

<b>Site Name:</b> Knoxville College	<b>Site Contact:</b> Kevin Eichinger	<b>Telephone:</b> 404-562-8268
<b>Location:</b> 901 Knoxville College Drive, Knoxville, TN 37921	<b>Client Contact:</b>	<b>Telephone:</b>
<b>EPA ID No.</b> TBD	<b>Prepared By:</b> Wendy Robinson	<b>Date Prepared:</b> 06/05/2014
<b>Project No.</b> TBD	<b>Dates of Activities:</b> Begin 06/05/2014	<b>Emergency Response</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

<b>Objectives:</b> <ul style="list-style-type: none"> <li>Assess the college chemistry laboratory for the presence and extent of elemental mercury, mercury vapor contamination, and other chemicals (acids, bases, flammable gases, radiation sources)</li> <li>Oversee and document cleanup activities, if necessary.</li> <li>Conduct confirmation sampling, if necessary.</li> </ul>	<b>Site Type:</b> <i>Check as many as applicable.</i> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Active</td> <td><input type="checkbox"/> Landfill</td> <td><input checked="" type="checkbox"/> Inner-City</td> </tr> <tr> <td><input type="checkbox"/> Inactive</td> <td><input type="checkbox"/> Railroad</td> <td><input checked="" type="checkbox"/> Rural</td> </tr> <tr> <td><input checked="" type="checkbox"/> Secured</td> <td><input checked="" type="checkbox"/> Residential</td> <td><input type="checkbox"/> Remote</td> </tr> <tr> <td><input type="checkbox"/> Unsecured</td> <td><input type="checkbox"/> Industrial</td> <td><input type="checkbox"/> Other (<i>specify</i>)</td> </tr> </table>	<input checked="" type="checkbox"/> Active	<input type="checkbox"/> Landfill	<input checked="" type="checkbox"/> Inner-City	<input type="checkbox"/> Inactive	<input type="checkbox"/> Railroad	<input checked="" type="checkbox"/> Rural	<input checked="" type="checkbox"/> Secured	<input checked="" type="checkbox"/> Residential	<input type="checkbox"/> Remote	<input type="checkbox"/> Unsecured	<input type="checkbox"/> Industrial	<input type="checkbox"/> Other ( <i>specify</i> )
<input checked="" type="checkbox"/> Active	<input type="checkbox"/> Landfill	<input checked="" type="checkbox"/> Inner-City											
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<input checked="" type="checkbox"/> Secured	<input checked="" type="checkbox"/> Residential	<input type="checkbox"/> Remote											
<input type="checkbox"/> Unsecured	<input type="checkbox"/> Industrial	<input type="checkbox"/> Other ( <i>specify</i> )											

**Project Scope of Work and Site Background**  

Tetra Tech is tasked to mobilize to the Knoxville College campus to document the inventory, clean-up activities, and conduct sampling (if necessary) of the chemicals and materials located in the on-site chemistry laboratory. Other tasks may be assigned as the direction of EPA.

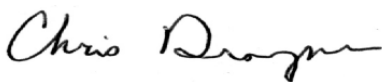
Based on a local news story, the campus is open; however, the facility appears abandoned (broken glass, no students) to the general public. Inspection reports with the City of Knoxville indicate at least one building is not safe for occupancy.

<http://www.wate.com/story/25455774/knoxville-college-a-school-in-disrepair>

**Health and Safety Approver Comments or Additional Instructions:** Wear Tyvek coveralls to avoid contamination and dry off and replace as needed. Bring water for hand washing, eyewash, drenching, decontamination and drinking. Attempt to locate MSDS sheets PRIOR to opening containers. A generator and fan are recommended to ensure adequate airflow while opening containers. If required. Bring fire extinguishers and stage in work areas. Avoid dust-generating activities. Establish background readings on 2241, MultiRAE Pro, and Lumex, then conduct initial readings through windows, under doors, or other external locations if possible PRIOR to entering the facility. Continue to survey and upgrade PPE as necessary once inside. Look and document chemicals and container conditions, but avoid touching items to the extent practicable. Use extreme care when looking through cabinets, drawers, etc. Some older chemicals may be crystalized (i.e. picric acid, azide compounds, peroxides and ethers, among others). DO NOT TOUCH, open or otherwise disturb any crystalized, unlabeled, or containers with flaking/disintegrating labels. Expect mercury in sink traps, if not on the floor.

**Health and Safety Plan Approver Signature:** 

**Date:** 5 June 2014

**Note:** A minimum of two persons with appropriate training and medical surveillance must be on site for any fieldwork subject to Level 2 HASP requirements.

**Note:** A detailed site sketch or figure may be included on Page 10 of 12.

**Initial Isolation and Protective Action Distances (for emergency response operations only):** NA

**Establishment of Work Zones; including exclusion, contamination reduction, and support zones; is required for ALL HAZWOPER projects.** For heavy equipment (i.e. drilling, excavation operations), exclusions zone will established around each equipment or drilling location based on site conditions and or noise levels (DCN 2-04, Hearing Conservation Program) at drilling operations (i.e. a circular exclusion zone based on noise levels >85 dbA from the drill rig or a minimum of 20 feet around the equipment, whichever is greater). Work zones will be delineated using cones, barrier tape or similar visual indicators.

**Spill control shall be conducted in accordance with the requirements of SWP 5-14, *Spill and Discharge Control Practices*, and SWP 05-47, *Spill Prevention and Clean Up*.**

**IDW will be placed back into original containers or staged onsite for future disposal.**

Based of forecast for 3/28/14 @ 0700 Wind Speed and Direction (Approach from upwind)		Temperature (°F)	Relative Humidity (%)	Probability of Precipitation (%)	Weather Forecast (such as partly cloudy, snow, etc.)
Speed (mph): 9	From Direction: SW	77	69	30	Chance of isolated t-storms

**On-Site Supplies:** ☒ First Aid Kit ☒ Fire Extinguisher ☐ Air Horn ☒ Oral Thermometer ☐ Noise Dosimeter

**Known or Anticipated Site Hazards or Concerns:** (Hazards covered by existing Safe Work Practices are listed on the next page)

<input type="checkbox"/> Work on active roadway	<input type="checkbox"/> Overhead utilities	<input type="checkbox"/> Energized electrical systems
<input checked="" type="checkbox"/> Onsite laboratory	<input type="checkbox"/> Buried Utilities	<input checked="" type="checkbox"/> Portable hand tool use
<input checked="" type="checkbox"/> Explosion or fire hazard	<input type="checkbox"/> Surface or underground storage tanks	<input type="checkbox"/> Portable electrical tool use
<input type="checkbox"/> Oxygen deficiency	<input checked="" type="checkbox"/> General slips, trips, falls	<input type="checkbox"/> Machine guarding
<input checked="" type="checkbox"/> Unknown or poorly characterized chemical hazards	<input checked="" type="checkbox"/> Uneven, muddy, rugged terrain	<input checked="" type="checkbox"/> Portable fire extinguisher use
<input checked="" type="checkbox"/> Inorganic chemicals	<input type="checkbox"/> Lift (man lift, cherry picker) use	<input type="checkbox"/> Driving commercial vehicles
<input checked="" type="checkbox"/> Organic chemicals	<input type="checkbox"/> Industrial truck (forklift) use	<input type="checkbox"/> Driving personal vehicles
<input type="checkbox"/> Chemical warfare material	<input type="checkbox"/> Wood or metal ladder use	<input type="checkbox"/> Scientific diving operations
<input checked="" type="checkbox"/> Compressed Gas Cylinders	<input type="checkbox"/> Dangerous goods shipped by air	<input type="checkbox"/> Injury and Illness Prevention Program (California only)
<input checked="" type="checkbox"/> Asbestos	<input type="checkbox"/> Elevated work (over 6' high)	<input type="checkbox"/> Ergonomics (California only)
<input type="checkbox"/> Respirable particulates	<input type="checkbox"/> Heavy equipment use or operation	<input type="checkbox"/> Work in strip or shaft mines
<input type="checkbox"/> Respirable silica	<input type="checkbox"/> Construction work	<input type="checkbox"/> Client-specific safety requirements (attach to HASP)
<input type="checkbox"/> Blasting and explosives	<input type="checkbox"/> Excavation or trenching	<input type="checkbox"/> ATV use
<input type="checkbox"/> Non-ionizing radiation (lasers, radiofrequencies, UV)	<input type="checkbox"/> Benching, shoring, bracing	<input type="checkbox"/> Methamphetamine lab
<input type="checkbox"/> Ionizing radiation (alpha, beta, gamma, etc.)	<input type="checkbox"/> Scaffold use	<input type="checkbox"/> Working over or near water
<input checked="" type="checkbox"/> Heat stress	<input type="checkbox"/> High noise	<input type="checkbox"/> Mold
<input type="checkbox"/> Cold stress	<input type="checkbox"/> Grinding operations	<input type="checkbox"/> Other (insert)

**Explosion or Fire Potential:** ☐ High ☒ Medium ☐ Low ☐ Unknown

**Chemical Products Tetra Tech EM Inc. Will Use or Store On Site:** (Attach a Material Safety Data Sheet [MSDS] for each item.)

- |   |   |  |   |
|---|---|--|---|
| <input checked="" type="checkbox"/> Luminol                 | <input type="checkbox"/> Calibration gas (Methane)                  | <input type="checkbox"/> Hydrogen gas                                    | <input type="checkbox"/> Isopropyl alcohol                    |
| <input checked="" type="checkbox"/> Hydrochloric acid (HCl) | <input checked="" type="checkbox"/> Calibration gas (Isobutylene)   | <input type="checkbox"/> Household bleach (NaOCl)                        | <input checked="" type="checkbox"/> HazCat Kit                |
| <input type="checkbox"/> Nitric acid (HNO <sub>3</sub> )    | <input type="checkbox"/> Calibration gas (Pentane)                  | <input type="checkbox"/> Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> ) | <input type="checkbox"/> Mark I Kits ( <i>number?</i> ) _____ |
| <input type="checkbox"/> Sodium hydroxide (NaOH)            | <input checked="" type="checkbox"/> Calibration gas (4-gas mixture) | <input type="checkbox"/> Hexane  | <input checked="" type="checkbox"/> Eyewash / drench water    |

**WARNING: Eyewash solution shall be readily available on ALL projects where corrosives (acids or bases) are used, including sample preservatives**

**Applicable Safety Programs and Safe Work Practices (SWP). Attach to HASP:**

- ☐ DCN 4-08 Asbestos Protection Program
- ☐ DCN 4-09 Haulage and Earth Moving
- ☐ DCN 4-10 Lead Protection Program
- ☒ SWP DCN 5-01 General Safe Work Practices
- ☒ SWP DCN 5-02 General Safe Work Practices HAZWOPER
- ☐ SWP DCN 5-03 Safe Work Practices for Office Employees
- ☐ SWP DCN 5-04 Safe Drilling Practices
- ☐ SWP DCN 5-05 Safe Direct Push (GeoProbe) Practices
- ☐ SWP DCN 5-06 Working Over or Near Water
- ☐ SWP DCN 5-07 Use of Heavy Equipment
- ☐ SWP DCN 5-08 Special Site Hazards (Firearms, Remote Sites, Mines, aircraft, etc.)
- ☐ SWP DCN 5-09 Safe Electrical Work Practices
- ☐ SWP DCN 5-10 Fall Protection Practices
- ☐ SWP DCN 5-11 Portable Ladder Safety
- ☒ SWP DCN 5-12 Drum and Container Handling Practices
- ☒ SWP DCN 5-13 Flammable Hazards and Ignition Sources
- ☒ SWP DCN 5-14 Spill and Discharge Control Practices
- ☒ SWP DCN 5-15 Heat Stress
- ☐ SWP DCN 5-16 Cold Stress
- ☒ SWP DCN 5-17 Biohazards
- ☐ SWP DCN 5-18 Underground Storage Tank Removal Practices
- ☒ SWP DCN 5-19 Safe Lifting Procedures
- ☐ SWP DCN 5-22 Hydrographic Data Collection
- ☐ SWP DCN 5-23 Permit-Required Confined Space Entry Practices
- ☐ SWP DCN 5-24 Non-Permit-Required Confined Space Entry Practices
- ☐ SWP DCN 5-26 Prevention of Sun Exposure
- ☒ SWP DCN 5-27 Respirator Cleaning Practices
- ☒ SWP DCN 5-28 Safe Use Practices for Use of Respirators
- ☒ SWP DCN 5-29 Respirator Qualitative Fit Testing Procedures
- ☒ SWP DCN 5-47 Spill Prevention and Clean Up
- ☐ SWP DCN 5-48 Electrical Safety Ground Fault Protection
- ☒ SWP DCN 5-51 Hand Tools

**Tasks Performed At Job Site that are NOT Covered by SWPs**

**NOTE:** Many AHA's can be found on the Health & Safety intranet site at:  
<http://home.ttemi.com/C18/Activity%20Hazard%20Analysis%20Docum/default.aspx>

*Attach Activity Hazard Analysis (AHA) for each non-covered task*

- ☒ Site Inspection
- ☒ Hazard Categorization and Sampling of Unknowns
- ☐
- ☐
- ☐

**Tetra Tech Employee Training and Medical Requirements:**
**Basic Training and Medical**

- ☒ Initial 40 Hour Training
- ☒ 8-Hour Supervisor Training (one-time)
- ☒ Current 8-Hour Refresher Training
- ☒ Current Medical Clearance (including respirator use)
- ☒ Current First Aid Training
- ☒ Current CPR Training
- ☒ Current Respirator Fit-Test

**Other Specific Training and Medical Surveillance Requirements**

- ☐ Confined Space Training
- ☐ Level A Training
- ☒ Radiation Training
- ☐ OSHA 10-hour Construction Safety Training
- ☐ OSHA 30-hour Construction Safety Training
- ☐ Asbestos Awareness Training
- ☐ Asbestos B-Reader X-Ray
- ☐ Blood Lead Level and ZPP Pre, during and Post-Project
- ☐ Urinary Arsenic Level Pre and Post-Project
- ☐ Other \_\_\_\_\_
- ☐ Other \_\_\_\_\_

Materials Present or Suspected at Site	Highest Observed Concentration (specify units and sample medium)	Exposure Limit (specify ppm or mg/m <sup>3</sup> )	IDLH Level (specify ppm or mg/m <sup>3</sup> )	Primary Hazards of the Material (explosive, flammable, corrosive, toxic, volatile, radioactive, biohazard, oxidizer, or other)	Symptoms and Effects of Acute Exposure	Photoionization Potential (eV)
Toluene	U	PEL = 200 ppm TWA REL = 100 ppm TWA TLV = [Skin] Hazard <input checked="" type="checkbox"/>	500 ppm	Class IB flammable liquid (Flash Point, 40 °F; Sp. Gravity 0.87; UEL, 7.1%; LEL, 1.1%)	irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage	8.82 eV
Naphtha	U	PEL = 100 ppm TWA REL = 100 ppm TWA TLV = [Skin] Hazard <input checked="" type="checkbox"/>	1000 ppm	Class II combustible liquid (Flash Point, 100-109 °F, Sp. Gravity, 0.89-0.97)	irritation eyes, skin, nose; dizziness, drowsiness; dermatitis; in animals: liver, kidney damage	unknown
MEK	U	PEL = TWA 200 ppm (590 mg/m <sup>3</sup> ) REL = TWA 200 ppm (590 mg/m <sup>3</sup> ) ST 300 ppm (885 mg/m <sup>3</sup> ) TLV = [Skin] Hazard <input type="checkbox"/>	3000 ppm	Class IB Flammable Liquid: F.I.P. below 73°F and BP at or above 100°F.	irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis	9.54
Hydrochloric Acid	U	PEL = C 5 ppm (7 mg/m <sup>3</sup> ) REL = C 5 ppm (7 mg/m <sup>3</sup> ) TLV = [Skin] Hazard <input type="checkbox"/>	50 ppm	Corrosive (acidic)	irritation nose, throat, larynx; cough, choking; dermatitis; solution: eye, skin burns; liquid: frostbite; in animals: laryngeal spasm; pulmonary edema	12.74
Phosphoric Acid	U	PEL = TWA 1 mg/m <sup>3</sup> REL = TWA 1 mg/m <sup>3</sup> ST 3 mg/m <sup>3</sup> TLV = [Skin] Hazard <input type="checkbox"/>	1000 mg/m <sup>3</sup>	Corrosive (acidic)	irritation eyes, skin, upper respiratory system; eye, skin, burns; dermatitis	NE
Sodium Hydroxide	U	PEL = TWA 2 mg/m <sup>3</sup> REL = C 2 mg/m <sup>3</sup> TLV = [Skin] Hazard <input type="checkbox"/>	10 mg/m <sup>3</sup>	Corrosive (acidic)	irritation eyes, skin, mucous membrane; pneumonitis; eye, skin burns; temporary loss of hair	NE

**Specify Information Sources:** NIOSH Pocket Guide to Hazardous Chemicals, September 2005

**Note:** In the Exposure Limit column, include Ceiling (C) and Short-Term Exposure Limits (STEL) if they are available. Also, use the following short forms and abbreviations to complete the table above.

A = Air  
CARC = Carcinogenic  
eV = Electron volt  
U = Unknown

IDLH = Immediately dangerous to life or health  
mg/m<sup>3</sup> = Milligram per cubic meter  
NA = Not available  
NE = None established

PEL = Permissible exposure limit  
ppm = Part per million  
REL = Recommended exposure limit  
S = Soil

TLV = Threshold limit value

Materials Present or Suspected at Site	Highest Observed Concentration (specify units and sample medium)	Exposure Limit (specify ppm or mg/m <sup>3</sup> )	IDLH Level (specify ppm or mg/m <sup>3</sup> )	Primary Hazards of the Material (explosive, flammable, corrosive, toxic, volatile, radioactive, biohazard, oxidizer, or other)	Symptoms and Effects of Acute Exposure	Photoionization Potential (eV)
Mercury, liquid	U	N/A – Avoid all contact with skin	10 mg/M3	Toxic, Volatile	Irritation of eyes, skin, cough, chest pain, tremor, insomnia, bronchitis, pneumonitis, dyspnea, CNS effects	N/A
Mercury, vapor	U	PEL = 0.1 mg/m3 REL = 0.05 mg/m3 (skin) TLV = 0.025 mg/m3	10 mg/M3	Toxic	Irritation of eyes, skin, cough, chest pain, tremor, insomnia, bronchitis, pneumonitis, dyspnea, CNS effects	N/A
		PEL = REL = TLV = [Skin] Hazard <input type="checkbox"/>				
		PEL = REL = TLV = [Skin] Hazard <input type="checkbox"/>				
		PEL = REL = TLV = [Skin] Hazard <input type="checkbox"/>				
		PEL = REL = TLV = [Skin] Hazard <input type="checkbox"/>				

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**Note: If no contingency level of protection is selected, all employees covered under this plan must evacuate the immediate site area if air contaminant levels require upgrading PPE. Level A field work requires a Level 3 HASP. This information is available on the chemical hazards page of this HASP.**

**Field Activities Covered Under this HASP:**

Task Description	Level of Protection <sup>1</sup>		Date of Activities
	Primary	Contingency	
1 Inspect and inventory existing containers	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	06/05/14 to TBD
2 Collect samples for hazard categorization	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	06/05/14 to TBD
3 Conduct hazard categorization	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	06/05/14 to TBD
4 Provide logbook and photographic documentation	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	06/05/14 to TBD
5 Sampling (if necessary)	<input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D	06/05/14 to TBD

**Site Personnel and Responsibilities (include subcontractors):**

Employee Name and Office Code / Location	Task(s)	Responsibilities
John Schendel (ATL)	ALL	<ul style="list-style-type: none"> <li>Project Manager: Manages the overall project, makes site safety coordinator (SSC) aware of pertinent project developments and plans, and maintains communications with client as necessary. Additionally, For projects lasting longer than one consecutive week on-site, the PM is responsible for conducting one field audit using Form AF-1.</li> </ul>
John Schendel (ATL)	ALL	<ul style="list-style-type: none"> <li>Field Team Leader: Directs field activities, makes site safety coordinator (SSC) aware of pertinent project developments and plans, and maintains communications with the Project Manager and the client as necessary</li> </ul>
Quinn Kelley (ATL)	ALL	<ul style="list-style-type: none"> <li>Site Safety Coordinator (SSC): Ensures that appropriate personal protective equipment (PPE) is available, enforces proper use of PPE by on-site personnel and subcontractors; suspends investigative work if personnel are or may be exposed to an immediate health hazard; implements and enforces the HASP; identifies and controls site hazards when possible; communicates site hazards to all personnel; and reports any deviations observed from anticipated conditions described in the health and safety plan to the health and safety representative.</li> </ul>
John Schendel (ATL)	ALL	<ul style="list-style-type: none"> <li>Alternate Site Safety Coordinator (if any)</li> </ul>
Quinn Kelley (ATL)	ALL	<ul style="list-style-type: none"> <li>Field Personnel: Completes tasks as directed by the project manager, field team leader, and SSC, and follows the HASP and all SWPs and guidelines established in the Tetra Tech, Inc., Health and Safety Manual.</li> </ul>
		<ul style="list-style-type: none"> <li>Tetra Tech-hired subcontractor personnel on site (a subcontract SSC MUST be identified by name): Completes tasks as outlined in the project scope of work in accordance with the contract. Participates in all Tetra Tech on-site safety meetings and follows all procedures and guidelines established in this HASP, as well as the company health and safety plan and program.</li> </ul>

Note:

- See next page for details on levels of protection

**NOTE: Contingency level of protection section should be completed only if the upgraded level of protection is immediately available at the job site. If no contingency level of protection is denoted, all employees covered under this HASP must evacuate the immediate site area if air contaminant levels would require an upgrade of PPE.**

**Protective Equipment: (Indicate type or material as necessary for each task.)**

Task	Primary Level of Protection (A,B,C,D)	PPE Component Description (Primary)	Contingency Level of Protection (A, B, C, D)	PPE Component Description (Contingency)
1	D	Respirator type: Cartridge type (if applicable): CPC material: Tyvel coverall (recommended) Glove material(s): Nitrile Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Safety glasses, hardhat, high-visibility vest, hearing protection near heavy equipment	C	Respirator type: SCOTT AV3000 Cartridge type (if applicable): GME P100 CPC material: Tychem RC Glove material(s) Solvex and Nitrile for incidental protection only; butyl rubber for full protection Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Hardhat, high-visibility vest, hearing protection near heavy equipment
2	C	Respirator type: SCOTT AV3000 Cartridge type (if applicable): GME P100 CPC material: Tychem RC Glove material(s) Solvex and Nitrile for incidental protection only; butyl rubber for full protection Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Hardhat, high-visibility vest, hearing protection near heavy equipment	B	Respirator type: SCOTT AV3000 Cartridge type (if applicable): Supplied Air CPC material: Tychem RC Glove material(s) Solvex and Nitrile for incidental protection only; butyl rubber for full protection Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Hardhat, high-visibility vest, hearing protection near heavy equipment
3	C	Respirator type: SCOTT AV3000 Cartridge type (if applicable): GME P100 CPC material: Tychem RC Glove material(s) Solvex and Nitrile for incidental protection only; butyl rubber for full protection Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Hardhat, high-visibility vest, hearing protection near heavy equipment	B	Respirator type: SCOTT AV3000 Cartridge type (if applicable): Supplied CPC material: Tychem RC Glove material(s) Solvex and Nitrile for incidental protection only; butyl rubber for full protection Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Hardhat, high-visibility vest, hearing protection near heavy equipment
4	D	Respirator type: Cartridge type (if applicable): CPC material: Tyvel coverall (recommended) Glove material(s): Nitrile Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Safety glasses, hardhat, high-visibility vest, hearing protection near heavy equipment	C	Respirator type: SCOTT AV3000 Cartridge type (if applicable): GME P100 CPC material: Tychem RC Glove material(s) Solvex and Nitrile for incidental protection only; butyl rubber for full protection Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Hardhat, high-visibility vest, hearing protection near heavy equipment
5	C	Respirator type: SCOTT AV3000 Cartridge type (if applicable): GME P100 CPC material: Tychem RC Glove material(s) Solvex and Nitrile for incidental protection only; butyl rubber for full protection Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Hardhat, high-visibility vest, hearing protection near heavy equipment	D	Respirator type: Cartridge type (if applicable): CPC material: Tyvel coverall (recommended) Glove material(s): Nitrile Boot material: Leather Steel-toe; butyl rubber overboots (optional) Other: Safety glasses, hardhat, high-visibility vest, hearing protection near heavy equipment

**Respirator Notes:**

Respirator cartridges may only be used for a maximum time of 8 hours or one work shift, whichever is less, and must be discarded at that time. For job sites with organic vapors, respirator cartridges may be used as described in this note as long as the concentration is less than 200 parts per million (ppm), the boiling point is greater than 70 °Celsius, and the relative humidity is less than 85 percent. If any of these levels are exceeded, a site-specific respirator cartridge change-out schedule must be developed and included in the HASP using Tetra Tech Form RP-2 (Respiratory Hazard Assessment Form)

Notes: All levels of protection must include eye, head, and foot protection.; CPC = Chemical protective clothing; Thermoluminescent Dosimeter (TLD) Badges must be worn during all field activities on sites with radiation hazards. TLDs must be worn under CPC.



Monitoring Equipment: All monitoring equipment on site must be calibrated before and after each use and results recorded in the site logbook				
Instrument (Check all required)	Task	Instrument Reading	Action Guideline	Comments
<input checked="" type="checkbox"/> Combustible gas indicator model:	<input checked="" type="checkbox"/> 1	0 to 10% LEL	Monitor; evacuate if confined space	
	<input checked="" type="checkbox"/> 2			
	<input checked="" type="checkbox"/> 3	10 to 25% LEL	Potential explosion hazard; notify SSC	
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5	>25% LEL	Explosion hazard; interrupt task; evacuate site; notify SSC	
<input checked="" type="checkbox"/> Oxygen meter model:	<input checked="" type="checkbox"/> 1	>23.5% Oxygen	Potential fire hazard; evacuate site	
	<input checked="" type="checkbox"/> 2			
	<input checked="" type="checkbox"/> 3	23.5 to 19.5% Oxygen	Oxygen level normal	
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5	<19.5% Oxygen	Oxygen deficiency; interrupt task; evacuate site; notify SSC	
<input checked="" type="checkbox"/> Radiation survey meter model:	<input checked="" type="checkbox"/> 1	Normal background	Proceed	Annual exposure not to exceed 1,250 mrem per quarter  Background reading must be taken in an area known to be free of radiation sources.
	<input checked="" type="checkbox"/> 2			
	<input checked="" type="checkbox"/> 3	Two to three times background	Notify SSC	
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5	>Three times background	Radiological hazard; interrupt task; evacuate site; notify RSO	
<input checked="" type="checkbox"/> Photoionization detector model: <input type="checkbox"/> 11.7 eV <input checked="" type="checkbox"/> 10.6 eV <input type="checkbox"/> 10.2 eV <input type="checkbox"/> 9.8 eV <input type="checkbox"/> Other (specify): _____	<input checked="" type="checkbox"/> 1	Any response above background to 5 ppm above background	Level B is recommended Level C <sup>a</sup> may be acceptable	These action levels are for unknown gases or vapors. After the contaminants are identified, action levels should be based on the specific contaminants involved.
	<input checked="" type="checkbox"/> 2	> 5 to 500 ppm above background	Level B	
	<input checked="" type="checkbox"/> 3	> 500 ppm above background	Level A	
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5	>5 to 500 ppm above background	Level B	
		>500 above background	Level A	
<input checked="" type="checkbox"/> Lumex RA-915+ MVA	<input checked="" type="checkbox"/> 1	<25,000 ng/M3	Level D	7 The action level for upgrading the level of protection is one-half of the contaminant's PEL. If the PEL is reached, evacuate the site and notify a safety specialist
	<input checked="" type="checkbox"/> 2	25,000 ng/M3 to 50,000 ng/M3	Level C	
	<input checked="" type="checkbox"/> 3			
	<input type="checkbox"/> 4	>50,000 ng/M3	Lumex readings inaccurate at this level, use Jerome MVA	
	<input type="checkbox"/> 5			
<input checked="" type="checkbox"/> Jerome MVA	<input checked="" type="checkbox"/> 1	<0.02 mg/M3	Level D	
	<input checked="" type="checkbox"/> 2	0.02 mg/M3 to 0.125 mg/M3	Level C	
	<input checked="" type="checkbox"/> 3			
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5	>0.125 mg/M3	Level B	

**Notes:**

eV= electron volt

LEL=Lower explosive limit























mrem=Millirem

PEL=Permissible exposure limit

ppm=Part per million

a. Level B is required when chemical hazards are present, but are uncharacterized. Level C may be acceptable for certain tasks in some situations. If you are uncertain, consult your RSO.



Project-Specific Industrial Hygiene Requirements	Emergency Contacts: <span style="float: right;">Telephone No.</span>																																								
<b>OSHA-Regulated Chemicals*:</b> <i>Check any present on the job site in any medium (air, water, soil)</i> <input checked="" type="checkbox"/> No chemicals below are located on the job site <input type="checkbox"/> Friable Asbestos <input type="checkbox"/> Silica, crystalline <input type="checkbox"/> alpha-Naphthylamine <input type="checkbox"/> Methyl chloromethyl ether <input type="checkbox"/> 3,3'-Dichlorobenzidine (and its salts) <input type="checkbox"/> bis-Chloromethyl ether <input type="checkbox"/> beta-Naphthylamine <input type="checkbox"/> Benzidine <input type="checkbox"/> 4-Aminodiphenyl <input type="checkbox"/> Ethyleneimine <input type="checkbox"/> beta-Propiolactone <input type="checkbox"/> 2-Acetylaminoflourene <input type="checkbox"/> 4-Dimethylaminoazobenzene <input type="checkbox"/> N-nitrosomethylamine <input type="checkbox"/> Vinyl chloride <input type="checkbox"/> Inorganic arsenic <input type="checkbox"/> Lead <input type="checkbox"/> Chromium (VI) <input type="checkbox"/> Cadmium <input type="checkbox"/> Benzene <input type="checkbox"/> Coke oven emissions <input type="checkbox"/> 1,2-Dibromo-3-chloropropane <input type="checkbox"/> Acrylonitrile <input type="checkbox"/> Ethylene oxide <input type="checkbox"/> Formaldehyde <input type="checkbox"/> Methylenedianiline <input type="checkbox"/> 1,3-Butadiene <input type="checkbox"/> Methylene chloride	<div style="display: flex; justify-content: space-between;"> <div>           WorkCare and Incident Intervention            Tetra Tech EMI 24-hour Anonymous Hazard Reporting Line            U.S. Coast Guard National Response Center            InfoTrac            Poison Control            Fire department            Police department         </div> <div>           888.449.7787, or 800.455.6155            866.383.8070            800.424.8802            800.535.5053            800.222.1222            911            911         </div> </div> <p><b>Personnel Call-Down List:</b></p> <table style="width: 100%;"> <thead> <tr> <th>Job Title or Position:</th> <th>Name</th> <th>Cell Phone:</th> </tr> </thead> <tbody> <tr> <td>Regional Safety Manager</td> <td>Chris Draper</td> <td>615.969.1334</td> </tr> <tr> <td>Project Manager:</td> <td>John Schendel</td> <td>404-373-8768</td> </tr> <tr> <td>Field Team Leader:</td> <td>John Schendel</td> <td>404-373-8768</td> </tr> <tr> <td>Site Safety Coordinator (SSC):</td> <td>Quinn Kelley</td> <td>770-289-4164</td> </tr> <tr> <td>Subcontractor SSC:</td> <td></td> <td></td> </tr> </tbody> </table> <p><b>Medical and Site Emergencies:</b></p> <p>Signal a site or medical emergency with three blasts of a loud horn (car horn, fog horn, or similar device). Site personnel should evacuate to the area of safe refuge designated on the site map.</p> <p>Hospital Name: Fort Sanders Regional Medical Center            Address: 1901 West Clinch Ave, Knoxville, TN 37916</p> <p>General Phone: 865-541-1111            Emergency Phone: 911            Ambulance Phone: 911</p> <p>Hospital called to verify emergency services are offered? ER open 24/7            YES <input checked="" type="checkbox"/> NO <input type="checkbox"/></p> <p>Step-by-step Route to Hospital: (see Page 11 of 12 for route map)</p> <p> 901 Knoxville College Dr, Knoxville, TN 37921</p> <table style="width: 100%;"> <tbody> <tr> <td>1. Head northeast on Knoxville College Dr toward Alfreda Delaney St</td> <td style="text-align: right;">go 371 ft total 371 ft</td> </tr> <tr> <td> 2. Take the 1st right onto Alfreda Delaney St</td> <td style="text-align: right;">go 0.2 mi total 0.2 mi</td> </tr> <tr> <td>About 45 secs</td> <td></td> </tr> <tr> <td> 3. 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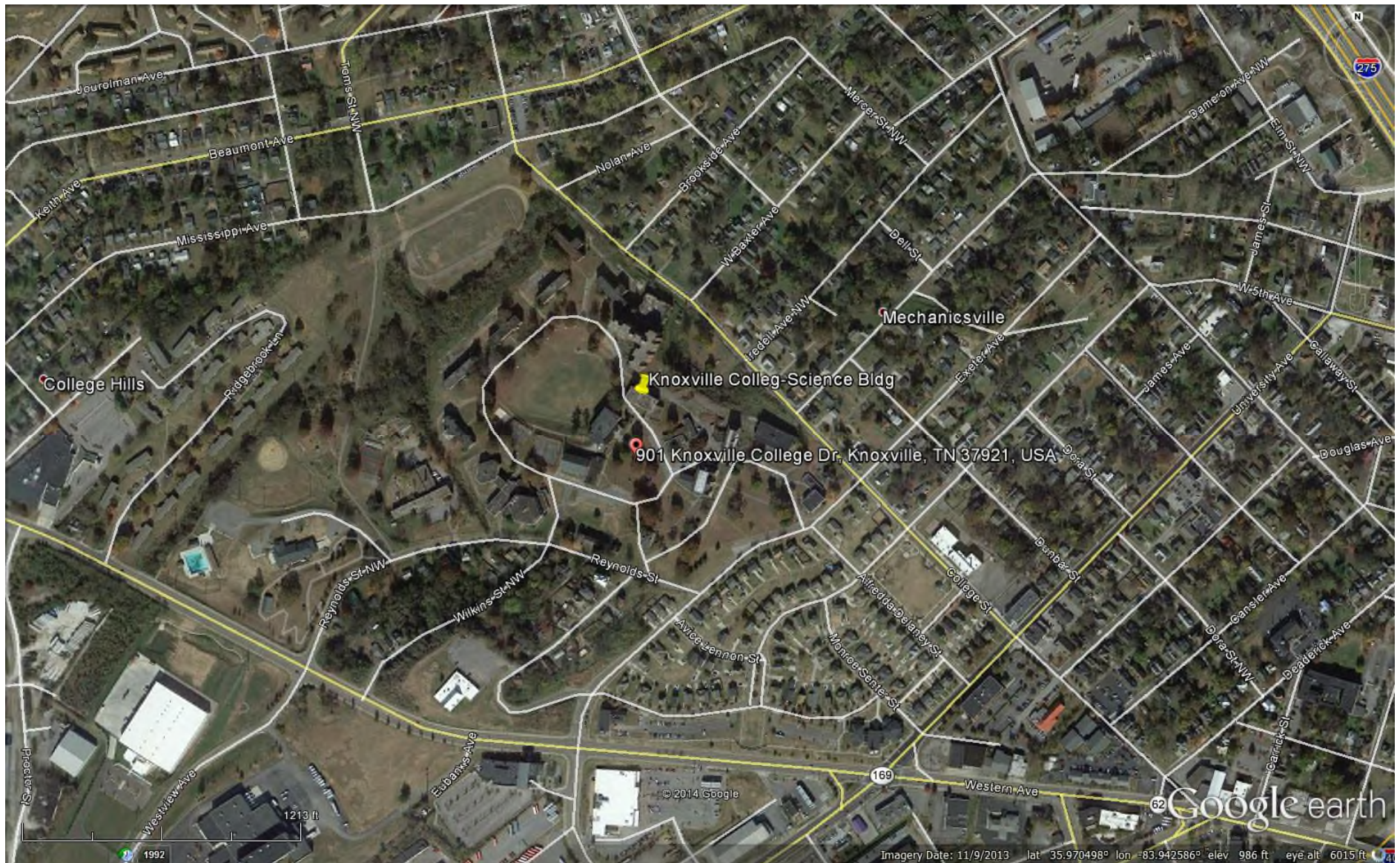
\* NOTE: Many states, including California and New Jersey, have chemical-specific worker protection requirements and standards for many chemicals and known or suspected carcinogens.

**Note: This page must be posted on site.**

<b>Decontamination Procedures</b>		<b>Emergency Response Planning</b>
<p>The site safety coordinator oversees implementation of project decontamination procedures and is responsible for ensuring they are effective.</p>		<p>During the pre-work briefing and daily tailgate safety meetings, all on-site employees will be trained in the provisions of emergency response planning, site communication systems, and site evacuation routes.</p>
<p><b>Personnel Decontamination</b></p> <p>Level D Decon - <input type="checkbox"/> Wet <input checked="" type="checkbox"/> Dry</p> <p>Level C Decon - <input type="checkbox"/> Wet <input checked="" type="checkbox"/> Dry</p> <p>Level B Decon – Briefly outline the level B decontamination methods to be used on a separate page attached to this HASP.</p> <p>Level A Decon – A Level 3 HASP is required. Notify your regional health and safety representative and health and safety director.</p> <p><b>Equipment Decontamination</b></p> <p>All tools, equipment, and machinery from the Exclusion Zone (hot) or Contamination Reduction Zone (warm) are decontaminated in the CRZ before they are removed to the Support Zone (cold). Equipment decontamination procedures are designed to minimize the potential for hazardous skin or inhalation exposure, cross-contamination, and chemical incompatibilities.</p> <p><b>Respirator Decontamination</b></p> <p>Respirators are decontaminated in compliance with SWP 5-27 and should be included with this HASP.</p> <p><b>Waste Handling for Decontamination</b></p> <p>Procedures for decontamination waste disposal meet all applicable local, state, and federal regulations.</p>	<p><b>Decontamination Equipment</b></p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Washtubs  <input checked="" type="checkbox"/> Buckets  <input checked="" type="checkbox"/> Scrub brushes  <input type="checkbox"/> Pressurized sprayer  <input type="checkbox"/> Detergent [Type]  <input type="checkbox"/> Solvent [Type]  <input type="checkbox"/> Household bleach solution            Concentration/Dilution: _____         </div> <div style="width: 50%;"> <input type="checkbox"/> Deionized water  <input type="checkbox"/> Disposable sanitizer wipes  <input type="checkbox"/> Facemask sanitizer powder  <input type="checkbox"/> Wire brush  <input checked="" type="checkbox"/> Spray bottle  <input type="checkbox"/> Tubs / pools  <input type="checkbox"/> Banner/barrier tape  <input checked="" type="checkbox"/> Plastic sheeting  <input type="checkbox"/> Tarps and poles  <input checked="" type="checkbox"/> Trash bags  <input type="checkbox"/> Trash cans  <input checked="" type="checkbox"/> Duct tape  <input checked="" type="checkbox"/> Paper towels  <input checked="" type="checkbox"/> Folding chairs  <input type="checkbox"/> Other         </div> </div> <p><b>In the event of an emergency that necessitates evacuation of a work task area or the site, the following procedures will take place.</b></p> <ul style="list-style-type: none"> <li>• The Tetra Tech SSC will contact all nearby personnel using the on-site communications to advise the personnel of the emergency.</li> <li>• The personnel will proceed along site roads to a safe distance upwind from the hazard source.</li> <li>• The personnel will remain in that area until the SSC or an authorized individual provides further instructions.</li> </ul> <p><b>In the event of a severe spill or a leak, site personnel will follow the procedures listed below.</b></p> <ul style="list-style-type: none"> <li>• Evacuate the affected area and relocate personnel to an upwind location.</li> <li>• Inform the Tetra Tech SSC, a Tetra Tech office, and a site representative immediately.</li> <li>• Locate the source of the spill or leak, and stop the flow if it is safe to do so.</li> <li>• Begin containment and recovery of spilled or leaked materials.</li> <li>• Notify appropriate local, state, and federal agencies.</li> </ul> <p><b>In the event of severe weather, site personnel will follow the procedures listed below.</b></p> <ul style="list-style-type: none"> <li>• Site work shall not be conducted during severe weather, including high winds and lightning.</li> <li>• In the event of severe weather, stop work, lower any equipment (drill rigs) and evacuate the affected area.</li> <li>• Severe weather may cause heat or cold stress. Refer to SWPs 5-15 and 5-16 for information on both.</li> </ul> <p><b>All work-related incidents must be reported. According to TtEMI's reporting procedures, for non-emergency incidents you should:</b></p> <ul style="list-style-type: none"> <li>• Notify WorkCare and Incident Intervention at 888.449.7787, or 800.455.6155</li> <li>• Notify your Project Manager or Regional Safety Officer (RSO) via phone immediately.</li> <li>• Complete a "Tetra Tech Incident Report" (Form IR) within 24 hours and send it to your RSO. If an injury or illness has occurred, the Form IR-A and the WorkCare HIPAA form must be completed at the same time the Form IR is completed.</li> </ul>	

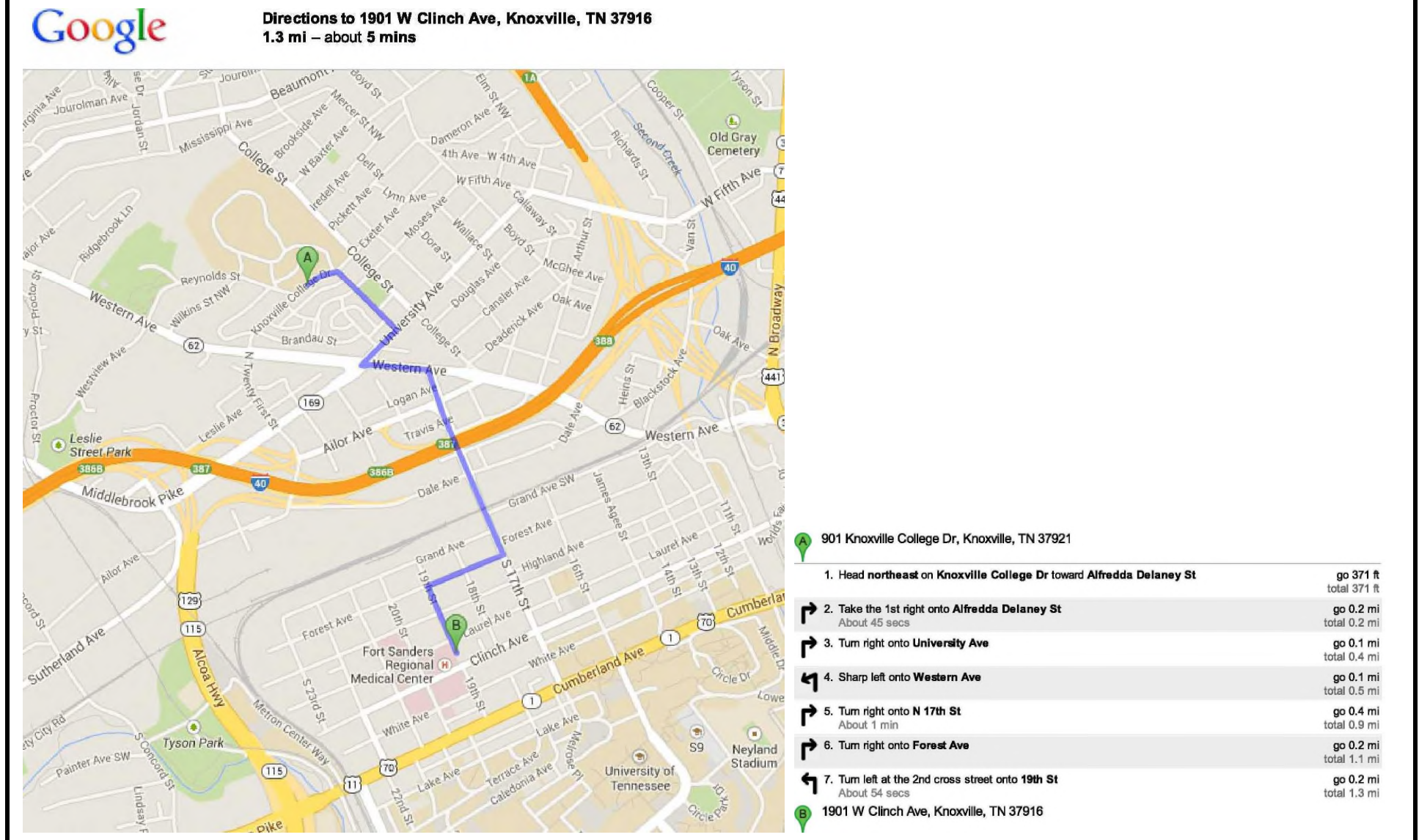


Site Map (May be drawn after crews arrive onsite or inserted using aerial photographs, site figures, etc.):





**Hospital Route Map (attach or insert):**



**Note:** A dry-run should be conducted to establish a physical location associated with the map included in the HASP. Verbal verification from the hospital emergency room should also be obtained to ensure that the hospital will accept chemically contaminated patients.

### APPROVAL AND SIGN-OFF FORM

Project No.: \_\_\_\_\_

I have read, understood, and agree with the information set forth in this Health and Safety Plan and will follow the direction of the Site Safety Coordinator (SSC) as well as procedures and guidelines established in the Tetra Tech, Inc., Health and Safety Manual. I understand the training and medical requirements for conducting field work and have met these requirements.

Tetra Tech has prepared this plan solely for the purpose of the health and safety protection of Tetra Tech employees. Subcontractors, visitors, and others at the site, while required to read and follow the provisions outlined in this plan at a minimum, should refer to their safety program for specific information related to their health and safety protection.

Name	Company / Agency / Organization	Signature	Date
JOHN SCHENDEL	TETRA TECH, INC.	<i>John Schendel</i>	6/6/14
Quinn Kelley	Tetra Tech, Inc.	<i>Quinn Kelley</i>	6/6/14
Kevin M. Fuchinger	EPA	<i>Kevin M. Fuchinger</i>	6/6/14
Kenneth Smith	CMC	<i>Kenneth Smith</i>	6/6/14
DAVID NAPIER	CMC	<i>David Napier</i>	6/6/14
Jarrett Neal	CMC	<i>Jarrett Neal</i>	6/6/14
Luis Sanchez	CMC	<i>Luis Sanchez</i>	6/6/14
Robbie Neal	CMC	<i>R. Neal</i>	6/6/14
Rick Hollingsworth	CMC	<i>R. Hollingsworth</i>	6/6/14

I have read, understood, and agree with the information set forth in this Health and Safety Plan and comply with and will enforce this HASP, as well as procedures and guidelines established in the Tetra Tech, Inc., Health and Safety Manual.

Name	Project-Specific Position	Signature	Date
John Schendel	Project Manager	<i>John Schendel</i>	6/6/14
John Schendel	Field Team Leader		
Quinn Kelley	Site Safety Coordinator	<i>Quinn Kelley</i>	6/6/14
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**Note: Use Additional sheets as necessary to ensure that all personnel sign and affirm this document.**

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**Note: Use Additional sheets as necessary to ensure that all personnel sign and affirm this document.**

**Emergency Contacts**

**WorkCare** - For issues requiring an Occupational Health Physician; assistance is available 24 hours per day, 7 days per week.

**InfoTrac** - For issues related to incidents involving the transportation of hazardous chemicals; this hotline provides accident assistance 24 hours per day, 7 days per week

**U.S. Coast Guard National Response Center** - For issues related to spill containment, cleanup, and damage assessment; this hotline will direct spill information to the appropriate state or region

**Poison Control Center** – For known or suspected poisoning.

**Limitations:**

**The Level-Two HASP is not appropriate in some cases:**

- Projects involving unexploded ordnance (UXO), radiation sources as the primary hazard, or known chemical/biological weapons site must employ the Level 3 HASP
- Projects of duration longer than 90 days may need a Level 3 HASP (consult your RSO)

**Decontamination:**

**Decontamination Solutions for Chemical and Biological Warfare Agents<sup>a</sup>:** PPE and equipment can be decontaminated using 0.5 percent bleach (1 gallon laundry bleach to 9 gallons water) for biological agents (15 minutes of contact time for anthrax spores; 3 minutes for others) followed by water rinse for chemical and biological agents. In the absence of bleach, dry powders such as soap detergents, earth, and flour can be used. The powders should be applied and then wiped off using wet tissue paper. Finally, water and water/soap solutions can be used to physically remove or dilute chemical and biological agents. Do not use bleach solution on bare skin; use soap and water instead. Protect decontamination workers from exposure to bleach.

**Decontamination for Radiological and Other Chemicals:** Primary decontamination should use Alconox and water unless otherwise specified in chemical specific information resources. The effectiveness of radiation decontamination should be checked using a radiation survey instrument. Decontamination procedures should be repeated until the radiation meter reads less than 100 counts per minute over a 100-square-centimeter area when the probe is held 1 centimeter from the surface and moving slower than 2.5 centimeters per second.

**Decontamination Corridor:** The decontamination setup can be adjusted to meet the needs of the situation. The decontamination procedures can be altered to meet the needs of the specific situation when compound- and site-specific information is available.

**Decontamination Waste:** All disposable equipment, clothing, and decontamination solutions will be double-bagged or containerized in an acceptable manner and disposed of with investigation-derived waste.

**Decontamination Personnel:** Decontamination personnel should dress in the same level of PPE or one level below the entry team PPE level.

**All investigation-derived waste should be left on site with the permission of the property owner and the EPA on-scene coordinator.** In some instances, another contractor will dispose of decontamination waste and investigation-derived waste. DO NOT place waste in regular trash. DO NOT dispose of waste until proper procedures are established.

**Notes:**

<sup>a</sup> Source: Jane's Information Group. 2002. *Jane's Chem-Bio Handbook*. Page 39.





**TETRA TECH, INC.**  
**DAILY TAILGATE SAFETY MEETING FORM**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Project No.: \_\_\_\_\_

Client: \_\_\_\_\_ Site Location: \_\_\_\_\_

Site Activities Planned for Today: \_\_\_\_\_

Weather Conditions: \_\_\_\_\_

<b>Safety Topics Discussed</b>	
<b>Protective clothing and equipment:</b>	
<b>Chemical and physical hazards:</b>	
<b>Emergency procedures:</b>	
<b>Equipment hazards:</b>	
<b>Other:</b>	
<b>Attendees</b>	
Printed Name	Signature

**Meeting Conducted by:**

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature



**TETRA TECH EM INC.**  
**HEALTH AND SAFETY PLAN AMENDMENT**

**Site Name:** \_\_\_\_\_

**Amendment Date:** \_\_\_\_\_

**Purpose or Reason for Amendment:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Required Additional Safe Work Practices or Activity Hazard Analyses:** \_\_\_\_\_

\_\_\_\_\_

**Required Changes in PPE:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Action Level Changes:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**AMENDMENT APPROVAL**

<b>RSO or Designee</b>	_____	_____	_____
	Name	Signature	Date

<b>Site Safety Coordinator</b>	_____	_____	_____
	Name	Signature	Date

**Date presented during daily site safety meeting:** \_\_\_\_\_



**TETRA TECH, INC.**  
**FIELD AUDIT CHECKLIST**

Project Name: \_\_\_\_\_ Project No.: \_\_\_\_\_

Field Location: \_\_\_\_\_ Completed by: \_\_\_\_\_

Project Manager: \_\_\_\_\_ Site Safety Coordinator: \_\_\_\_\_

General Items		In Compliance?		
Health and Safety Plan Requirements		Yes	No	NA
1	Approved health and safety plan (HASP) on site or available			
2	Names of on-site personnel recorded in field logbook or daily log			
3	HASP compliance agreement form signed by all on-site personnel			
4	Material Safety Data Sheets on site or available			
5	Designated site safety coordinator physically present on jobsite			
6	Daily tailgate safety meetings conducted and documented on Form HST-2			
7	Documentation available proving compliance with HASP requirements for medical examinations, fit testing, and training (including subcontractors)			
8	HASP onsite matches scope of work being conducted			
9	Emergency evacuation plan in place and hospital located			
10	Exclusion, decontamination, and support zones delineated and enforced			
11	HASP attachments present onsite (VPP sheet, audit checklist, AHA, etc.)			
12	Illness and injury prevention program reports completed (California only)			
Emergency Planning				
13	Emergency telephone numbers posted			
14	Emergency route to hospital posted			
15	Local emergency providers notified of site activities			
16	Adequate safety equipment inventory available			
17	First aid provider and supplies available			
18	Eyewash solution available when corrosive chemicals are present			
Air Monitoring				
19	Monitoring equipment specified in HASP available and in working order			
20	Monitoring equipment calibrated and calibration records available			
21	Personnel know how to operate monitoring equipment and equipment manuals available on site			
22	Environmental and personnel monitoring performed as specified in HASP			

Safety Items		In Compliance?		
Personal Protection		Yes	No	NA
23	Splash suit, if required			
24	Chemical protective clothing, if required			
25	Safety glasses or goggles (always required)			
26	Gloves, if required			
27	Overboots, if required			
28	Hard hat (always required)			
29	High visibility vest, if required			
30	Hearing protection, if required			
31	Full-face respirator, if required			
Instrumentation				
32	Combustible gas meter and calibration notes			
33	Oxygen meter and calibration notes			
34	Organic vapor analyzer and calibration notes			
Supplies				
35	Decontamination equipment and supplies			
35	Fire extinguishers			
37	Spill cleanup supplies			
Corrective Action Taken During Audit:				

Note: NA = Not applicable

\_\_\_\_\_  
Auditor's Signature

\_\_\_\_\_  
Site Safety Coordinator's Signature

\_\_\_\_\_  
Date



## ACTIVITY HAZARD ANALYSIS (AHA)

Tetra Tech EM Inc.

# Site Inspection

### Task Description

This Activity Hazard Analysis (AHA) applies to the task listed above. It has been developed and approved by the Director of Health and Safety for Tetra Tech EMI. The AHA contains potential hazards posed by each major step in this task, lists procedures to control hazards, and presents required equipment (including safety equipment), inspections, and training. The hazard controls listed below are specific to this task.

Hazards		Actions
Task Steps	Potential Hazards	Critical Safety Procedures and Controls
Conduct visual walk-around of facility	SLIP/TRIP/FALL	<ul style="list-style-type: none"> <li>Wear boots, hardhats, eye protection, Tyvek coveralls, and high-visibility (Class 2) safety vests as appropriate to the hazards encountered.</li> <li>Power and water may not be available. Be prepared with and utilize portable lighting.</li> <li>DO NOT climb tanks, ladders or catwalks unless required by client. Use an ANSI-compliant portable ladder in accordance with SWP 5-11, Portable Ladder Safety.</li> <li>If climbing or walking over 6 feet above the ground, fall protection is required in accordance with SWP 5-10, Fall Protection Practices.</li> <li>Be alert for holes, open pits and other openings in walking and working surfaces. Some openings may be partially covered by debris, pallets, or other items that limit visibility.</li> <li>In areas where oil or other liquid or solid waste materials may be present on ground surfaces, observe ground surfaces that may be slick. If possible, avoid walking on slick surfaces. If slick surface must be crossed, attempt to remove material from soles of shoes or boots before continuing walking.</li> <li>In areas where protective Tyvek booties or other overshoes are required (for example, where waste is present), take short steps and walk slowly to prevent slipping.</li> <li>Always use ladders or stiles to cross fences, ditches, or production lines.</li> <li>In material storage areas, always walk around storage racks or containers, rather than walking on or stepping over racks or containers.</li> </ul>
Conduct visual walk-around of facility	EMPLOYEE EXPOSURE	<ul style="list-style-type: none"> <li>Water may not be available. Bring water for hand washing, eyewash, drenching, decontamination and drinking.</li> <li>Attempt to locate MSDS sheets PRIOR to opening containers.</li> <li>A generator and fan are recommended to ensure adequate airflow while opening containers.</li> <li>Handle containers of waste carefully and wear hardhats, safety glasses and gloves as appropriate until the hazards have been characterized.</li> <li>Bring fire extinguishers and stage in work areas.</li> <li>Observe all facility-specific health and safety procedures and exposure alarms, if present.</li> <li>Wash hands after conducting the visual inspection and before eating, drinking or tobacco use.</li> </ul>

		<ul style="list-style-type: none"> <li>• Decontaminate or dry off to avoid cross-contamination.</li> <li>• Limit time spent in areas where solvents or other volatile organic compounds are being used or have been spilled or released.</li> <li>• Avoid walking in solid waste materials or powders or other dusty areas.</li> <li>• DO NOT walk in or disturb bird or other animal waste or nesting materials. Be alert for animals and insects in debris, under pallets, overhead, etc.</li> <li>• In areas where radioactive materials are in use or are detected, observe and remain out of all “no-go” areas or areas with restricted access and use continuously monitoring and follow ALL action levels. Keep exposure as low as reasonably achievable by limited exposure time, maintaining a safe distance or shielding.</li> <li>• In areas with open containers of waste or raw materials, maintain sufficient distance to minimize the possibility of liquids splashing on exposed skin or inhaling respirable solids.</li> <li>• If heat stress is not a significant possibility, wear long-sleeved shirts and long pants or Tyvek coveralls.</li> </ul>
Conduct visual walk-around of facility	STRUCK BY	<ul style="list-style-type: none"> <li>• Wear boots, hardhats, eye protection and high-visibility (Class 2) safety vests as appropriate to the hazards encountered.</li> <li>• In areas where fork lifts or other vehicles are being used, be observant of and avoid all travel corridors. Stay close to facility escorts and follow in a single-file line.</li> <li>• Whenever crossing rail spurs, make sure to stop and look both ways before crossing.</li> <li>• Check for overhead rack lines. When possible, walk around the line rather than under the line.</li> <li>• In areas where empty containers are stacked, maintain a safe distance to minimize the chance of being struck by a falling container.</li> </ul>
Conduct visual walk-around of facility	HEAT/COLD STRESS	<ul style="list-style-type: none"> <li>• When inspecting facilities that are likely to have substantial operational areas outdoors, consider predicted high and low temperature and dress in appropriate layers.</li> </ul>
<b><u>Equipment to be Used</u></b> Gloves, safety glasses, steel-toed boots, hardhat and Tyvek coverall (recommended)	<b><u>Inspection Requirements</u></b> PPE prior to use Calibrate and check all monitoring equipment Inspect all tools prior to use	<b><u>Training Requirements</u></b> HAZWOPER, first aid, CPR



## ACTIVITY HAZARD ANALYSIS (AHA)

Tetra Tech EM Inc.

# Hazard Categorization and Sampling of Unknowns

### Task Description

This Activity Hazard Analysis (AHA) applies to the task listed above. It has been developed and approved by the Director of Health and Safety for Tetra Tech EMI. The AHA contains potential hazards posed by each major step in this task, lists procedures to control hazards, and presents required equipment (including safety equipment), inspections, and training. The hazard controls listed below are specific to this task.

Hazards		Actions
Task Steps	Potential Hazards	Critical Safety Procedures and Controls
Site Preparation	SLIP/TRIP/FALL LIFTING – SPRAIN/STRAIN	<ul style="list-style-type: none"> <li>• Wear steel-toed, non-skid boots in accordance with Tetra Tech EMI policy.</li> <li>• Establish work zones and restrict unauthorized access.</li> <li>• Prepare the work area and establish emergency equipment, sampling supplies, and a decontamination zone.</li> <li>• Visually inspect the area for slippery spots, trip hazards, spilled chemicals, or debris and correct if found.</li> <li>• Use proper lifting techniques (lift with legs not back). Follow SWP 5-19, Safe Lifting Procedures.</li> <li>• Bring fire extinguishers and stage in work areas.</li> <li>• Ensure water is available for hand washing, eye washing, drenching, decontamination, and drinking.</li> </ul>
Container opening and sampling	STRUCK BY PINCH POINTS EMPLOYEE EXPOSURE LACERATION SPRAIN/STRAIN	<ul style="list-style-type: none"> <li>• In areas where empty containers are stacked, maintain a safe distance to minimize the chance of being struck by a falling container.</li> <li>• In areas where fork lifts or other vehicles are being used, be observant of and avoid all travel corridors. Stay close to facility escorts and follow in a single-file line.</li> <li>• Develop a sampling plan prior to sampling any containers.</li> <li>• Handle CLOSED containers carefully and wear hardhats, safety glasses and gloves as appropriate until the hazards have been characterized.</li> <li>• Inspect containers to be sampled for signs of pressure, such as bulging or swelling, as well as for leaks and damage.</li> <li>• If a container of unknown material must be opened, avoid lifting or moving it.</li> <li>• When OPENING containers of unknown materials, Level B personal protection, including supplied air, chemical protective clothing and CONTINUOUS monitoring, is required.</li> <li>• Conduct physiological monitoring of personnel PRIOR to donning PPE and during all breaks. Follow SWP 5-15, Heat Illness Prevention and Monitoring.</li> <li>• OPENING of well-labeled containers to confirm that the contents match the label MAY be conducted in a lower level of protection based on the suspected contents with approval from HSD.</li> <li>• If a container must be moved, use mechanical assistance if possible and clear a path to the new</li> </ul>



		<p>location using a spotter to assist with moving.</p> <ul style="list-style-type: none"> <li>• Use proper lifting techniques (lift with legs not back). Follow SWP 5-19, Safe Lifting Procedures.</li> <li>• Wear leather work gloves over nitrile surgical gloves when moving AND opening containers.</li> <li>• Open container slowly and listen for sounds of venting indicative of over-pressurization, reactivity, or polymerization.</li> <li>• Handle glass containers and sampling equipment carefully; dispose of any broken glass shards</li> <li>• Have absorbent pads boom and other necessary spill control supplies/equipment nearby to collect spillage that may occur.</li> <li>• In areas with open containers of waste or raw materials, maintain sufficient distance to minimize the possibility of liquids splashing on exposed skin or inhaling respirable solids.</li> <li>• DO NOT stand or lean over other drums or container to obtain samples.</li> </ul>
Handling of samples	EMPLOYEE EXPOSURE LACERATION SPRAIN/STRAIN	<ul style="list-style-type: none"> <li>• Handle CLOSED containers carefully and wear safety glasses and gloves as appropriate.</li> <li>• Clean sample jars upon completion of sampling.</li> <li>• Wear leather work gloves over nitrile surgical gloves when moving AND opening containers.</li> <li>• Limit time spent in areas where solvents or other volatile organic compounds are being used or have been spilled or released.</li> <li>• Handle glass containers and sampling equipment carefully; dispose of any broken glass shards</li> </ul>
Performing hazard categorization testing of unknown substances	EMPLOYEE EXPOSURE (chemicals and heat) FIRE/EXPLOSION	<ul style="list-style-type: none"> <li>• Handle CLOSED containers to be sampled carefully and wear hardhats, safety glasses and gloves as appropriate until the hazards have been characterized.</li> <li>• Attempt to read all container labels and markings and, if possible, locate and review the MSDS sheets PRIOR to opening containers.</li> <li>• HazCat tests MAY be conducted in a lower level of PPE if monitoring during sampling did not detect hazardous concentrations, flammable, or oxygen deficient/enriched atmospheres.</li> <li>• Use only as much of the unknown chemical as necessary to complete the test. Do not use an ounce of chemical when a single drop will do.</li> <li>• Do not place a hot copper wire directly into sample jar of unknown chemical.</li> <li>• Follow the action levels prescribed in the HASP.</li> <li>• A generator and portable fume hood or fan are recommended to ensure adequate airflow while opening containers.</li> <li>• Handle all chemicals and HazCat reagents carefully to avoid spillage and breakage.</li> <li>• Use appropriate chemical hygiene procedures, including washing hands after conducting HazCat / sampling activities and before eating, drinking or tobacco use.</li> <li>• Observe all facility-specific health and safety procedures and exposure alarms, if present.</li> <li>• Commensurate with the chemicals and hazards present, decontaminate or dry doff as prescribed in the HASP to avoid cross-contamination.</li> </ul>
<b><u>Equipment to be Used</u></b> Required: Gloves, safety glasses, steel-toed boots, hardhat, chemical protective clothing, APRs, SCBAs, heat stress monitoring equipment, HazCat kit, bung wrench, ratchet, Coliwaso or drum thieves, spill control supplies and	<b><u>Inspection Requirements</u></b> PPE prior to use Calibrate and check all monitoring equipment Inspect all tools prior to use	<b><u>Training Requirements</u></b> HAZWOPER, first aid, CPR

equipment, air monitoring equipment, eyewash, safety shower, fire extinguishers, and sampling supplies and bottle ware Optional (Recommended): Generator, portable fume hood or fan, portable lighting		
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