L
	Flying Debris	• Wear safety glasses.	L
	Strains / Sprains	• Adjust auger so handle is capable of being reached easily.	L
	Blistering	• Wear gloves while auguring.	L
EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED	
Hand Auger	HAZWOPER (Minimum 24 HR)	Inspect the boring location for signs of underground utilities.	
		Subsurface Dig Permit required	

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): **M**

Project	Date Prepared	Date Revised
	10/1/14	
Activity **Saw Cutting Concrete AHA**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Saw Cutting of Concrete	Laceration/Dismemberment	• Only trained and qualified personnel will be allowed to operate the concrete saw. • No workers, with exception of the saw operator, will be allowed within twenty five feet of operational saw. • The area to be saw cut should be swept prior to sawing to prevent flying debris.	M

		• The saw operator will be required to wear safety glasses, face shield, leg protection, steel toed boots, gloves, and a hardhat to prevent lacerations.	
	Eye Injury	• Safety glasses and face shield shall be worn when while cutting concrete.	M
	Noise	• Saw operator will be required to wear ear muffs and expandable foam ear plugs or equivalent. • All workers in the vicinity of the saw cutting will be required to wear hearing protection	M
	Dust	• Workers operating the concrete saw shall use wet methods as well as half or full face respirator with HEPA filters	M
EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED	
Concrete Saw	General Training/experience with concrete saw	Inspect equipment prior to use.	
Water supply/sprayer			

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): L

Project	Date Prepared	Date Revised
	6/11/2013	9/25/2013
Activity **Logging & Screening Soil Samples AHA**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Prepare Work Area	Slips Trips and Falls	• Maintain housekeeping • Setup work area away from active operations and high traffic areas • Remove trip hazards in the workspace • Setup work area on a level surface • Use caution when climbing in and out of the truck bed, avoid jumping out of the truck bed	

	Cuts / Abrasions Struck By Strains / Sprains	• Wear cut resistant gloves while using cutting devices • Wear cut resistant gloves while unloading work supplies that may have pinch point or sharp edges, such as a sample table or work canopy • Inspect the work area for sharp edges prior to setup • Wear steel toe boots • Wear a hard hat • Use proper lifting techniques. • Use two people to lift objects greater than 50 lbs	L
Obtain Sample (Either from loose soil or sample tube)	Contamination with Hazardous Substances Cuts / Abraisions	• Conduct breathing space monitoring with a PID and follow site specific HASP requirements • Wear chemical resistant gloves as defined in the site specific HASP • Use caution when collecting the sample from the sample tube as there may be rough or sharp edges	L
Clean work area in preparation for the next sample	Contamination w/ hazardous substances Cuts/abrasions	• Conduct breathing space monitoring with a PID and follow site specific HASP requirements • Wear chemical resistant gloves as defined in the site specific HASP • Pick up samples and place in the appropriate disposal container • Avoid brushing off the work area with your hand, use a brush or broom	L
Changing out PPE (Gloves)	Contamination w/ hazardous substances	• Remove gloves by removing one glove and turning the glove inside out as it is being removed. Use the inside out glove to remove the second glove also turning the second glove inside out as it is being removed.	L

		• Place the contaminated gloves in the appropriate waste container.	
Log sample description	Contamination w/ hazardous substances	• Remove contaminated PPE prior to handling the log book. • Locate log book away from contaminated areas.	L
Collect headspace analysis from soil sample	Contamination w/ hazardous substances	• Wear chemical resistant gloves as defined in the site specific HASP • Wear safety glasses • Hold sample bag away from your body when puncturing the bag	L
Place soil sample in sample jar	Contamination w/ hazardous substances (including sample jar preservative)	• Wear chemical resistant gloves as defined in the site specific HASP	
Cleanup/Decontaminate work area	Contamination w/ hazardous substances	• Wear chemical resistant gloves as defined in the site specific HASP • Wear safety glasses • Place all waste in appropriate waste containers • Decontaminate all surfaces and equipment that has contacted the contaminated soil according to the site specific HASP	L
Demobilize work area	Slips, trips, and falls Cuts/abrasions Struck by Strains/sprains	• Maintain housekeeping • Use caution when climbing in and out of the truck bed, avoid jumping out of the truck bed • Wear cut resistant gloves while loading work supplies that may have pinch point or sharp edges, such as a sample table or work canopy • Wear steel toe boots • Wear a hard hat • Use proper lifting techniques. • Use two people to lift objects greater than 50 lbs	L

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED
PID	HAZWOPER (24 HR Minimum)	Site Safety inspection performed by the site safety officer
Sample Tube Liner Cutter or approved cutting device described in the HASP		

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) **M**

(Use highest code)

Project	Date Prepared	Date Revised
	8/15/2013	9/25/2013
Activity **Ground Water Monitoring AHA**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Mobilizing / Demobilizing Equipment / Supplies at Each Location	Traffic	• Visually inspect vehicle before driving (tires, lights, etc). • Adjust mirrors (views for left, right and rear). • Fasten seatbelts before engaging vehicle. • Cell phone usage is prohibited while driving a vehicle. • Obey posted speed limits and traffic laws.	L

		• Place traffic cones behind vehicles as needed to alert vehicular traffic. • When possible, park sampling vehicle facing into traffic for protection. • Remove keys from ignition and engage parking brake when out of the vehicle	
Perform Site Safety Inspection	Unidentified Site hazards, potential near-misses	• Assess potential Hazards. Analyze how to reduce risk. Act to ensure sampling is performed safely. • Site safety officer conducts tailgate safety meeting by reviewing Health and Safety Plan [HASP], Vehicle Safety, Job Safety Analysis [JSA], Evacuation Plan. • Make site-specific changes to JSA, as necessary. • Sign compliance agreement to comply with HASP/JSA. • Identify nearest hospital, location of health and safety equipment (first aid kit/eye/fire extinguisher).	L
Personal Health & Safety	Heat stress and heat stroke	• Drink plenty of fluids and have plenty of fluids available (water and sports drinks are recommended; coffee and soda may actually cause further dehydration). • Wear loose, non-restrictive clothing and hat/cap. • Stay in shade as much as possible to keep cool (use vehicle and air-conditioning if necessary). • Use sunscreen to prevent sunburn and lip balm to prevent chapped lips. • Be aware of faintness, dizziness, unconsciousness, paleness, and profuse sweating in Site personnel (contact PM or if severe, contact emergency personnel).	M

		• Redness to the face, high body temperature, and lack of sweating may indicate heat stroke (contact emergency personnel immediately).	
Access Monitoring Wells / Well Covers	Strain / sprains from opening well covers / heavy lifting / hand tools / puncture hazards from hidden boards with nails or hidden hails on the ground / biological	• Use proper lifting posture when opening/closing all well covers. • Wear leather gloves and safety glasses when opening and closing well covers and caps, tapping bolts. • Check for poisonous spiders, insects, etc. • Stand upwind of well when removing cover. • Ensure well is securely closed after sampling.	L
Calibrate and Check Over All Equipment	Equipment malfunction, inaccurate data recovery	• Calibrate water level/ water quality meter(s) and check over to ensure they are working properly.	
Measuring Water Levels	Dermal contact and inhalation of potential constituents	• Perform careful triple-rinse decontamination of sounder or interface meter. • Wear Nitrile gloves when handling water. Be careful not to splash or spill large amounts of water on clothing or on the Site.	L
Well Purge & Sample	Pinch points / cross-contamination of wells / spills, leaks, slips, trips / Chemical exposure	• Keep hands clear of well opening when inserting bailer or pump tubing. • Replace peristaltic pump silicon and polyethylene tubing with new at each well location. • Inspect the integrity of liquid containers prior to and during use. • Carefully pour liquids when transferring between containers. • Avoid spills when filling sample bottles, and handle with care to avoid breakage. • Ensure bottles are labeled accurately. • Maintain good housekeeping. Have trash bag at Site and clean as work is conducted.	L

		• Sample preservative may consist of injurious chemicals, such as acids. Maintain adequate rinsing/flushing capabilities and baking soda to neutralize spills.	
Place Samples in Cooler with Ice and Padding Materials	Bottle breakage, back strain	• Wear proper PPE and pack bottles carefully (bubble wrap bags are helpful). • Ensure cooler is thoroughly iced to maintain samples at proper temperature (4 degrees Celsius).	L
Load Equipment and Supplies into Vehicle	Back injury, equipment damage	• Use proper lifting techniques when loading/lifting coolers and equipment into vehicle. • Ensure equipment and supplies are loaded correctly and do not shift during driving.	
Site Cleanup	Debris or equipment left on-Site or unsecure can cause tripping hazard	• Make careful visual sweep of Site. • Check for tools, debris or dirt left on-Site. • Remove free standing water by sweeping or with absorbent material.	
EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED	
Scissors/cutting utensils described in the site HASP.	HAZWOPER (24 HR Minimum)	General site safety inspection performed by Site Safety Officer	
Sample pump, Tubing, Vice Grips			
Buckets			
12 volt battery			
Various hand tools like wrenches and screwdrivers			

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): **M**

Project	Date Prepared	Date Revised
	8/13/2013	10/8/2014
Activity **Well Abandonment**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Removing well pad using a GeoProbe	Overturning of drill rig	• Ensure stable ground and adequate footing for machinery. Adequate ground preparation to support loads. • Establish drill pad if necessary. • Ensure drill rig is level and stabilized.	L

	Overhead Utilities	• Inspect routes to drilling locations for overhead utility lines. • Maintain 20-foot distance for overhead utility lines or minimum clearance distances described in the Underground & Overhead Utility SOP. • GeoProbe mast must be in the down position while mobilizing GeoProbe to boring locations..	M
	Struck by objects/Overhead hazard	• Tools and equipment secured prior to rig movement	L
	Falling/Crushing injuries	• Do not ride on the GeoProbe. • Do not utilize the GeoProbe to move objects it is not designed to haul.	L
	Rotating / moving parts of GeoProbe	• Complete daily inspection of GeoProbe & equipment. • Ensure appropriate guards are installed or suitable barriers to protect personnel from moving parts. • Kill switch installed, clearly identified, and operational. • Test kill switch at the beginning of each shift. • Ensure all personnel know the location of and how to engage the kill switch. • Loose clothing, long hair, and jewelry to be safely secured. • Do not approach an operating GeoProbe without making eye contact and getting permission from the operator.	L
	Struck by drill auger/probe tube	• Wear steel toe boots, hard hat, safety glasses.	L
	Dermal or inhalation exposure to contaminants	• Conduct air monitoring for potential hazardous atmospheres as described in the project's HASP.	L

		• Don PPE as prescribed in the project's written HASP.	
	Slips, trips, and falls	• Ensure good footing. Remove mud from work boots when possible. • Maintain good housekeeping in work area (i.e. remove excess materials, tools, and trash that create a slip or trip hazard.	L
	Sprains and strains	• Use proper lifting techniques and get help with heavy or awkward loads. • Use two people to lift object > 50 pounds.	L
	Failure of GeoProbe components	• Defective components repaired prior to return to service. • Lockout/tag out procedures used prior to maintenance.	L
	Weather	• GeoProbe not to be operated in severe inclement weather such as lightning storms, high winds, or severe rain. Mast to be lowered in these conditions.	L
	Exposure to dust	• Fugitive dust suppressed with water or by other approved means.	L
	Noise	• Wear hearing protection while the GeoProbe is running.	L
Handling Probes and Augers	Cuts/abrasions	• Inspect equipment for sharp protrusions or debris. • Wear cut resistant gloves.	L
	Struck by	• Make sure the path is clear before moving tools. • Maintain housekeeping. • Wear protective steel toe boots.	L
	Stains/sprains	• Use proper lifting techniques. • Utilize the GeoProbe move tools. • Use two people to lift objects greater than 50 pounds.	L

Removing well pad using hand tool	Struck by	• Make sure path is clear before using sledge hammer to break concrete. • Wear steel toes boots. • Stand back from the pad and swing toward the ground.	L
	Strain/sprains	• Use a pry bar to assist in moving the cement pad. • Use proper lifting techniques. • Use a wheel barrel to move larger pieces of concrete.	L
	Cuts/laceration	• Wear cut resistant work gloves.	L
Remove the well casing	Cuts/laceration	• Wear cut resistant work gloves.	L
Fill well with bentonite and fill	Strains/sprains	• Use proper lifting techniques • Carry only one bag at a time or use a wheel barrel to move material.	L
Fill with concrete	Strains/sprains	• Use proper lifting techniques • Carry only one bag at a time or use a wheel barrel to move material.	L
	Skin irritation	• Concrete will cause acute contact dermatitis (dry out skin) due to its absorbing properties. Wear nitrile, neoprene or butyl gloves when mixing concrete.	L
	Inhalation hazard	• Avoid breathing dust or wear a dust mask. • Place bag of concrete into the mixing container (wheel barrel), cut the bag the entire length, tear the bag and remove the bag by turning the bag over to where the cut side is down.	L

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED
Various Hand Tools	HAZWOPER (Minimum 24 HR)	Inspect tools prior to use
Geoprobe		Daily GEOPROBE Inspection


August Mack
ENVIRONMENTAL

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): **M**

Project	Date Prepared	Date Revised
	10/1/14	
Activity **Excavation AHA**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Excavation	Being struck or crushed by heavy equipment.	• Only authorized and trained personnel are permitted to operate heavy equipment. • Always maintain eye contact with heavy equipment operators. • Wear high visibility vests when working near heavy equipment. • Stay clear of swing areas and pinch points associated with heavy equipment being used.	L
	Underground Utilities	• No subsurface work can proceed without performing both a public and private utility locate.	M

		• No mechanical equipment may operate within 3 feet of a live/active underground utility.	
	Overhead Utilities	• Verify voltage of lines and determine appropriate clearance distance. • All travel routes will be inspected for overhead obstructions. If, overhead obstructions are identified operators/drivers will be instructed of the hazard. • When prudent and necessary signage will be displayed identifying overhead hazards. • Equipment booms/arms are to be in the “down” position while vehicle is in motion. • Spotters are required and responsible for identifying overhead obstructions while offloading.	M
	Overturn of Equipment	• Excavation equipment shall be positioned on level surfaces. • No equipment will be allowed on top of berms without proper sloping and “benching” techniques implemented. • All personal will wear seatbelts during heavy equipment operations. • All heavy equipment must have and maintain properly functioning back up alarms.	L
	Noise	• Hearing protection must be worn while operating heavy equipment when in excess of 85dbl.	L
	Working in high traffic areas	• Be aware of equipment backing into loading zone and use traffic control measures, if necessary. • All workers must wear high visibility orange vests when working in the vicinity of or adjacent to excavation areas.	L

	Eye Hazards	• Appropriate eye protection as defined by the site HASP shall be worn (safety goggles for dust hazards, safety glasses for clumps of dirt)	L
	Dermal Contact	• Wear dust/particulate coveralls if contacting contaminated soil greater than the excavation worker direct contact screening levels.	L
	Slips, Trips and Falls	• Maintain a clear walking path. • Clear obstructions that may contribute to Slips, Trips and Falls. • Utilize fall protection if expose to a height > 6ft. • Utilize the ladder that is built into the equipment for the purpose of scaling. • Walk ways but be used when crossing over excavations. Walkways must be designed with a guard rail if the excavation is 6 feet deep or more.	L

	Cave In	• Do not store equipment or overburden closer than 2 feet from the edge of the excavation.
		• Workers should not stand closer than 2 feet from the excavation.
		• Excavations to be entered
		  ○ Must be inspected by an excavation competent person.
		  ○ Must have the air monitored for acceptable entry conditions. (O2, CO, H2S, LEL)
		  ○ Greater than 4 feet must have a means of egress every 25 feet.
		  ○ Greater than 5 feet must have cave in protection or benched/sloped according to soil type.
			M

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED	

Hand Tools Heavy Equipment	Only trained and experienced operators are allowed to operate heavy equipment. Documentation of qualification to operate heavy equipment will be maintained on site. HAZWOPER 40 Hour	Visually Inspect hand tools Visually inspect heavy equipment daily for proper controls, operators manual, fire extinguishers; Inspect hydraulic hoses for leaks prior to staging equipment on site.

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): **M**

Project	Date Prepared	Date Revised
	10/1/14	
Activity **Clearing and Grubbing**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Clearing & Grubbing	Struck By/ Against Heavy Equipment	• Wear reflective hi-vis vests worn when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals	L
	Slips, Trips, Falls	• Clear walkways work areas of equipment, tools, vegetation, excavated material and debris • Mark, identify, or barricade other obstructions	L

		• Maintain 3 point contact when ascending/descending ladders & mounting/dismounting from heavy equipment • Halt exterior work in high winds, lightning, severe weather	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (50 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads	L
	Eye Injuries	• Wear face shield, goggles when operating powered clearing / grubbing equipment	L
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use • Close doors, windows on heavy equipment to prevent injuries from tree branches and other vegetation	L
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85 dBA TWA	L
	Insect/ Snake Bites	• Review injury potential and types of snakes with workers • Avoid insect nests areas, likely habitats of snakes outside	L

		• work areas Emphasize the Buddy System where such injury potential exists • Use insect repellant, wear PPE to protect against sting/bite injuries	
	Contact Dermatitis	• Wear PPE to avoid skin contact with contaminated soil, plants, or other skin irritants • Identify and review poisonous plants with workers • Apply protective cream/lotion to exposed skin to prevent poison oak or similar reactions	L
	Operations of power clearing tools (brush saws, weed wackers)	• Wear eye, face, hand & hearing protection when operating power clearing equipment • Shut-off / idle power tools walking between work areas • Store flammable liquids in well ventilated areas, away from • work areas • Shut off equipment during re-fueling • Allow equipment to cool before re-fueling • Use funnels to avoid fuel spillage • Prohibit smoking while operating clearing Equipment • Provide ABC (or equivalent) fire extinguishers for all work areas	L
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress • Provide fluids to prevent worker dehydration • Establish work/rest	M

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED
• Brush saws, weed wackers, mowers	• Inspect equipment and tools daily per manufacturers requirements	• Proper use of equipment • Review JSA with all site personnel

• First-aid kit, insect repellant • Fire extinguisher • Personal protective equipment • Hand tools	• Inspect all emergency equipment (i.e.: first aid kits, fire extinguishers)	

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): **M**

Project	Date Prepared	Date Revised
	10/07/13	10/1/14
Activity **Demolition**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Demolition of structure using heavy equipment	Fall Hazard – personnel fall from heights	• Use steps or ladder when accessing the excavator. • Inspect ladders prior to use. • Place ladders on level surface. • Utilize fall protection at heights > 6ft. • Do not climb onto or walk on structures to be demolished unless the structure has been deemed safe to access by an engineering assessment. • Wear the seatbelt while operating the equipment.	L

		• Never walk or climb on the demolition debris pile or the structure being demolished after demolition begins.	
	Falling/flying debris	• Determine the fall radius and establish an exclusion zone a minimum of 1.5 times the fall radius and mark the fall zone with a visible identifier. • The demolition area shall be secured with construction fencing or similar site control equipment. • Signage shall be placed around the demolition area warning pedestrians of the demolition work. • Employees entering the exclusion zone or performing work in the vicinity of a fall hazard shall don a hardhat. • Prior to entering the fall radius, inspect the structure for objects or building components at risk of falling and avoid walking beneath those objects. • Only authorized personnel shall be allowed to enter the work area. • Remove hazard of fragmenting glass. • The structure shall be verified to be empty prior to demolition beginning.	L
	Contact with utilities or process lines	• All utilities must be located and de-energized or disconnected outside of the building structure. • Verify all process lines have been rendered inoperable and cleared of product. • Maintain a proper clearance distance with overhead utilities as defined in the HASP.	M

		• Signage shall be placed where an overhead hazard exists, warning equipment operators of the location of the hazard. • Equipment operator and site supervisor shall identify and discuss overhead utilities present prior to start of job.	
	Unanticipated collapse	• An engineering survey shall be completed on the structure to be demolished as well as adjacent structures where there is a potential for an unplanned collapse to occur. • The engineering survey shall be reviewed by the project team. • Eliminate personnel from entering structures where a collapse is possible as determined by the engineering survey. • Shore up or brace the structure if personnel access is necessary. • Demolition should begin with the parts of the structure most likely to collapse. • Demolition should begin from the top of the structure down. • Verify the work zone if clear of personnel prior to demolition.	M
	Struck by/crushed by equipment	• Do not enter the working radius of the heavy equipment unless you have received approval by the equipment operator and the equipment operator halts operation until you have left the working radius. • All site workers shall don highly visible work attire. • Never place yourself between the heavy equipment and another object.	L

		• Never stand directly behind heavy equipment. • Ensure the backup alarm on heavy equipment is operable prior to operating.	
	Dust	• Utilize water for dust suppression. • Perform area dust monitoring as described in the HASP.	L
	Noise	• Don hearing protection while operating heavy equipment. • Don hearing protection if you are within 10 feet of heavy equipment operations or if you must raise your voice to converse with other site workers.	L
Loading Demolition Debris into Haul Trucks	Struck by/crushed by trucks	• Designate a route for trucks to maneuver through site. • Use signs to warn pedestrians and site workers of the use of vehicle traffic. • Use a spotter for trucks if interaction with public vehicle traffic is possible or whenever a truck must back up. • Never stand or walk into the path of a truck unless the operator has provided authority to do so. • Use hand signals when directing trucks. Discuss the hand signals with truck drivers prior to the work beginning.	L
	Falling/flying debris	• The loading area shall be secured with construction fencing or similar site control equipment in the event material fall from the truck. • Employees approaching a truck while it is being loaded or if performing work in the vicinity of a fall hazard shall don a hardhat.	L

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED
Heavy Equipment	Heavy Equipment Operator	Daily inspection of Heavy Equipment
Fall Protection	Fall Protection	Daily and monthly inspections of fall arrest equipment

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): **M**

Project	Date Prepared	Date Revised
	6/18/2013	10/2/14
Activity **Site Preparation**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Loading/Unloading Equipment and Staging	Back Strain	• Use proper lifting techniques at all times. Request assistance from other personal or use mechanical means when weight limits exceeds 50lbs. • Workers will be instructed in safe lifting techniques (i.e., back straight, bend at knees, load close to body, lift smoothly, and do not twist. • Two workers will be required for manual lifts of over 50 lbs. • Workers are encouraged to get help with any lift that appears excessive or awkward.	L

		• Split heavy loads into smaller loads whenever possible. • Make sure the path of travel is clear prior to the lift.	
	Hand Injury	• Wear protective gloves – leather palmed gloves shall be used when unloading / loading materials/equipment that has sharp edges. • Wear protective gloves – leather palmed gloves shall be used when using cables that could have burrs. • Wear protective gloves – leather palmed gloves shall be used when using chains and tie downs	L
	Head Injury	• ANSI-approved hard hats will be worn at all times, in the manner they are designed (brim forward, no modifications, no ball caps, etc.) • Inspect hard hat regularly • Do not wear hard hat backwards • Do not use solvents or harsh cleaners on hard hat.	L
	Eye injury	• Always wear safety glasses. Moving objects have the risk of producing flying objects/debris. • Wear ANSI approved safety glasses. • Keep glasses clean	L
	Foot Injury	• Workers will wear safety-toed leather work boots at all times. • Keep feet away from suspended loads. • Keep feet away from equipment tires and tracks.	L
Driving/ Vehicle Operation	Vehicle Accidents Property Damage Pedestrian Injury	• Perform a vehicle inspection before operations. • Wear seat belts. • Obey traffic rules. • Maintain safe driving speed consistent with Road/weather conditions. • Drive defensively. • Use headlights in foggy or wet conditions. • Use spotters. • Watch for low over-heads.	M

		• Keep four seconds behind all vehicles and greater distance in adverse weather conditions, • Avoid backing out of parking areas whenever possible. • Focus eyes at 1000 feet ahead of you while driving. • Check mirrors every 3-5 seconds while driving. • Never talk on phone while driving. • Inspect all loads. • Communicate any changes in route or road Conditions to SSC. • Never eat while driving. • Never drive tired. • Turn off radio when backing or high risk maneuvers. • Perform 360 degree walk around vehicle prior to operation and following operation.	
Material Handling	Crush/Impact	• Use adequate rigging equipment and lifting methods. • Always inspect all rigging material prior to use. • Chains, slings, straps, hooks, etc. should be rated for the load being lifted. • Equipment with signs of damage or wear should not be used and removed from service. • Always use tag line when moving a suspended load. • Never stand under a suspended load. • Use proper hand signals when communicating with operator.	M
	Slips/Trips /Falls	• Unload equipment on flat even surfaces. • Use extreme caution in adverse weather conditions such as wet or icy conditions. • Use sand/salt to prevent excessive ice or slippery surfaces in loading/unloading and staging areas. • Do not climb on loads. • Tie downs points should be accessible from ground level whenever possible. • Use care when mounting/dismounting trailers. • Use fall protection when working at heights greater than 6’.	L

		• Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. • Walk or climb only on equipment and/or surfaces that are designed for personnel access. • Be aware of potential for poor footing while working on un-compacted backfill materials. • Use three-point contact when climbing onto equipment.	
Use of Heavy Equipment	Crush/Impact	• Only trained and experienced personnel will be allowed to stage and unload heavy equipment. • Only certified operators will be authorized to operate equipment. Certifications must be on site at all times. • High visibility vests will be worn at all times while working in or around heavy equipment, trucks or other mechanized equipment. • Do not proceed toward, or into blind spots of equipment. • Methods for avoiding overhead power lines will be implemented. Such as, de-energizing or grounding, insulating and safe distances of 10 or 20 feet will always be maintained. • Do not approach equipment without authorization to do so by operator and operator have stopped movement, grounded buckets and disengaged controls. • All ground personal will stay outside the swing radius of equipment. • Operators will inspect machinery before use and complete the Daily Inspection checklist. • Use three-point contact when climbing onto equipment. • All heavy equipment will be equipped with a functional backup alarm. • All equipment will be free of cracked glass.	M

		• Operators will be instructed to maintain visual contact with personnel working in the immediate equipment area. • Passengers will be prohibited from equipment. • Seat belts shall be used in accordance with manufacturer's specifications. • Equipment will be operated within the limits defined by the manufacturer. This shall include but not be limited to lift capabilities and use on slopes or uneven ground. • Equipment requiring an operator will not be permitted to run unattended. One spotter will be utilized during equipment activity. Hand signals and two way radios shall be utilized for ease of communication. The spotter will position himself in order to maintain consistent visual contact with operator.	
	Fire	• Fire extinguishers will be mounted on all equipment.	L
	Noise	• Hearing protection will be worn by equipment operators when working in open cab equipment, or when doors/windows are open.	L
	Electrocution	• Operator shall identify overhead hazards and remain adequate distance from utility as defined by HASP.	M
Truck Traffic	Crush/Impact	• Use predetermined truck routes. Communicate pathways to all site personnel daily. • Make contact with vehicle driver before approaching vehicle or walking in front of or behind. • Wear safety vest with high visibility color and reflective stripes. • Vehicle routes should be designed to lessen the need for vehicles to back up whenever possible. • Utilize a spotter when backing up is absolutely necessary. • All trucks should be inspected daily and back up alarms must be operational.	M

		• Vehicles with cracked glass/mirrors or leaking fluids will not be allowed on site. • Do not stand next to or behind trucks when dumping or being loaded. • Excavator operator shall back in trucks from the cab whenever possible. • Do not over load trucks.	
	Electrocution	• Mark overhead utilities so they are visible to truck drivers at eye level and communicate the OH hazard to each driver daily and to all new drivers to site.	M
	Crush/Impact	• Entry into the work area will be controlled at all times. • Only necessary personal needed to perform the task will be permitted to enter. • Other site personnel will be made of aware of task performance and work area authorization during daily safety meeting. • Fencing, tape, cones or other SSO-approved boundaries will be erected to warn approaching personnel of the hazardous area when warranted as assessed by the SSO.	M
Personnel Response to Weather	Inclement Weather / Poor lighting	• Follow site specific procedures as defined in the site HASP. • Supervisors will monitor local forecasts for warnings about specific weather hazards. • Workers will comply with all evacuation orders regarding rough weather directives. • Workers will comply with all facility emergency notifications and directions. • Work at site is only expected to take place during daylight hours.	L
	Heat Stress	• Workers should wear clothing appropriate for predicted temperatures and wind speeds. • Workers will be advised to remain well hydrated throughout the work day. • Workers shall remove layers to avoid sweating and apply layers when they feel cold.	

		• If signs of heat stress or a heat stroke become apparent, the worker will be escorted to a cool shaded area to rest. • In times of extreme heat the SSO shall be consulted prior to beginning task. • Refer to site HASP for recognizing symptoms from heat stress and for treatment for when heat stress symptoms appear.	
General Construction	General hazards	• General construction hazards and controls are described in the site specific HASP and the EFS Corporate Safety Manual / SOPs. Contents of the HASP will be communicated to all site personnel. Both the HASP and EFS Corporate Safety Manual will be maintained on site. All EFS employees and EFS subcontractor employees are encouraged to review these documents and consult with the SSO whenever there is a question or concern about hazards or hazard controls. • If for any reason a worker does not feel that the hazards of this task have been properly identified or controlled, STOP WORK and consult with the SSO before proceeding. • If conditions change(such as changes in weather, discovery of unanticipated contamination, activity by others in work area, etc.), STOP WORK and consult with the SSO.	L

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED
Hand Tools Vehicles Heavy Equipment	Visually Inspect hand tools Visually inspect heavy equipment daily for proper controls, operators manual, fire extinguishers; Inspect hydraulic hoses for leaks prior to staging equipment on site.	None Only trained and experienced operators are allowed to operate heavy equipment. Documentation of qualification to operate heavy equipment will be maintained on site.


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ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): L

Project	Date Prepared	Date Revised
	12/5/2013	9/25/2014
Activity Knife Use	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Knife use	Cuts, lacerations, punctures	• Use cut resistant gloves • Keep knives sharp, makes knife easier to cut, less pressure needed • Use correct knife for job: • Secure object to be cut. • Always cut away from body> Do not hack, use smooth cutting strokes	L

		• Let falling knives fall; never attempt to catch them. • Do not get distracted, pay attention to what you are cutting • Do not get in a hurry, take your time • When task is complete, retract blade back into handle	
Knife cleaning and storing	Cuts, lacerations, punctures	• Do not store with blade exposed • Always carry knife with blade pointed down and sharp edge to the back • Never leave an open knife on a work surface	L
EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED	

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ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): **M**

Project	Date Prepared	Date Revised
	9/23/2015	
Activity **Soil Solidification and Loading Contaminated Debris**	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Excavation/loading of Contaminated Soil & Debris	Being struck or crushed by heavy equipment.	• Only authorized and trained personnel are permitted to operate heavy equipment. • Always maintain eye contact with heavy equipment operators. • Wear high visibility clothing when working near heavy equipment.	M

		• Stay clear of swing areas and pinch points associated with heavy equipment being used. • Do not walk under suspended loads	
	Overturn of Equipment	• Excavation equipment shall be positioned on level surfaces. • No equipment will be allowed on top of berms without proper sloping and “benching” techniques implemented. • All personal will wear seatbelts during heavy equipment operations. • All heavy equipment must have and maintain properly functioning back up alarms.	L
	Overhead Obstructions	• All truck routes will be inspected for overhead obstructions. If, overhead obstructions are identified operators/drivers will be instructed of the hazard. • When prudent and necessary signage will be displayed identifying overhead hazards. • Truck beds are to be in the “down” position while vehicle is in motion. • Spotters are required and responsible for identifying overhead obstructions while offloading.	M
	Noise	• Hearing protection must be worn while operating heavy equipment when in excess of 85dbl.	L
Loading & Transportation of Contaminated Soil & Debris for offsite disposal.	Working in high traffic areas	• Be aware of trucks backing into loading zone and use traffic control measures, if necessary.	L

		• All workers must wear high visibility clothing when working in the vicinity of or adjacent to excavation areas.	
	Collision with Personnel and/or Property	• Only authorized and trained personnel are permitted to operate heavy equipment and trucks. • Truck Drivers & Heavy Equipment Operators must use designated “spotters” when backing up. • Communication must be stressed and clarified BEFORE operation of heavy equipment and trucks begin. • All drivers/operators and “spotters” must be given a Pre-Task Safety Planning session BEFORE work activities begin to verify that there is an understanding that the driver/operator is to follow the directions of the spotter at all times. • Standardized signals must be clarified between the driver and spotter BEFORE work activities begin.	L
	Overturn of Equipment	• All heavy equipment / trucks must have and maintain properly functioning back up alarms. • Trucks and Excavation equipment shall be positioned on level surfaces. • No equipment will be allowed on top of berms without proper sloping and “benching” techniques implemented.	L
	Operating / Driving haul trucks onsite	• All personal will wear seatbelts during heavy equipment and truck operations. • Drivers will not be permitted to exit the vehicles unless an emergency occurs.	L

		• In an emergency, drivers may exit the vehicle on the job site if they are wearing the proper Personal Protective Equipment. • Unless otherwise upgraded, the driver will wear at a minimum Hard Hat, Safety Glasses, Steel Toe Boots and high visibility	
Dry Decontamination of Heavy Equipment and trucks	Eye Hazards	• Drivers are not allowed to exit their vehicle for the purpose of dry decontamination. • Appropriate eye protection as defined by the site HASP shall be worn (safety goggles for dust hazards, safety glasses for clumps of dirt)	L
	Dermal Contact	• Dry decontamination of non-hazardous material will be performed in Level D PPE. • Level D PPE, during dry decontamination will include, Hard Hat, Safety Goggles, Steel Toe Boots, High Visibility Vest and particulate coveralls, nitrile gloves. • In the event site conditions are upgraded dry decontamination will be performed in the proper level of personal protection.	
	Slips, Trips and Falls	• Maintain a clear walking path. • Clear obstructions that may contribute to Slips, Trips and Falls. • Inspect the vehicle for loose or wedged rocks and debris that may be present on the bed rail above eye level. • Ensure that all hand tools utilized during the decon process are properly inspected for tight fitting handles, no loose , missing or protruding, nuts, bolts or screws. • Ensure that handles are intact with no breaks, splinters or separation.	

		• Objects wedged in tailgates or other like mechanical locations must be cleared with a flat hoe, scraper, crow bar or shovel. • At no time will a hand, foot or other body part be utilized to remove a wedged object from a pinch point. • If it is necessary to scale the side of the truck, three points of contact will be maintained at all times. • Utilize the ladder that is built into the equipment for the purpose of scaling. • Do not scale or climb the truck with hand tools in your hand or otherwise wedged, taped tied or stuffed to your body. • All hand tools necessary to perform the necessary function should be handed to the person(s) after they have established a secure base on the truck.	
EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED	
Hand Tools Vehicles Heavy Equipment Pressure Washer	Visually Inspect hand tools Visually inspect heavy equipment daily for proper controls, operators manual, fire extinguishers; Inspect hydraulic hoses for leaks prior to staging equipment on site.	None Only trained and experienced operators are allowed to operate heavy equipment. Documentation of qualification to operate heavy equipment will be maintained on site.	

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): H

Project	Date Prepared	Date Revised
	06/18/2013	
Activity Heavy Equipment Decontamination	Prepared by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Set up decontamination area	Sprains/Strains	• Use proper lifting techniques at all times. Request assistance from other personal or use mechanical means when weight limits exceeds 50lbs. • Workers will be instructed in safe lifting techniques (i.e., back straight, bend at knees, load close to body, lift smoothly, and do not twist.	

		• Two workers will be required for manual lifts of over 50 lbs. • Workers are encouraged to get help with any lift that appears excessive or awkward. • Split heavy loads into smaller loads whenever possible. • Make sure the path of travel is clear prior to the lift.	
	Slips/Trips /Falls	• Unload equipment on flat even surfaces. • Use extreme caution in adverse weather conditions such as wet or icy conditions. • Use sand/salt to prevent excessive ice or slippery surfaces in loading/unloading and staging areas. • Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. • Use three-point contact when climbing onto equipment or ladders.	
Decontaminate Equipment	Splash hazards/Contact with potentially-contaminated water	• Only HAZWOPER trained personnel will perform decontamination activities. • Wear modified Level D PPE and protective gloves. • Wear face shield mounted to hard hat, Nitrile gloves, poly Tyvek suit, and rubber boots when using pressure washer.	
	Being struck by heavy equipment	• Only authorized and trained personnel are permitted to operate heavy equipment at the site. • Always maintain eye contact with heavy equipment operators and wear high visibility vests when working near heavy equipment.	

		• Stay clear of swing areas and pinch points associated with heavy equipment being used. • Wear a hard hat.	
	Fire	• Inspect heavy equipment for fuel leaks. • No smoking. • Know where the nearest fire extinguisher is located. • Containerize decontamination waste appropriately.	
	Slips, Trips & Falls	• Be aware of wet and slippery surfaces. • Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. • Use three-point contact when climbing onto equipment or ladders. • Wear appropriate foot protection when working in wet areas (rubber boots with traction)	
Dismantling decontamination area	Contact with potentially-contaminated water	• Only HAZWOPER trained personnel will perform decontamination activities. • Wear modified Level D PPE and protective gloves. • Wear face shield mounted to hard hat, Nitrile gloves, poly Tyvek suit, and rubber boots when using pressure washer.	
	Slips, Trips & Falls	• Be aware of wet and slippery surfaces. • Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible.	

		• Wear appropriate foot protection when working in wet areas (rubber boots with traction)	
	Sprains/Strains	• Use proper lifting techniques at all times. Request assistance from other personal or use mechanical means when weight limits exceeds 50lbs. • Workers will be instructed in safe lifting techniques (i.e., back straight, bend at knees, load close to body, lift smoothly, and do not twist. • Two workers will be required for manual lifts of over 50 lbs. • Workers are encouraged to get help with any lift that appears excessive or awkward. • Split heavy loads into smaller loads whenever possible. • Make sure the path of travel is clear prior to the lift.	
	Pinch points	• Use appropriate tools when opening and closing drums (ratchet and or bung wrench). • Wear leather work gloves when opening and closing open head drums.	

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED
Hand Tools Vehicles Heavy Equipment Pressure Washer	Visually Inspect hand tools Visually inspect heavy equipment daily for proper controls, operators manual, fire extinguishers; Inspect hydraulic hoses for leaks prior to staging equipment on site.	None Only trained and experienced operators are allowed to operate heavy equipment. Documentation of qualification to operate heavy equipment will be maintained on site.

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC) (Use highest code): L

Project	Date Prepared	Date Revised
Activity Silt Fence Installation & Removal	Prepared by	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Unloading fence materials	Crush/ Impact Back Strain/ Lifting Slips/Trips/Falls Struck By posts/Pinch Points posts	• Use adequate rigging equipment and lifting methods. • Always inspect all rigging material prior to use. • Chains, slings, straps, hooks, etc. should be rated for the load being lifted. • Equipment with signs of damage or wear should not be used and removed from service.	L

		• Always use tag line when moving a suspended load. • Never stand under a suspended load. • Use proper hand signals when communicating with operator. • Use proper lifting techniques at all times. Request assistance from other personal or use mechanical means when weight limits exceeds 40lbs. • Workers will be instructed in safe lifting techniques (i.e., back straight, bend at knees, load close to body, lift smoothly, and do not twist. • Two workers will be required for manual lifts of over 40 lbs. • Workers are encouraged to get help with any lift that appears excessive or awkward. • Split heavy loads into smaller loads whenever possible. • Make sure the path of travel is clear prior to the lift. • Unload equipment on flat even surfaces. • Use extreme caution in adverse weather conditions such as wet or icy conditions. • Use sand/salt to prevent excessive ice or slippery surfaces in loading/unloading and staging areas. • Do not climb on loads. • Tie downs points should be accessible from ground level whenever possible. • Use care when mounting/dismounting trailers.	

		• Use fall protection when working at heights greater than 6'. • Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. • Walk or climb only on equipment and/or surfaces that are designed for personnel access. • Be aware of potential for poor footing while working on un-compacted backfill materials. Use three-point contact when climbing onto equipment. • Potential pinches or lacerations when handling materials. Wear cut resistance gloves and appropriate clothing to protect skin. • Potential to be struck by materials while unloading posts. Wear hard hat.	
Driving stakes	• Struck By Hammer • Splinter/scrape from wood stakes	• Stakes will be driven into the ground with a rubber mallet or similar hammer. • Wear gloves and safety glasses while using the hammer. • Keep and clear of point of impact. • Wear gloves when handling stakes	L
Attaching fence	• Cuts, Scrapes or Lacerations from fencing • Puncture by staples	• Wear gloves, safety glasses, and long sleeve shirt. • Wear protective gloves. • Keep hand clear of area being attached to the stake	L
Removing fence	• Back Strain/ Lifting • Laceration/Cuts when handling fencing and removed posts	• Use proper lifting techniques at all times. Request assistance from other personal or use mechanical means when weight limits exceeds 40lbs.	L

		• Workers will be instructed in safe lifting techniques (i.e., back straight, bend at knees, load close to body, lift smoothly, and do not twist. • Two workers will be required for manual lifts of over 40 lbs. • Workers are encouraged to get help with any lift that appears excessive or awkward. • Split heavy loads into smaller loads whenever possible. • Make sure the path of travel is clear prior to the lift. • Wear gloves and long sleeve shirt. • Wear safety glasses.	
EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED	
Hand Tools Pneumatic Post Driver	Visually Inspect hand tools Visually inspect heavy equipment daily for proper controls, operators manual, fire extinguishers; Inspect hydraulic hoses for leaks prior to staging equipment on site.	None Only trained and experienced operators are allowed to operate heavy equipment. Documentation of qualification to operate heavy equipment will be maintained on site.	

August Mack
ENVIRONMENTAL

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)

(Use highest code)

M

Project	Date Prepared	Date Revised
	3-15-17	
Activity **Creek diversion pumping system**	Prepared by Greg Utz Reviewed by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Loading/Unloading Equipment and Staging	Back Strain	• Use proper lifting techniques at all times. Request assistance from other personal or use mechanical means when weight limits exceeds 50lbs. • Workers will be instructed in safe lifting techniques (i.e., back straight, bend at knees, load close to body, lift smoothly, and do not twist. • Two workers will be required for manual lifts of over 50 lbs.	L

		• Workers are encouraged to get help with any lift that appears excessive or awkward. • Split heavy loads into smaller loads whenever possible. • Make sure the path of travel is clear prior to the lift.	
	Hand Injury	• Wear protective gloves – leather palmed gloves shall be used when unloading / loading materials/equipment that has sharp edges. • Wear protective gloves – leather palmed gloves shall be used when using cables that could have burrs. • Wear protective gloves – leather palmed gloves shall be used when using chains and tie downs	L
	Head Injury	• ANSI-approved hard hats will be worn at all times, in the manner they are designed (brim forward, no modifications, no ball caps, etc.) • Inspect hard hat regularly • Do not wear hard hat backwards • Do not use solvents or harsh cleaners on hard hat.	L
	Eye injury	• Always wear safety glasses. Moving objects have the risk of producing flying objects/debris. • Wear ANSI approved safety glasses. • Keep glasses clean	L
	Foot Injury	• Workers will wear safety-toed leather work boots at all times. • Keep feet away from suspended loads. • Keep feet away from equipment tires and tracks.	L
Material Handling	Crush/Impact	• Use adequate rigging equipment and lifting methods. • Always inspect all rigging material prior to use. • Chains, slings, straps, hooks, etc. should be rated for the load being lifted.	M

		• Equipment with signs of damage or wear should not be used and removed from service. • Always use tag line when moving a suspended load. • Never stand under a suspended load. • Use proper hand signals when communicating with operator.	
	Slips/Trips /Falls	• Unload equipment on flat even surfaces. • Use extreme caution in adverse weather conditions such as wet or icy conditions. • Use sand/salt to prevent excessive ice or slippery surfaces in loading/unloading and staging areas. • Do not climb on loads. • Tie downs points should be accessible from ground level whenever possible. • Use care when mounting/dismounting trailers. • Use fall protection when working at heights greater than 6'. • Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. • Walk or climb only on equipment and/or surfaces that are designed for personnel access. • Be aware of potential for poor footing while working on un-compacted backfill materials. • Use three-point contact when climbing onto equipment.	L
Use of Heavy Equipment	Crush/Impact	• Only trained and experienced personnel will be allowed to stage and unload heavy equipment. • Only certified operators will be authorized to operate equipment. Certifications must be on site at all times. • High visibility vests will be worn at all times while working in or around heavy equipment, trucks or other mechanized equipment.	

		• Do not proceed toward, or into blind spots of equipment. • Methods for avoiding overhead power lines will be implemented. Such as, de-energizing or grounding, insulating and safe distances of 10 or 20 feet will always be maintained. • Do not approach equipment without authorization to do so by operator and operator have stopped movement, grounded buckets and disengaged controls. • All ground personal will stay outside the swing radius of equipment. • Operators will inspect machinery before use and complete the Daily Inspection checklist. • Use three-point contact when climbing onto equipment. • All heavy equipment will be equipped with a functional backup alarm. • All equipment will be free of cracked glass. • Operators will be instructed to maintain visual contact with personnel working in the immediate equipment area. • Passengers will be prohibited from equipment. • Seat belts shall be used in accordance with manufacturer's specifications. • Equipment will be operated within the limits defined by the manufacturer. This shall include but not be limited to lift capabilities and use on slopes or uneven ground. • Equipment requiring an operator will not be permitted to run unattended. One spotter will be utilized during equipment activity. Hand signals and two way radios shall be utilized for ease of communication. The spotter will position himself in order to maintain consistent visual contact with operator.	M

	Fire	• Fire extinguishers will be mounted on all equipment.	L
	Noise	• Hearing protection will be worn by equipment operators when working in open cab equipment, or when doors/windows are open.	L
	Electrocution	• Operator shall identify overhead hazards and remain adequate distance from utility as defined by HASP.	M
Truck Traffic	Crush/Impact	• Use predetermined truck routes. Communicate pathways to all site personnel daily. • Make contact with vehicle driver before approaching vehicle or walking in front of or behind. • Wear safety vest with high visibility color and reflective stripes. • Vehicle routes should be designed to lessen the need for vehicles to back up whenever possible. • Utilize a spotter when backing up is absolutely necessary. • All trucks should be inspected daily and back up alarms must be operational. • Vehicles with cracked glass/mirrors or leaking fluids will not be allowed on site. • Do not stand next to or behind trucks when dumping or being loaded. • Excavator operator shall back in trucks from the cab whenever possible. • Do not over load trucks.	M
	Electrocution	• Mark overhead utilities so they are visible to truck drivers at eye level and communicate the OH hazard to each driver daily and to all new drivers to site.	M
	Crush/Impact	• Entry into the work area will be controlled at all times. • Only necessary personal needed to perform the task will be permitted to enter.	M

		• Other site personnel will be made of aware of task performance and work area authorization during daily safety meeting. • Fencing, tape, cones or other SSO-approved boundaries will be erected to warn approaching personnel of the hazardous area when warranted as assessed by the SSO.	
Personnel Response to Weather	Inclement Weather / Poor lighting	• Follow site specific procedures as defined in the site HASP. • Supervisors will monitor local forecasts for warnings about specific weather hazards. • Workers will comply with all evacuation orders regarding rough weather directives. • Workers will comply with all facility emergency notifications and directions. • Work at site is only expected to take place during daylight hours.	L
	Heat Stress	• Workers should wear clothing appropriate for predicted temperatures and wind speeds. • Workers will be advised to remain well hydrated throughout the work day. • Workers shall remove layers to avoid sweating and apply layers when they feel cold. • If signs of heat stress or a heat stroke become apparent, the worker will be escorted to a cool shaded area to rest. • In times of extreme heat the SSO shall be consulted prior to beginning task. • Refer to site HASP for recognizing symptoms from heat stress and for treatment for when heat stress symptoms appear.	L
General Construction	General hazards	• General construction hazards and controls are described in the site specific HASP and the AME Corporate Safety Manual / SOPs. Contents of the HASP will be communicated to all site personnel. Both the HASP and AME Corporate	

		Safety Manual will be maintained on site. All AME employees and AME subcontractor employees are encouraged to review these documents and consult with the SSO whenever there is a question or concern about hazards or hazard controls. • If for any reason a worker does not feel that the hazards of this task have been properly identified or controlled, STOP WORK and consult with the SSO before proceeding. • If conditions change(such as changes in weather, discovery of unanticipated contamination, activity by others in work area, etc.), STOP WORK and consult with the SSO.	L
Excavation	Being struck or crushed by heavy equipment.	• Only authorized and trained personnel are permitted to operate heavy equipment. • Always maintain eye contact with heavy equipment operators. • Wear high visibility vests when working near heavy equipment. • Stay clear of swing areas and pinch points associated with heavy equipment being used.	M
	Underground Utilities	• No subsurface work can proceed without performing both a public and private utility locate No mechanical equipment may operate within 3 feet of a live/active underground utility.	M
	Overhead Utilities	• Verify voltage of lines and determine appropriate clearance distance. • All travel routes will be inspected for overhead obstructions. If, overhead obstructions are identified	M

		operators/drivers will be instructed of the hazard. • When prudent and necessary signage will be displayed identifying overhead hazards. • Equipment booms/arms are to be in the "down" position while vehicle is in motion. Spotters are required and responsible for identifying overhead obstructions while offloading.	
	Overturn of Equipment	• Excavation equipment shall be positioned on level surfaces. • No equipment will be allowed on top of berms without proper sloping and "benching" techniques implemented. • All personal will wear seatbelts during heavy equipment operations. • All heavy equipment must have and maintain properly functioning back up alarms.	M
Electrical Equipment Operation – Water pumps	Energized Equipment	• De-energize equipment before performing work on it. • Verify equipment is de-energized before performing work. • Lockout/tagout equipment to be worked on. • Only authorized personnel are to work on and maintain the electrical equipment. • Use non-conductive equipment when possible. • Maintain proper distance from overhead power feeds.	M

		• Installation and operation of electrical equipment must follow electric codes and the AME Electrical safety SOP	
	Water operations safety	• Access could include roads, boat ramps, bridges or by walking down the bank. • Locate an access to the surface water free of (or minimal) slip trip and fall hazards. • Demarcate the walking path down banks and sloped access to the surface water. • Identify and mark slip, trip and fall hazards. • Walking down sloped banks are not permitted where the slope is greater than a 2:1 ratio. • Install hand holds or a hand rope where possible for walking down banks. • Avoid carrying objects up and down the sloped bank. Utilize a rope and bucket to raise and lower tools and equipment. • When exposed to heights greater than 6 feet, utilize fall prevention or fall protection devices. • Avoid stepping on mossy surfaces and unstable terrain. • If possible, when wearing waders, don waders after you have walked down the sloped bank. • Wear a US Coast Guard approved personal floatation device when working in, near, or over water. • Work must involve two people when work involves sampling from a boat or entering the surface water.	M

		• Emergency equipment such as a ring buoy, skiff or rescue hook is available.	
Hot work – HDPE pipe fusion	Portable electric equipment	• Inspect all equipment prior to use • Discard or tag out of service defective equipment • Extension cords must be rated for their intended use. • All 115-and 120-volt, single-phase, 15- and 20-ampere receptacle outlets, must be protected by a UL-listed ground-fault circuit interrupter.	L
	HDPE welding equipment	• Inspect all equipment prior to use • Maintain a clean and clear work area. • Use appropriate PPE to protect from heating elements. • Only authorized personnel are to operate the HDPE welding equipment. • Secure all materials to be joined before beginning the fusion welding process. • For large diameter pipe, follow the material handling AME material handling SOP	L

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED
Hand Tools	Visually Inspect hand tools	None
Vehicles Heavy Equipment	Visually inspect heavy equipment daily for proper controls, operators manual, fire extinguishers; Inspect hydraulic hoses for leaks prior to staging equipment on site.	Only trained and experienced operators are allowed to operate heavy equipment. Documentation of qualification to operate heavy equipment will be maintained on site.

August Mack
ENVIRONMENTAL

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)

(Use highest code)

M

Project	Date Prepared	Date Revised
	3-15-2017	
Activity **Geosynthetic clay liner installation**	Prepared by Greg Utz Reviewed by Shannon Switzer	

E=Extremely High Risk
H=High Risk
M=Moderate Risk
L=Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

ACTIVITY STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Unloading Geosynthetic clay liner	Back Strain	• Use proper lifting techniques at all times. Request assistance from other personal or use mechanical means when weight limits exceeds 50lbs.	L

		• Workers will be instructed in safe lifting techniques (i.e., back straight, bend at knees, load close to body, lift smoothly, and do not twist. • Two workers will be required for manual lifts of over 50 lbs. • Workers are encouraged to get help with any lift that appears excessive or awkward. • Split heavy loads into smaller loads whenever possible. • Make sure the path of travel is clear prior to the lift.	
	Hand Injury	• Wear protective gloves – leather palmed gloves shall be used when unloading / loading materials/equipment that has sharp edges. • Wear protective gloves – leather palmed gloves shall be used when using cables that could have burrs. • Wear protective gloves – leather palmed gloves shall be used when using chains and tie downs	L
	Head Injury	• ANSI-approved hard hats will be worn at all times, in the manner they are designed (brim forward, no modifications, no ball caps, etc.) • Inspect hard hat regularly • Do not wear hard hat backwards • Do not use solvents or harsh cleaners on hard hat.	L
	Eye injury	• Always wear safety glasses. Moving objects have the risk of producing flying objects/debris. • Wear ANSI approved safety glasses. • Keep glasses clean	L
	Foot Injury	• Workers will wear safety-toed leather work boots at all times. • Keep feet away from suspended loads. • Keep feet away from equipment tires and tracks.	L

	Use of Heavy Equipment	• Only trained and experienced personnel will be allowed to stage and unload heavy equipment. • Only certified operators will be authorized to operate equipment. Certifications must be on site at all times. • High visibility vests will be worn at all times while working in or around heavy equipment, trucks or other mechanized equipment. • Do not proceed toward, or into blind spots of equipment. • Methods for avoiding overhead power lines will be implemented. Such as, de-energizing or grounding, insulating and safe distances of 10 or 20 feet will always be maintained. • Do not approach equipment without authorization to do so by operator and operator have stopped movement, grounded buckets and disengaged controls. • All ground personal will stay outside the swing radius of equipment. • Operators will inspect machinery before use and complete the Daily Inspection checklist. • Use three-point contact when climbing onto equipment. • All heavy equipment will be equipped with a functional backup alarm. • All equipment will be free of cracked glass. • Operators will be instructed to maintain visual contact with personnel working in the immediate equipment area. • Passengers will be prohibited from equipment. • Seat belts shall be used in accordance with manufacturer's specifications. • Equipment will be operated within the limits defined by the manufacturer. This shall include but not be limited to lift capabilities and use on slopes or uneven ground.	M

		• Equipment requiring an operator will not be permitted to run unattended. One spotter will be utilized during equipment activity. Hand signals and two way radios shall be utilized for ease of communication. The spotter will position himself in order to maintain consistent visual contact with operator. • Fire extinguishers will be mounted on all equipment. • Operator shall identify overhead hazards and remain adequate distance from utility as defined by HASP.	
Material Handling	Crush/Impact	• Use adequate rigging equipment and lifting methods. • Always inspect all rigging material prior to use. • Chains, slings, straps, hooks, etc. should be rated for the load being lifted. • Equipment with signs of damage or wear should not be used and removed from service. • Always use tag line when moving a suspended load. • Never stand under a suspended load. • Use proper hand signals when communicating with operator.	M
	Slips/Trips /Falls	• Unload equipment on flat even surfaces. • Use extreme caution in adverse weather conditions such as wet or icy conditions. • Use sand/salt to prevent excessive ice or slippery surfaces in loading/unloading and staging areas. • Do not climb on loads. • Tie downs points should be accessible from ground level whenever possible. • Use care when mounting/dismounting trailers. • Use fall protection when working at heights greater than 6'.	L

		• Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. • Walk or climb only on equipment and/or surfaces that are designed for personnel access. • Be aware of potential for poor footing while working on un-compacted backfill materials. • Use three-point contact when climbing onto equipment.	
Personnel Response to Weather	Inclement Weather / Flood potential	• Follow site specific procedures as defined in the site HASP. • Supervisors will monitor local forecasts for warnings about specific weather hazards. • Workers will comply with all evacuation orders regarding rough weather directives. • Workers will comply with all facility emergency notifications and directions. • Work at site is only expected to take place during daylight hours.	L
General Construction	General hazards	• General construction hazards and controls are described in the site specific HASP and the AME Corporate Safety Manual / SOPs. Contents of the HASP will be communicated to all site personnel. Both the HASP and AME Corporate Safety Manual will be maintained on site. All AME employees and AME subcontractor employees are encouraged to review these documents and consult with the SSO whenever there is a question or concern about hazards or hazard controls. • If for any reason a worker does not feel that the hazards of this task have been properly identified or controlled, STOP WORK and consult with the SSO before proceeding. • If conditions change(such as changes in weather, discovery of unanticipated	L

		contamination, activity by others in work area, etc.), STOP WORK and consult with the SSO.	

EQUIPMENT/TOOLS	TRAINING	INSPECTIONS REQUIRED
Hand Tools Vehicles Heavy Equipment	Visually Inspect hand tools Visually inspect heavy equipment daily for proper controls, operators manual, fire extinguishers; Inspect hydraulic hoses for leaks prior to staging equipment on site.	None Only trained and experienced operators are allowed to operate heavy equipment. Documentation of qualification to operate heavy equipment will be maintained on site.

ATTACHMENT E

Spill Prevention, Control, and Countermeasure Plan

Closed Prospect Street Facility

SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

2950 Prospect Street
Indianapolis, Indiana 46203

Print Date: March 5, 2018

Owned By:
Citizens Energy Group
2020 N. Meridian St.
Indianapolis, IN 46202

Prepared by:
Environmental Stewardship

Any downloaded or printed hardcopy of this plan is uncontrolled. The controlled copy of this plan is the most current and only approved copy of the facility SPCC plan. If printed, this document is intended to be used only as a reference in emergency situations when the controlled copy cannot be accessed. The controlled copy of the SPCC plan can be found in the following places:

1. **The Master Quality Assurance Index lists the most current version of this document, its location, and a link to where it can be viewed, downloaded or printed.**

2. **The Hazardous Materials Emergency Response Plans page on Environmental Stewardship's iTrust homepage. https://itrust.citizensenergygroup.com/departments/EnvironmentalStewardship/Hazardous%20Materials%20Emergency%20Response%20Plans/Forms/AllItems.aspx**

Table of Contents

General Applicability (112.1)

This Spill Prevention, Control and Countermeasure (SPCC) Plan has been prepared for the closed Prospect Street Facility owned by Citizens Energy Group. It satisfies the requirements of the United States Environmental Protection Agency (EPA) regulations related to Oil Pollution Prevention, 40 CFR §112. The Prospect Street Facility is subject to the SPCC regulations because the total aboveground aggregate oil storage capacity exceeds 1,320 gallons and the facility could reasonably be expected to discharge oil in quantities that may be harmful to navigable waters of the United States, adjoining shorelines, or affect certain natural resources due to the location.

Professional Engineer Certification (112.3(d))

By means of this certification, I attest that I am familiar with the requirements of the SPCC Rule 40 CFR §112; that I or my designated agent have visited and examined the facility; that this SPCC Plan has been prepared in accordance with good engineering practices including consideration of applicable industry standards and with the requirements of this Part; that procedures for required inspections and testing have been established; that this Plan is adequate for the facility. As a condition of this certification, the management of Citizens Energy Group has approved this plan and is fully committed to providing appropriate oversight, resources, manpower, equipment and training to fully implement this plan. This document has been prepared and certified for the exclusive use of the Prospect Street Facility located at 2950 Prospect Street, Indianapolis, Indiana.

Signature:	Date:
Engineer: **John Havard, PE**	Stamp:
Registration Number: **PE19300369**	
Registration State: **Indiana**	
Phone Number: **(317) 693-8716**	

Plan Locations (112.3(e))

The Closed Prospect Facility is normally attended during normal business hours. A reference copy of the SPCC Plan is posted at the facility in the guard shack. The controlled version of this plan is available electronically to Citizens Energy Group employees at iTrust.CitizensEnergyGroup.com/departments/EnvironmentalStewardship/Hazardous%20Materials%20Emergency%20Response%20Plans/Forms/AllItems.aspx. This copy is available to Local, State, and EPA inspectors for onsite review during normal business hours.

Amendment of the SPCC Plan by EPA (112.4)

Under certain circumstances, submission of this SPCC Plan, parts of this plan, or reports required by this plan to Local, State or EPA agencies is required. If submission is required, it must be done within a specified amount of time. If upon review of the submission, the Regional Administrator may require that the SPCC Plan or parts of the plan must be amended to meet the requirements of 40 CFR §112 or amendment is necessary to prevent and contain discharges from the facility. This section is only applicable under these circumstances. Take no action under this section until it applies to the facility.

Information disclosure after certain discharges (112.4(a))

Whenever the facility has discharged more than 1,000 U.S. gallons of oil in a single discharge as described in §112.1(b), or discharged more than 42 U.S. gallons of oil in each of two discharges as described in §112.1(b) occurring within any twelve month period, submit the following information to the EPA Regional Administrator and the Indiana Department of Environmental Management (IDEM) within 60 days from the time the facility becomes subject to this section:

1. Name of the facility;
2. Your name;
3. Location of the facility;
4. Maximum storage or handling capacity of the facility and normal daily throughput;
5. Corrective action and countermeasures you have taken, including a description of equipment repairs and replacement;
6. An adequate description of the facility, including maps, flow diagrams, and topographical maps, as necessary;
7. The cause of such discharge as described in §112.1(b), including a failure analysis of the system or subsystem in which the failure occurred;
8. Additional preventive measures you have taken or contemplated to minimize the possibility of recurrence; and
9. Such other information as the Regional Administrator may reasonably require pertinent to the Plan or discharge.

This information must be sent to the following locations:

U.S. EPA – Region V (SE5J)
77 W. Jackson Boulevard
Chicago, Illinois 60604-3590
(312) 353-2000 or (800) 621-8431

Indiana Department of Environmental Management
Emergency Response MC 66-30-2
100 North Senate Avenue
Indianapolis, Indiana 46204-2251
(317) 233-7745 or (888) 233-7745

40 CFR §112.1(b) *Discharge* includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil, but excludes discharge in compliance with a permit under section 402 of the CWA; discharges resulting from circumstances identified, reviewed, and made a part of the public record with respect to a permit issued or modified under section 402 of the CWA, and subject to a condition in such permit; continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application under section 402 of the CWA, that are caused by events occurring within the scope of relevant operating or treatment systems. For purposes of this part, the term discharge shall not include any discharge of oil that is authorized by a permit issued under section 13 of the River and Harbor Act of 1899 (33 U.S.C. 407).

Requirements to be met if amendment is required (112.4(b-f))

If the Regional Administrator proposes that this plan be amended, the Regional Administrator will specify terms of the proposed amendment by certified mail or by personal delivery. Within 30 days from receipt of the notice, written information, views, and arguments on the proposed amendment terms may be submitted to the Regional Administrator for consideration. The Regional Administrator is required to notify the facility of any required amendment or rescind the original notice. This SPCC plan must be amended within 30 days of being notified to amend by the Regional Administrator. The amended SPCC Plan must be implemented as soon as possible, but no later than 6 months after the SPCC plan is amended, unless the Regional Administrator specifies another date in the terms of the amendment.

If it is necessary to appeal a decision made by the Regional Administrator requiring an amendment to an SPCC Plan, the appeal must be sent to the EPA Administrator in writing within 30 days of receipt of the notice from the Regional Administrator requiring the amendment. A complete copy of the appeal must also be sent to the Regional Administrator at the same time the appeal is sent to the EPA Administrator. The appeal must contain a clear and concise statement of the issues and points of fact in the case. It may also contain additional information from you, or from any other person. The EPA Administrator may request additional information from you, or from any other person. The EPA Administrator must render a decision within 60 days of receiving the appeal and must notify the facility of the decision.

Amendment of the SPCC Plan by owners or operators (112.5)

Any change made related to this SPCC Plan must be communicated to the Professional Engineer certifying the plan so he can make a determination on whether the change materially affects the facility's potential for a discharge as described in §112.2(b). Generally, any change to the facility personnel, contractor agreement, procedures and emergency contacts constitute non-technical amendments which must be made to this plan as needed. All other changes to the facility are typically technical amendments requiring certification by the Professional Engineer certifying the plan.

Requirement to amend the plan and records (112.5(a) & 112.5(c))

Anytime there is a change in the facility design, construction, operation, or maintenance that materially affects its potential for a discharge, this SPCC Plan must be amended in accordance with the general requirements in §112.7. Examples of changes requiring amendment to this SPCC Plan include, but are not limited to: commissioning or decommissioning containers; replacement, reconstruction, or movement of containers; reconstruction, replacement, or installation of piping systems; construction or demolition that might alter secondary containment structures; changes of product or service; or revision of standard operation or maintenance procedures at a facility. Amendments made to this SPCC Plan in response to these types of changes must be prepared within 6 months and implemented as soon as possible but no later than six months following preparation of the amendment. These types of amendments must be certified by a licensed Professional Engineer. A record of all amendments made to this plan since 2002 is included as part of Attachment D to this plan.

Requirement to review the plan and records (112.5(b))

At least once every five years, a complete review and evaluation of this plan must be done. An amendment must be prepared to include more effective prevention and control technology if:

- Such technology will significantly reduce the likelihood of a discharge as describe in 40 CFR §112.2(b) from the facility; and,
- Such technology has been field proven at the time of the review.

Any amendment must be prepared within 6 months of the review. The amendment must be implemented as soon as possible but not later than 6 months following the preparation of the amendment. The plan review and evaluation must be documented, and a statement as to whether or not the plan needs amended must be signed. The records required by this part are included in this plan as part of Attachment D to this plan.

General Requirements for SPCC Plans (112.7)

Management Approval

By signature, I certify the following:

- This SPCC plan and individuals responsible for implementing this plan have the full approval of management and I, as a member of Citizens Energy Group management, have committed the necessary resources to fully implement this plan; and,
- This SPCC plan is implemented as described within.

Signature: _____ Title: _Manager of Energy Plant Engineering_

Name: __John Hopwood____ Date: _____

Discussion of the facility's conformance to the requirements (112.7(a)(1))

Alternative requirements to Secondary Containment (112.7(a)(2))

The Prospect Street Facility complies with all applicable requirements listed in 40 CFR §112.7 including all secondary containment requirements of §112.7(c) §112.8(c)(2), and §112.8(c)(11). This facility does not employ any alternative measures to secondary containment requirements.

Facility Information and diagrams (112.7(a)(3))

Name of Facility:	Prospect Street Facility
Type of Facility:	Voluntary Remediation Site
Facility SIC:	None
Facility Address:	2950 Prospect Street Indianapolis, Indiana 46203
Longitudinal Coordinates:	-86°6'59"
Latitudinal Coordinates:	39°45'13"

Facility diagrams depicting the location of all oil storage containers and the location of the facility relative to storm water and sanitary sewer inlets are included as Attachment A to this plan.

Listing of Oil containers (112.7(a)(3)(i))

The following table lists the storage capacity of each fixed oil storage container, the specific type of material contained, the type of fixed container, and the container's location. The table also lists an estimate of the potential number of portable containers, the specific type of material contained, the type of portable container, and the storage location for these types of containers.

Table 112.7-1

Container ID	Area	Type	Contents	Capacity (gal)
RO-1	Groundwater Recovery	Steel AST	Recovered Oil	1,200
			Total Regulated Capacity	

Discharge Prevention Measures and Drainage Control Features (112.7(a)(3)(ii-iii))

The only regularly-used, oil-storage containers onsite are associated with the groundwater recovery operations. A discussion of these systems is provided below. All other containers were used for the coking process. They have been drained of their contents, but they have not yet been closed in a manner which meets the requirements of 40 CFR 112.

Inspections: Quarterly inspections (or more frequently if conditions warrant for specific containers) are conducted on all containers and containment areas to ensure on-going integrity. A detailed discussion regarding the regular inspections is provided in section 112.7(e).

Drainage Control Features: Secondary containment is provided for all oil containers at the facility. Containment structures and drainage directions are detailed for each container in Table 112.7-3. The facility has 4 NPDES outfalls to Pleasant Run Creek that are monitored in accordance with the Storm Water Pollution Prevention Plan. The facility has a number of catchment basins with weir features to capture petroleum and other pollutants.

Groundwater Recovery Systems: Site groundwater is treated and discharged to the sanitary sewer system. The oil-water separator and recovered-oil tank are the only oil-storage containers which have appreciable amounts of petroleum.

The oil-water separator was purpose-built for the treatment of groundwater at the facility. It is inside the groundwater treatment building. The floor of this building is sloped with curbing to prevent drainage

outside of the building. The level of the tank is automatically maintained through a combination of level-gauging, weir structures and effluent pump controls. These systems are inspected and tested at least monthly to ensure continued operation.

The recovered-oil tank is built to Steel Tank Institute standards for the storage of flammable materials. The tank is inside concrete secondary containment and under the groundwater treatment building's awning to prevent inundation with rainwater. It has a visual level gauge which is checked regularly against a manual gauging method. The procedure included in Attachment B is used to prevent overfills. The tank and secondary containment are inspected at least quarterly.

Discharge Countermeasures (112.7(a)(3)(iv))

The following procedure will be followed in the event of a discharge from the facility:

1. If the discharge is life-threatening or a fire is imminent, contact emergency services by calling 911.
2. Notify the Manager of Energy Plant Engineering by cell phone, (317) 431-4099. **The Manager of Energy Plant Engineering will then call the Environmental Stewardship Incident Response Line, (317) 402-8636**, to notify and seek advice regarding spill remediation. Environmental Stewardship will handle all necessary notifications and written reports to regulatory authorities.
3. Conduct spill response activities as directed by the Manager of Energy Plant Engineering.
4. Review the Safety Data Sheet for the product(s) spilled to ensure proper PPE is used to protect responders from hazardous materials.
5. Terminate possible ignition sources in the immediate area, such as hot work, vehicles, and other spark producing devices/activities.
6. Ensure any floor drains, storm drains or manholes threatened by the discharge are covered or surrounded by boom or absorbents to prevent further contamination.
7. Isolate the area with caution tape or other barricades so that passersby's are kept a safe distance from the spill.
8. Determine the source of the discharge and ensure that measures have been taken to stop the source of the discharge, if possible.
9. If the Manager of Energy Plant Engineering decides assistance beyond the abilities of the facility personnel is required to facilitate containment, he or Environmental Stewardship will notify response contractors necessary to respond to the discharge.
10. If emergency services were called, allow emergency responders to make the area safe.
11. When the area is safe for work, contain the discharge using booms and/or absorbents. Remove all traces of the spill with absorbent materials.
12. If soil was impacted, consult with Environmental Stewardship for further remediation requirements.
13. Collect all oil-contaminated waste in a lined, sealable receptacle.
14. Contact Environmental Stewardship to manage the disposal of the used spill response material.

This procedure, with a list of emergency contacts and a copy of the discharge notification form, is located separately in the front pocket of the binder for this plan for use in the event of a discharge from the facility. Citizens Energy Group has retained Heritage Environmental Services as an environmental emergency response contractor.

Methods of Disposal (112.7(a)(3)(v))

All recovered materials related to a spill or discharge will be disposed in accordance with all applicable local, state, and federal regulations. Environmental Stewardship will coordinate the disposal of all wastes associated with any spill or discharge.

Contact information in the event of a discharge (112.7(a)(4)(vi))

Table 112.7-2

Contact Organization / Person	Telephone Number
National Response Center (NRC) U.S. EPA Region 5 8:30-4:30 Central Time (message afterhours)	**(800) 424-8802** Outside region: **(312) 353-2000** Local, toll-free: **(800) 621-8431**
Cleanup Contractor(s) **Heritage Environmental**	**(800) 487-7455**
Designated Person Accountable for Discharge Prevention: **John Hopwood**, Manager of Energy Plant Engineering **Garrett Welch,** Senior Manager, August Mack Environmental **Bridget O'Connor,** Project Manager, August Mack Environmental	Office: **(317) 927-4771** Emergency: **(317) 431-4099** Mobile: **(317)354-6433** Mobile: **(317)362-9083**
Environmental Incident Response Hotline	Emergency: **(317)-402-8636**
If Unavailable, **John Havard,** Manager, Environmental Technical Programs	Office: **(317) 693-8716** Emergency: **(317) 645-6525**
State Oil Pollution Control Agencies **Indiana Department of Environmental Management (IDEM)** **IDEM Emergency Response** (24 Hours/Day)	**(317) 232-8603** Toll Free **(888) 233-7745**, Local **(317) 233-7745**
Other State, Federal, and Local Agencies **Occupational Safety & Health Administration (OSHA)** **U.S. Department of Transportation (DOT)** Immediate Report **Local Emergency Planning Committee**	 **(312) 353-2220** **(202) 426-1830** **(317) 252-3230**
Local Fire Department **Indianapolis Fire Department**	**911** or **(317) 327-6053**
Local Police Department **Indianapolis Metropolitan Police Department**	**911** or **(317) 327-3811**
Hospital **Sidney & Lois Eskenazi Hospital**	**(317) 880-0000**
Power Company **Indianapolis Power & Light Company (IPL)**	**(317) 261-8111**
Citizens Dispatch (Discharge to sewer)	**(317) 927-6000**
Release to Sewer: **Jeff Hansen** **Paul Struck** **Pete Corsaro** **Belmont Wastewater Treatment Plant Control Room**	 **(317)691-3783** **(317)501-6812** **(317)491-4017** **(317)639-7120**

Discharge Notification Form (112.7(a)(4))

citizens energy group

ENVIRONMENTAL INCIDENT REPORTING FORM

EF 4.4.7-1 Rev 1.1 3/13/2013

1. INCIDENT			
Incident No.:		Facility Name:	
Incident Date/Time:		Facility Location:	
Date & Time Incident Reported to Environmental Stewardship:		Notified by:	
Incident Location:		Business Unit:	
Injury or Illness as a result of incident? :			

2. CHEMICAL / MATERIAL RELEASE				
☐ Release / Overflow / Bypass / Spill ☐ Spill Contained	Source of spill:	Release start date/time: Release end date/time:		
Chemical Released (e.g. ferric chloride):	☐ Sulfuric Acid Fumes ☐ Ammonia Gas		Quantity:	
Other Product/Material Release (e.g. sewage):			Units:	
Known or anticipated acute or chronic health risks due to incident:				
Precautions to take as a result of release (including evacuation):				
☐ Release to Air ☐ Release to Soil	☐ Release to sanitary sewer ☐ Release to combined sewer	☐ Release to Water Name of water body:		
Clean-Up Contractor:				

3. PERMIT		
☐ Permit Excursion	Permit Number:	
☐ Failure to Report Incident	Permit Name:	

4. PARAMETERS OF CONCERN					
Parameters				No of Samples Analyzed:	
Violation Y/N		Type of Violation		Analytical Results:	
Permit Limit		Units:			

5. INCIDENT DETAILS	
What Occurred:	
Response Actions:	

6. RECOMMENDED ACTION			
Root Cause:			
Recommended Action:			
Responsible Party:			
Target Completion Date:		Actual Completion Date:	

7. AGENCY NOTIFICATION & ACTION			
Agency Notified & Incident Number:		Notified by:	
Person Contacted & Contact Info:		Date & Time:	
Agency Action:		Date:	
Comment:			

8. AGENCY NOTIFICATION & ACTION			
Agency Notified & Incident Number:		Notified by:	
Person Contacted & Contact Info:		Date & Time:	
Agency Action:		Date:	
Comment:			

9. AGENCY NOTIFICATION & ACTION			
Agency Notified & Incident Number:		Notified by:	
Person Contacted & Contact Info:		Date & Time:	
Agency Action:		Date:	
Comment:			

10. PARTICIPANTS			
Supervisor:		Supervisor Review Date:	

Incident Investigator:		Incident Review Date:	
Other Participants:			
Name & title of person(s) filling out form:		Date:	

11. WRITTEN NOTIFICATION REPORT (IF REQUIRED)			
Agency:		Submittal Date:	
Agency:		Submittal Date:	
Agency:		Submittal Date:	

12. LIST OF SUPPORTING DOCUMENTATION (MAPS, PHOTOS, ETC.)

Organization of the Plan (112.7(a)(5))

The body of this plan follows the sequence specified in 40 CFR §112.7. The attachments to this plan are provided as quick reference for facility diagrams, operating procedures, inspection checklists, training records and additional information as they relate to this plan. At the front of this plan is a single-page emergency guideline which includes the discharge countermeasure procedure and an emergency contact list. Copies of the discharge notification form are maintained with the emergency guideline for use in the event of a discharge.

Predicted oil discharge directions, volumes and rates (112.7(b))

All containers at this facility except the groundwater treatment systems and storage cannot be reasonably expected to cause a discharge. All containers associated with the coking processes have been emptied of their contents and all coking processes have ceased. Therefore, only the groundwater treatment systems could reasonably be expected to cause a discharge. Table 112.7-3 describes the potential failures and drainage pathways.

Table 112.7-3

Source	Map ID	Potential Failure	Maximum Estimated Rate (GPM)	Estimated Total Quantity (Gal)	Direction Of Flow	Secondary Containment (Volume, gals)
Groundwater Treatment Systems	RO-1	Leakage	1	1200	Overland to settling basins	Concrete Dike (2500)

Secondary Containment and Diversion Methods (112.7(c))

Table 112.7-4

Location	Material	Description of secondary containment method
South Side of PRC	Recovered Oil	RO-1: Released material would flow into secondary containment or would flow by gravity to the settling basin
Pleasant Run Creek	Petroleum	In the event of a release that does reach Pleasant Run Creek, a supply of petroleum-specific sorbents is maintained at the facility. Materials are located in the Locker Room. See Table 2 for a summary of spill control equipment.

Impracticability of Secondary Containment (112.7(d))

General secondary containment has been provided for all containers and transfer operations at this facility with the potential to cause a discharge as described by 40 CFR §112.1(b). Also, all bulk storage containers have sized secondary containment as required by 40 CFR §112.8(c)(2) and §112.8(c)(11). Therefore, 40 CFR §112.7(d) is not applicable to this facility.

Inspections, tests, and records (112.7(e))

All bulk storage containers are inspected on at least a quarterly basis in accordance with the Steel Tank Institute Standard for the Inspection of Aboveground Storage Tanks (SP001). A procedure detailing the responsibility of the facility inspector is included in Attachment B to this plan. A blank inspection checklist for all bulk storage containers at this facility is included in Attachment C to this plan. The records of these inspections and related corrective action reports are maintained electronically on the Environmental Stewardship common drive. If condition or usage of the container requires that inspections be done more frequently than on a quarterly basis, records are kept in accordance with that requirement. Bulk storage containers which have sized secondary containment (all containers have a Continuous Release Detection Method as defined by STI standard SP001) and are less than 5,000 gallons in capacity do not require integrity inspections and leak testing beyond visual inspection unless repairs are made to the container. All container repairs will be made by a contractor capable of performing non-destructive (i.e., ultra-sound or equivalent) inspections and certifying the container's integrity for its intended use prior to re-use.

Personnel, training, and discharge prevention procedures (112.7(f))

Facility personnel are trained annually on the requirements of 40 CFR §112, the procedures related to this plan, and briefings on spills and related corrective actions at the facility. Additionally, facility inspectors are specifically trained on performing the inspections related to this plan. Training records are maintained electronically by the HR Department. Environmental Stewardship maintains the original hardcopies as feasible.

Operation and maintenance of discharge prevention equipment procedures and training (112.7(f)(1))

The only ongoing oil-handling processes at this facility are associated with groundwater treatment. Prior to work in this area, these personnel are trained in the operation and maintenance of discharge prevention equipment; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of this SPCC plan. These topics are reviewed annually during the SPCC discharge prevention briefings to ensure new oil-handling personnel are trained. This also allows for training to be presented on operation and maintenance procedures for new equipment, new or revised pollution control regulations, and amendment(s) to this SPCC plan.

Designated person accountable for discharge prevention (112.7(f)(2))

The Manager of Energy Plant Engineering is the designated person accountable for discharge prevention for this facility. Specific contact information for this individual is located in Table 112.7-2.

Annual discharge prevention briefings (112.7(f)(3))

Citizens Energy Group schedules discharge prevention briefings for oil-handling personnel at least once a year to assure understanding of the SPCC plan and how it relates to this facility. Briefings highlight and describe known discharges, malfunctioning components, and any recently developed precautionary measures. Any changes to the SPCC plan or regulated equipment and new SPCC requirements or procedures are also described during these briefings.

Facility security features (112.7(g))

General facility security features prevent unauthorized access to the facility. The facility perimeter is fully fenced with access limited to credentialed personnel. Access to the facility is controlled by the

onsite security guard. When the facility is not occupied, the gates are locked to prevent access. These features prevent potential acts of vandalism on facility property.

Access to oil handling and storage areas is limited to specific personnel. The groundwater treatment systems are inside the groundwater treatment building. The building remains locked when not occupied. Valves on the recovered oil tank are locked to prevent access as this tank sits outside the building. Areas around this building are well-lit to assist in the discovery of oil discharges.

Facility Loading/Unloading Racks (112.7(h))

This facility does not have a loading or unloading rack as defined by 40 CFR §112.

Field-Constructed Containers (112.7(i))

The facility does not have any field constructed tanks that are in use.

Conformance to State requirements (112.7(j))

The SPCC regulation at 40 CFR §112 is generally more stringent than requirements from the state for this type of facility. However, 327 IAC Article 2 requires additional reporting requirements for the State of Indiana. Environmental Stewardship will make all required notifications and reports to regulatory authorities in compliance with federal, state, and local requirements on behalf of the facility. The procedure used by Environmental Stewardship to determine reporting requirements is included in Attachment B to this plan.

Qualified Oil-filled Operational Equipment (112.7(k))

Oil-filled Operational Equipment at this facility complies with 40 CFR §112.7(c). 40 CFR §112.7(k) is not applicable to this facility.

SPCC Plan requirements for Onshore Facilities (112.8)

The Prospect Street Facility is situated on land. The facility is not an oil production facility or a drilling and workover facility, and it does not store any type of animal or vegetable oil. In addition to conforming to the general requirements of §112.7, this plan must also conform to the requirements of §112.8.

Facility Drainage (112.8(b))

Drainage from diked areas is accomplished by the use of manually activated pumps or vacuum truck. Water from diked areas is discharged to the wastewater collection system or taken off-site to an appropriate treatment facility. Flapper type drain valves are not used to drain diked areas. All secondary containment is drained to the wastewater collection system. Spills that may occur outside of containment areas will flow into containment systems that will retain oil in the facility. These drainage systems are described in Table 112.8-1. As drainage from diked areas will not be discharged, procedures for inspecting accumulations prior to discharge are not necessary.

Table 112.8-1: Diked Areas and Drainage Mechanisms

Location	Material	Description of containment, diversionary structure, or spill prevention equipment
South Side of PRC	Recovered Oil	RO-1: The tank is in a diked area. Released recovered oil during transfer operations would flow to the settling basin
Pleasant Run Creek	Petroleum	In the event of a release that threatens to reach Pleasant Run Creek, a supply of petroleum-specific sorbents is maintained at the facility. Materials are located in the locker room. See Table 2 for a summary of spill control equipment.

Bulk Storage Containers (112.8(c))

The coking operations and associated processes no longer operate at this facility. The groundwater treatment systems are the only operational portion of this facility. Groundwater is pumped from a number of recovery wells throughout the site for treatment by phase separation. Oil is separated from the water and stored in the recovered oil storage tank. Water meeting the conditions of the facility's industrial pretreatment permit is discharged to the sanitary sewer system. This system is automatically monitored to prevent discharges of oil. The automatic systems are regularly inspected and maintained to ensure continued operation.

Compliance with this section is described for each type of bulk storage container. Containers listed in section 112.7 as manufacturing equipment (Mfg Equipment) do not meet the definition of *bulk storage container* given in 40 CFR §112. Generally, this equipment was built for use in processes requiring much higher temperatures and pressures than its current state and no longer contains appreciable amounts of oil. Table 112.8-2 lists all the bulk storage tanks' features and secondary containment.

Table 112.8-2: Bulk Storage Container Specifications

Area/Tank	Material	Build Specifications	Secondary Containment and Overfill Prevention Specifications	Secondary Containment Volume
South Side of PRC: RO-1	Recovered Oil	UL List 39002 AST	Concrete Dike; Visual level gauge and automatic level control features	2,500 gallons

The requirements of 112.8(c)(3-5), (7) and (11) do not apply to this facility. These tanks are inspected in accordance with section 112.7(e) of this plan. Any visible discharges from these containers are promptly corrected. Any oil accumulations found in the containment areas are promptly removed.

Facility Transfer Requirements (112.8(d))

The requirements of 40 CFR §112.8(d) are only applicable to the oil piping associated with the groundwater treatment systems. All other transfer piping has been capped at terminal ends and drained as best practicable as it is no longer in use. Vehicular traffic poses no danger to the aboveground oil piping at this facility. A sign warning vehicles of oil transfer operations or above ground piping is not necessary.

The oil transfer piping associated with the groundwater treatment systems was designed and installed to meet the requirements of 40 CFR §112.8(d). All piping supports are designed to minimize abrasion and corrosion and allow for expansion and contraction. The requirements of 40 CFR §112 are not applicable to buried piping at this facility. All piping and valves are examined on an on-going basis by facility personnel as described in section 112.7(e) of this plan. Any time the piping requires modification, relocation or replacement, the piping will be tested for integrity and leaks prior to operation.

Facility Response Plans (112.20)

The Prospect Street Facility was in operation since the early 1900s as a coke production facility. The facility ceased operations as a coke plant in July 2007. The groundwater treatment system was installed in 2010. This facility is not required to prepare and submit a Facility Response Plan. This determination has been made using the formulas in Appendix C to 40 CFR §112 where applicable. The facility does not transfer oil over water and the facility's total oil storage capacity is less than 1 million gallons. The facility would not be reasonably expected to cause substantial harm to the environment.

Substantial Harm Evaluation (112.20(a))

Facility Name: ***Closed Prospect Street Facility***

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

☐ Yes ☒ No

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground storage tank area?

☐ Yes ☒ No

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?

☐ Yes ☒ No

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula) such that a discharge from the facility would shut down a public drinking water intake?

☐ Yes ☒ No

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?

☐ Yes ☒ No

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature: _____ Date: _____

John Hopwood, Manager of Energy Plant Engineering

Attachment A – Facility Diagrams

Figure 1. Facility Diagram

Figure 2. Facility Location

Figure 1

Closed Prospect Street Facility: SPCC

citizens energy group

Drawn By: Allen Reimer Updated: August 1, 2017

0 115 230 460 690 920 Feet

Figure 2

citizens energy group

Closed Prospect Street Facility: Location

Drawn by: Michael Zielinski Updated July 27, 2015

Miles

0 0.15 0.3 0.6 0.9 1.2

Attachment B – Referenced Procedures

1. Bulk Tank Unloading Procedure
2. Inspection Procedures for facility inspector
3. Environmental Incident Reporting Process
4. Spill Reporting Requirements Matrix

Bulk Tank Loading Procedure

All unloading of the recovered oil tank is to be observed by a competent individual throughout the transfer. Service providers are responsible for ensuring a bulk tanker has been vented before loading; ensuring the transfer hose(s), pump, and fittings are suitable for the material being transferred at the expected pressures and temperature; ensuring the truck is safely parked; ensuring wheel chocks have been properly placed; and, prior to departure, closely inspecting the lowermost drain and all outlets of vehicle and ensuring they are tightened, adjusted, or replaced to prevent liquid discharge during transit from the facility.

Prior to transfer

- Accurately determine the free capacity of the container to be loaded.
- Verify the liquid level of the recovered oil tank prior to unloading to ensure the entire capacity will fit in the container to be loaded.

Required Spill Response Equipment

- Spill kit containing absorbent berms and other absorbents.

To Load from a Tanker Truck

- Inspect hose gaskets to ensure they are not damaged or rotted.
- Using a bucket or absorbent pad to catch drips, hook up hose to both tanks and open all appropriate valves from storage tank to tank truck.
- Observe transfer until complete. Monitor the following:
  - Tank truck level
  - Storage tank level
  - Pump operation
- Once the receiving tank is full, or the transfer is complete:
  - Close the valve(s) from the tank being emptied and cap connection catching drips with a bucket or absorbent pad
  - Completely empty the hose(s) to the receiving tank
  - Close the receiving tank valve(s)
  - Cap hose(s) and terminal connections catching drips with a bucket or absorbent pad
- Promptly clean up any spilled oil.
- Inspect lowermost drains and valves of the vehicle for discharges/leaks and ensure that they are tightened, adjusted, or replaced as needed to prevent discharges while vehicle is in transit.

IMMEDIATELY REPORT ANY SPILLS TO THE
ENVIRONMENTAL INCIDENT RESPONSE HOTLINE
317-402-8636

SPCC Inspection Procedure

Inspection
For the purposes of this procedure, an inspection is a periodic, documented, and visual evaluation of oil storage containers. The inspection checklists provided as part of this plan are intended to be the documentation of these inspections.

Inspector Qualifications
The personnel performing these inspections shall be knowledgeable about storage facility operations, the type of AST and its associated components, and characteristics of the liquid stored. The inspector must also be familiar with pumping, piping and valve operations of the system being inspected.

Frequency of Inspections
The frequency of documented inspections depends on the failure risk of the equipment. In most cases, inspections should be performed monthly. The table below describes when inspections are required at different frequencies.

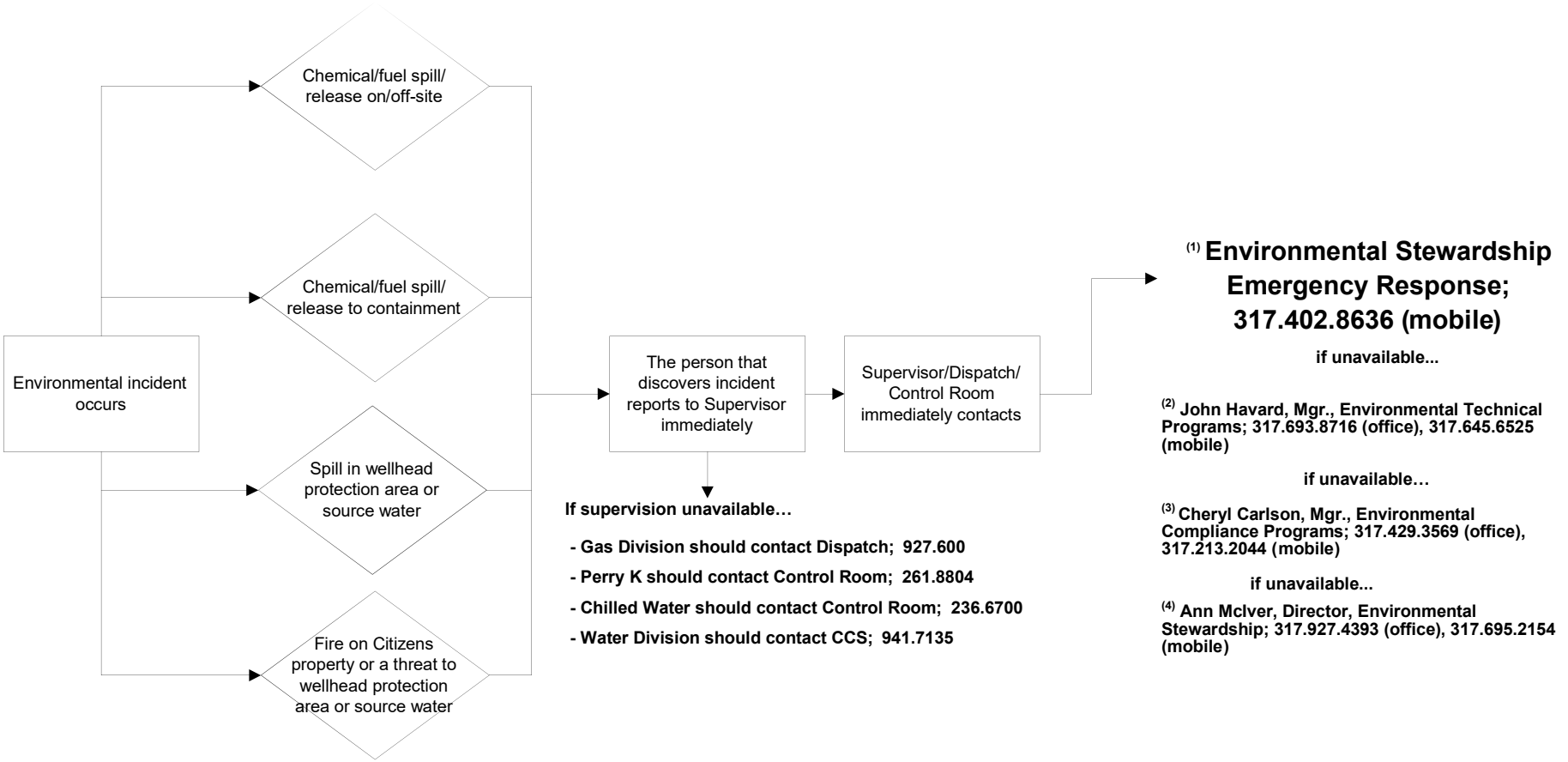
Condition of the Container	Necessary Inspection Frequency
The container is leaking, and it cannot be repaired immediately due to extenuating circumstances.	Daily documented inspections of the equipment.
The container shows signs of severe corrosion or structural damage. Piping or appurtenances show signs of severe corrosion or structural damage. A leak from the container or associated equipment is imminent.	Weekly documented inspections of the equipment.
The container and all associated equipment is in operating condition.	Monthly documented inspections of the equipment.
The container and all associated equipment is not used for storage or transfer, but the equipment has not been closed according to 40 CFR §112.	Quarterly documented inspections of the equipment.

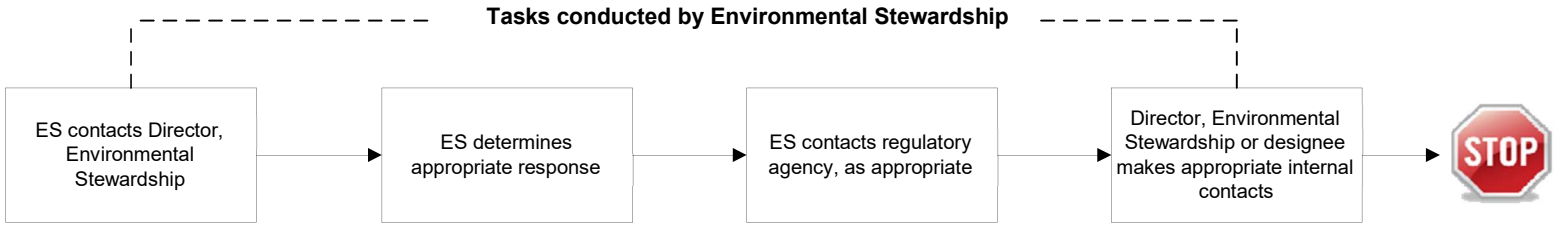
Scope of Inspections
The inspection checklists included as part of this plan are intended to be guidelines for the inspection of an oil storage container on a monthly basis. These checklists do not include items to be inspected on an annual basis. In addition to the checklists provided, an inspector should make note of any concerning conditions with the following associated equipment identified during the inspection:

- Container supports
- Container anchors
- Container Foundation
- Insulation Covering
- Container Coating
- Associated equipment
- Vents
- Release Prevention Barriers
- Spill Control Systems
- Local Drainage
- Grounding
- Roof Condition
- Anti-siphon Valves
- Relief Valves
- Strainer Baskets and seals
- Electrical boxes and wiring
- Labels and tags

Environmental Incident Reporting Process

EF 4.4.7-4 February 13, 2013, Revision 1.12





Indiana Spill

Reporting Requirements

In addition to the reporting required by 40 CFR §112, the State of Indiana has promulgated rules which require reporting certain spills to the Indiana Department of Environmental Management. Use the following matrix to determine which entities require a verbal report

		Spill or Release Scenarios	Required Reporting: National Response Center	Required Reporting: Indiana Department of Environmental Management
Any Facility	1	Oil spill causes sheen on Waters of the US or State or causes a sludge or emulsion to form beneath the surface of Waters of the US or State	Immediate, Verbal	Within 2 hours, Verbal
	2	Hazardous Substance or Extremely Hazardous Substance Release greater than Reportable Quantity	Immediate, Verbal	Within 2 hours, Verbal
	3	Greater than 100 lbs. or RQ, whichever is less, release of Hazardous Substance or Extremely Hazardous Substance in a WHPA	Possibly, refer to 2	Within 2 hours, Verbal
	4	Greater than 55 gallons petroleum spill in WHPA	Possibly, refer to 1	Within 2 hours, Verbal
	5	Greater than 100 lbs. or RQ, whichever is less, release of Hazardous Substance or Extremely Hazardous Substance to soil outside facility boundary	Possibly, refer to 2	Within 2 hours, Verbal
	6	Spill of an objectionable substance which impacts or threatens to impact Waters of the State.		Within 2 hours, Verbal
Facility w/ SPCC Plan	7	Any time a facility has discharged more than 1000 gallons of oil in a single discharge as descibed in §112.1(b) or discharged more than 42 gallons of oil in each of two discharges as described in §112.1(b) occurring within any 12 month period, a written report must be submitted to the EPA Regional Administrator within 60 days.		

A §112.1(b) discharge is an oil discharge that violates applicable water quality standards or causes a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

Attachment C – Facility Inspection Checklists

1. Monthly
2. Annual
3. Discharge Response Equipment Inventory

Closed Prospect Street Facility Monthly SPCC Inspection Checklist

Date:			Recovered Oil Tank RO-1			Diesel Fuel Tank EFSDT-1			Diesel Fuel Tank EFSDT-2			Diesel Generator Tank XYGen-1			Diesel Generator Tank XYGen-2			Diesel Generator Tank XYGen-3			Diesel Generator Tank XYGen-4								
Inspector:																												
Signature:																												
Item		**Task**	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
Tank Containment																												
1	Tank Containment Structure	Water, debris, cracks or fire hazard?																										
2	Pathways and entry	Clear and gates/doors operable?																										
Leak Detection																												
1	Tank	Visible signs of leakage?																										
2	Secondary Containment	Visible signs of leakage from tank into secondary containment?																										
3	Surrounding Area	Visible signs of leakage?																										
Tank Equipment																												
1	Valves	a. Leaks?																										
		b. Drain valves closed?																										
2	Liquid Level Equipment	a. Visual or mechanical devices damaged?																										
		b. Device easily readible?																										
3	Overfill Equipment	a. Test overfill alarm. Operable?																										
		b. Test overfill valve. Operable?																										
4	Piping Conections	Leaks, corrosion, damage?																										
Tank Attachments and Appurtenances																												
1	Tank attachments (i.e. tags, fittings)	Secure without signs of damage or corrosion?																										
Piping to and from Equipment																												
1	Piping	a. Leaks? Corrosion?																										
		b. Breaks in insulation or protective coating?																										
2	Valves, flanges, inline equipment	a. Leaks? Corrosion?																										
		b. Breaks in insulation or protective coating?																										
Other Conditions																												
1	Are there other conditions that should be addressed for continued safe operation or that may affect the site spill prevention plan?																											

Additional Comments:

Suggested Corrective Actions for items marked in highlighted cells:

Completion Date for CA's:

Date Reviewed: 11/18/2014
Date Updated: 2/18/2015

Any change made to the facility which requires a change to this form must be reported to the Manager of Environmental Technical Programs for approval before use.

Closed Prospect Street Facility Annual SPCC Inspection Checklist

Date:			Recovered Oil Tank RO-1																									
Inspector:																												
Signature:																												
Item		Task	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
Tank Containment																												
1	Tank Containment Structure	a. Holes or cracks in containment?																										
		b. Washout? Liner Degradation?																										
		c. Leakage?																										
		d. Paint failure?																										
		e. Container settling?																										
Foundation and Supports																												
1	Foundation	Settlement or foundation washout?																										
2	Concrete pad or ring wall	Cracking or spalling?																										
3	Supports	Corrosion, paint failure?																										
4	Water Drainage	Drains away from container?																										
5	Tank Grounding	Strap secured and in good condition?																										
Cathodic Protection																												
1	Galvanic cathodic protection	Functional?																										
2	Impressed Current System	a. Components (powe switch, meters, alarms) functional?																										
		b. Record hour meter, ammeter and voltmeter readings	H	A	V	H	A	V	H	A	V	H	A	V	H	A	V	H	A	V	H	A	V	H	A	V	H	A	V
Tank Shell, Heads, Roof																												
1	Coating	Failure?																										
2	Steel Condition	a. Dents, buckling, bulging?																										
		b. Corrosion?																										
		c. Cracks?																										
3	Roof Slope	Low points, standing water?																										
Tank Equipment																												
1	Vents	Moving freely and unobstructed?																										
2	Valves	a. Operational?																										
		b. Free of damage, corrosion?																										
3	Anti-siphon/Check Valves	Cycle. Operational?																										
4	Pressure regulator valves	Operating properly?																										
5	Expansion relief valve	Proper orientation?																										
6	Solenoid Valves	Cycle. Operational?																										
7	Fire/Shear valves	a. Cycle. Operational? Moves freely/completely?																										
		b. Wired open?																										
		c. Fusible element in place?																										
		d. Test ports sealed?																										

Date Reviewed: 11/18/2014
Date Updated: 5/4/2015

Any change made to the facility which requires a change to this form must be reported to the Manager of Environmental Technical Prograams for approval before use.

Closed Prospect Street Facility Annual SPCC Inspection Checklist

Date:																													
Inspector:				Recovered Oil Tank RO-1																									
Signature:																													
Item		Task		Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
8	Interstitial Leak Detection Equipment	a. Window is clean and clear in sight leak gauages?																											
		b. Wire connections tight, corrosion free?																											
		c. Test. Operable?																											
		d. Same as manual gauge (stick)?																											
9	Fill Pipe Spill Containment	a. Corrosion, damage, wear?																											
		b. Affixed tightly to AST?																											
		c. Drain valves operational? Closed?																											
10	Strainer	a. Clean? Good condition?																											
		b. Cap, gasket, basket in good condition?																											
11	Filter	Within service life? Operational?																											
12	Flame Arrestors	Corrosion, air blockage?																											
13	Liquid Level Equipment	a. Properly operating?																											
		b. Last calibration?		Record			Record			Record			Record			Record			Record			Record			Record				
14	Overfill Prevention Equipment	a. Operational?																											
		b. Corrosion? Damage?																											
		c. Free of blockage?																											
Insulated Tanks																													
1	Insulation	a. Missing sections? Damage?																											
		b. Retaining moisture? Mold?																											
2	Insulation cover or jacket	Damage allowing for water intrusion?																											
Other Conditions																													
1	Electrical boxes/wiring	Good condition?																											
2	Labels and tags	All intact and readable?																											
3	Tank Contents	Water in tank?																											

Additional Comments:

Suggested Corrective Actions for items marked in highlighted cells:

Completion Date for CA's:

Date Reviewed: 11/18/2014
Date Updated: 5/4/2015

Any change made to the facility which requires a change to this form must be reported to the Manager of Environmental Technical Prograams for approval before use.

Discharge Response Equipment Inventory

The discharge response equipment inventory is verified during the monthly inspection and must be replenished as needed. Discharge response equipment is stored in the Groundwater Recovery building. The area with the Discharge Response Equipment must be clearly marked. Spill kits area located near the fixed ASTs, backup generators, and at the Groundwater Recovery AST. Spill kits may be replenished using the materials stored in the Groundwater Recovery building. The table below describes the quantity of materials needed for each spill kit, the total maximum quantity of materials that should be stored at the Groundwater Recovery Building, and threshold quantities for each material stored there. Once the threshold quantity is reached, the spill kits must be replenished using materials found in the Groundwater Recovery Building. Once the threshold quantity is reach in the Groundwater Recovery Building, new materials must be order to fully replenish the Discharge Response Equipment.

Type	Maximum Quantity	Threshold Quantity
Spill Kits (4 total)		
Loose absorbent material	20 pounds	5 pounds
Absorbent pads	10 pads	5 pads
Absorbent socks	1 sock	0 socks
Neoprene gloves	2 pairs	1 pair
Groundwater Recover Building		
Empty 55 gallon drum for contaminated materials	1 drum	0 drums
Loose absorbent material	200 pounds	20 pounds
Absorbent pads	100 pads	10 pads
Absorbent socks	4 socks	1 sock
Non-sparking shovels	3	N/A
Brooms	3	N/A
Sand bags	10 bags	5 bags

Attachment D – Records of Review, Amendment and Training

I have completed a review and evaluation of the SPCC Plan for the Closed Prospect Street Facility on _____ (date) and will/will not amend the Plan as a result of the review.

Signature: _____

Title: _____

Date: _____

Date of Review	Date of Amendment	Reviewing Individual	Amendments (Section and brief description)
March 14, 2003	March 14, 2003	John Havard	Updated facility information, emergency phone list, and substantially revised the plan to comply with the new regulations published in 2002.
January 8, 2010	January 8, 2010	John Havard	Modified the plan to reflect changes due to plant shutdown and elimination of several bulk tanks.
October 31, 2011	October 31, 2011	John Havard	Modified the plan to reflect the removal of some tanks from the facility and the addition of the recovered oil storage tank.
July 3, 2014	July 7, 2014	Michael Zielinski	Modified the plan to reflect the removal of some tanks from the facility.
July 20, 2015	July 21, 2015	Michael Zielinski	Modified the plan to reflect the removal of some tanks from the facility. Updated format to match that of other utility plans.
July 13, 2017		Allen Reimer/Garrett Welch	Modified plan to eliminate tanks that were demolished and removed from the site; added tanks that are necessary for remediation work

Date of Training	Trainer	Number Attending	Training Subject(s)	Records Retained
11/4/2011	Sarah Page	5	Annual Discharge Prevention Briefing	Yes
5/29/2014	Michael Zielinski	5	Annual Discharge Prevention Briefing	Yes

ATTACHMENT F

Odor and Dust Control Workplan

Citizens Energy Group Project Documentation

PLEASANT RUN CROSSING NAPL REMOVAL

Prospect Facility - Indianapolis, Indiana

Exhibit G

Odor and Dust Control Workplan (Last Update 12/22/2017)

1. **Introduction** - This workplan has been prepared to outline the procedures that shall be undertaken to control odors and fugitive dust

2. **Background** -
   Citizens has implemented the following monitoring program and work practices to assess and control compounds believed to drive the potential for odors during this project.

3. **Monitoring & Recording** - monitoring shall be performed by the Contractor during the project to evaluate the effectiveness of this Odor and Dust Control Workplan and to make continuous and ongoing improvements in work practices. This monitoring shall include:

   a. Routine inspections of the excavation site to ensure control measures are being implemented and are effective; including visual and olfactory observations of the work and perimeter areas for fugitive dust and odors.

   b. Field monitoring for Total Organic Vapors (TOVs) shall be conducted at 4 or more sample locations – upwind, downwind, and both sides of the excavation. TOV screening will be performed using a portable Photoionization Detector (PID). Screening will be conducted during potential odor producing excavation activities. Results will be recorded in a log at least three times each day (morning, mid-day and end of day).

   c. Ambient air monitoring for Volatile Organic Vapor may be conducted by the Owner. Ambient air samples will be collected as necessary with Summa canisters located at the sampling stations located in the property for a 24-hour period. Results from field monitoring will trigger this testing. These samples will be collected and analyzed in accordance to USEPA Method TO-15.

4. **Response Action** - Reports shall be prepared to present the monitoring data along with relevant meteorological data.

   a. **TOV Data Evaluation and Response** - If TOV results exceed 1 part per million (ppm) above background at any designated sample location, additional odor control measures will be implemented (e.g., additional field monitoring, additional water spray, revised work practices, etc.). If TOV results exceed 5 ppm above background at any designated sample location downwind of ongoing excavation activities additional control measures will be implemented and additional monitoring conducted (e.g., additional field monitoring, work stoppage, ambient air monitoring, accelerated removal of impacted materials, application of odor neutralizer, application of odor encapsulating foam, etc.).

b. **Volatile Organic Constituent (VOC) Data Evaluation and Response** - VOC data when collected will be reviewed to determine if ambient air criteria are approached or exceeded. The data will be compared to regulatory criteria published by OSHA for worker protection; one-tenth (1/10) of the OSHA standard will be used as the screening level criteria. Additionally, this VOC data will be reviewed to determine if any modifications to this Workplan are appropriate to control odors/emissions from site activities.

c. **Fugitive Dust Observations and Response** - If airborne fugitive dust is observed leaving the work area, additional dust suppression techniques shall be implemented (e.g., additional water spray, revised work practices, work stoppage, foam application, etc.).

i. **Work Practices** - During excavation activities, there is the potential that some dust will be present in the immediate working area(s). A fugitive dust plan has been developed and implemented to control and minimize the potential for fugitive dust emissions. Additional work practices will be conducted in a manner to further minimize the potential for odor and dust emissions. These work practices include: Regular spraying of water during work activities to suppress dust and minimize the potential for odor-causing emissions.

ii. Removal of soil quickly after it has been excavated to minimize the amount of residual material being staged on-site.

ATTACHMENT G

Daily Report Template

CONTRACTOR DAILY REPORT

DAILY REPORT NO.		REPORT DATE:	
PROJECT NAME / LOCATION:		PROJECT NUMBER:	
PREPARED BY:		WEATHER:	

SUMMARY OF WORK PERFORMED:

OPERATIONS / PRODUCTION REPORT

WORK FORCE – CONTRACTOR

Company/Worker	Worker Classification (Laborer, Operator)	Total Hours Today

UNIT BILLING / EQUIPMENT

Unit Billing Item	Units	Number of Units	Rental Equipment	Hours Used

MATERIALS

MATERIALS DELIVERED

Quantity/Volume/Weight	Description of Materials Received

PREPARER'S SIGNATURE DATE:

OWNER'S APPROVAL: DATE: