Site Name: Michner Plating Mechanic Street RS	**Site Contact: Kelly Thomas**	**Telephone: 313-574-3176**
Location: 506-520 North Mechnic Street, Jackson, MI	**Client Contact: Jeffrey Kimble**	**Telephone: 734-740-9013**
EPA ID No. NA	**Prepared By: Kelly Thomas**	**Date Prepared: 6/1/15**
Project No. 103X90260001S051505205	**Dates of Activities:** 6/2/15-6/3/15	**Emergency Response** ☐ Yes ☒ No

Objectives:

Assist OSC with site inspection of drums, collect samples and prepare up to 10 samples for laboratory analysis, conduct limited hazard categorization to establish waste streams, and provide logbook and photographic documentation of site activities.

Site Type: *Check as many as applicable.*

☐ Active	☐ Landfill	☒ Inner-City
☒ Inactive	☐ Railroad	☐ Rural
☐ Secured	☒ Residential	☐ Remote
☐ Unsecured	☒ Industrial	☐ Other (*specify*) _____

Project Scope of Work and Site Background

START is tasked to assist EPA OSC with an inspection involving drums of unknown contents, collecting samples from drums and preparing samples for laboratory analysis, and limited hazard categorization of samples located at 506-250 North Mechanic Drive, Jackson, Michigan. At least 100 labeled and unlabeled drums, vats, and other containers are located throughout the site.

Health and Safety Approver Comments or Additional Instructions: Ensure buildings are structurally sound and have been cleared of possible vagrants prior to entry. Walking and working surfaces may be covered in dust and debris, have holes, missing stair treads, etc. Avoid contact with bird, rodent and other animal droppings Avoid breathing of dust throughout the buildings. Solids should be assumed to be hazardous dusts. Do NOT climb tank or catwalks or enter confined spaces. Avoid low-lying areas and places where vapors could accumulate and NEVER without air monitoring.

Use respirators as appropriate and antibacterial wash on areas of incidental contact. Safety glasses, hardhats, flashlights, steel-toed boots and high-visibility vests are required at all times. Avoid potential confined spaces (i.e. crawlspaces, tunnels, pipe chases, attics, etc.

Any opening of containers, vats, tanks, etc. shall be performed in Level B PPE. Conduct heat stress monitoring (temperature and heart rate) and document the results using the attached Heat Stress Physiological Monitoring Form PRIOR to AND after ANY Level B entry. Follow direction on the form for disqualifying personnel for entry and alerting EMS.

If adequate air moniring instruments are available AND monitoring during sampling indicates no detections of cyanide, acid gas, etc., HAZCATing of collected samples may be performed with continuous monitoring in a well-ventilated area (i.e. fume hood, outdoors, etc) wearing Level C.

pH paper taped to your suit, etc. may help serve as an early warning of acid gas.

Bring portable lighting. 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.

Health and Safety Plan Approver Signature: Chris Draper **Date:** APPROVED By Chris Draper at 1:25 pm, Jun 01, 2015

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.

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 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 rig, whichever is greater). Work zones will be delineated using cones, barrier tape or similar visual indicators.

ALL investigation-derived waste shall be drummed and remain onsite pending characterization for subsequent disposal.

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

Wind Speed and Direction (approach from upwind) Use www.weather.com or www.wunderground.com		**Temperature (ºF)**	**Relative Humidity (%)**	**Probability of Precipitation (%)**	**Weather Forecast (such as partly cloudy, snow, etc.)**
Speed (mph): 5-10	**From Direction:** SW	73	50-80	0	Sunny

Capture weather information daily on Tailgate Safety Briefing form or in site logbook

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

Known or Anticipated Site Hazards or Concerns:

☐ Work on active roadway	☐ Overhead utilities	☐ Energized electrical systems
☐ Work over or near water	☐ Buried Utilities	☒ Portable hand tool use
☒ Explosion or fire hazard	☐ Surface or underground storage tanks	☐ Portable electrical tool use
☐ Oxygen deficiency	☒ General slips, trips, falls	☐ Machine guarding
☒ Unknown or poorly characterized chemical hazards	☐ Uneven, muddy, rugged terrain	☒ Portable fire extinguisher use
☒ Inorganic chemicals	☐ Lift (man lift, cherry picker) use	☐ Driving personal vehicles
☒ Organic chemicals	☐ Industrial truck (forklift) use	☐ All-terrain vehicle use
☐ Asbestos	☐ Wood or metal ladder use	☐ Injury and Illness Prevention Program (California only)
☒ Respirable particulates	☐ Dangerous goods shipped by air	☐ Ergonomics (California only)
☐ Respirable silica	☐ Elevated work (over 6’ high)	☐ Work in strip or shaft mines
☐ Blasting and explosives	☐ Heavy equipment use or operation	☐ Client-specific safety requirements (attach to HASP)
☐ Non-ionizing radiation (lasers, UV)	☐ Construction work	☐ Confined space entry and/or rescue
☐ Ionizing radiation (alpha, beta, gamma, etc.)	☐ Excavation or trenching	☐ Methamphetamine lab
☒ Heat stress	☐ Benching, shoring, bracing	☒ Biological hazards (i.e. ticks, snakes, poisouos plants)
☐ Cold stress	☐ Scaffold use	☐ Mold
☐ Sun Exposure	☐ High noise	☐ *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.)

☒ Alconox or Liquinox	☐ Calibration gas (Methane)	☐ Hydrogen gas	☐ Isopropyl alcohol
☐ Hydrochloric acid (HCl)	☒ Calibration gas (Isobutylene)	☐ Household bleach (NaOCl)	☒ HazCat Kit
☐ Nitric acid (HNO_3)	☒ Calibration gas (4-gas mixture)	☐ Sulfuric acid (H_2SO_4)	☐ Mark I Kits (*number?*) _____
☐ Sodium hydroxide (NaOH)	☒ Eyewash solution (potable water)	☐ Hexane	☐ Other (*specify*) _____

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 2-04 Hearing Conservation Program (always checked)
- ☐ DCN 4-05 Trenching and Excavation Safety
- ☐ 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 (always checked)
- ☐ 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 5-35 Underground Utilities, including 5-35F, Ground Disturbance Permit
- ☐ SWP DCN 5-36 Drill Rigs

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: https://int.tetratech.com/sites/EMI/hs/Activity%20Hazard%20Analysis%20Documents/Forms/AllItems.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 and 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^3)	IDLH Level (specify ppm or mg/m^3)	Primary Hazards of the Material (explosive, flammable, corrosive, toxic, volatile, radioactive, biohazard, oxidizer, or other)	Symptoms and Effects of Acute Exposure	Photoionization Potential (eV)
VOCs	Unknown	PEL = REL = TLV = [Skin] Hazard ☐	Various	Various	Various	Various
Metals	Unknown	PEL = REL = TLV = [Skin] Hazard ☐	Various	Various	Various	NA
Acid, Chromic	unknown	PEL = 0.005 mg/m3 REL = 0.0002 mg/m3 Skin Hazard ☒	15 mg/m3	Toxic, Potential Carcinogen	Irritation respiratory system; nasal septum perforation; liver, kidney damage; leukocytosis (increased blood leukocytes), leukopenia (reduced blood leukocytes), eosinophilia; eye injury, conjunctivitis; skin ulcer, sensitization dermatitis; [potential occupational carcinogen]	NE
Acid, Nitric	unknown	PEL = 2ppm REL = 2ppm TLV = 2ppm Skin Hazard ☒	25ppm	Toxic	Irritation eyes, skin, mucous membrane; delayed pulmonary edema, pneumonitis, bronchitis; dental erosion	NE
Arsenic	unknown	PEL = TWA 0.010 mg/m^3 REL = CARC C 0.002 mg/m^3 [15-minute] Skin Hazard ☒	5 mg/m^3 CARC	Toxic, Potential Carcinogen	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin	NE
Cadmium, as salt	unknown	PEL = 0.005 mg/m3 REL = 50 ug/m3 TLV = 0.01 mg/m3 Skin Hazard ☒	9 mg/m^3 CARC	Toxic, Potential Carcinogen	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia	NE
Chromium (VI), as salt	unknown	PEL = 0.005 mg/m3 REL = 0.0002 mg/m3 Skin Hazard ☒	15 mg/m^3	Toxic, Potential Carcinogen	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills; muscle aches; nausea; vomiting; diarrhea; anosmia (loss of sense of smell), emphysema, proteinuria, mild anemia	NE
Hydrogen Cyanide	unknown	PEL = 4.7 ppm REL = 10 ppm Skin Hazard ☒	50 ppm	Toxic	Asphyxia; lassitude (weakness, exhaustion), headache, confusion; nausea, vomiting; increased rate and depth of respiration or respiration slow and gasping; thyroid, blood changes	13.60

Materials Present or Suspected at Site	Highest Observed Concentration (specify units and sample medium)	Exposure Limit (specify ppm or mg/m^3)	IDLH Level (specify ppm or mg/m^3)	Primary Hazards of the Material (explosive, flammable, corrosive, toxic, volatile, radioactive, biohazard, oxidizer, or other)	Symptoms and Effects of Acute Exposure	Photoionization Potential (eV)
Phosphine	unknown	PEL = 0.3 ppm REL = 0.3 ppm Skin Hazard ☒	50 ppm	Toxic, Flammable	Nausea, vomiting, abdominal pain, diarrhea; thirst; chest tightness, dyspnea (breathing difficulty); muscle pain, chills; stupor or syncope; pulmonary edema; liquid: frostbite	9.96
Nickle chromate/sulfumate (as CrO_3)	Unknown	PEL = 0.005 mg/m3 REL = 0.0002 mg/m3 Skin Hazard ☒	15 mg/m3 (as Cr VI)	Inhalation, ingestion, skin and/or eye contact	Irritation respiratory system; nasal septum perforation; liver, kidney damage; leukocytosis (increased blood leukocytes), leukopenia (reduced blood leukocytes), eosinophilia; eye injury, conjunctivitis; skin ulcer, sensitization dermatitis. Potential occupational carcinogen.	NE
Specify Information Sources:						

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
Ca = Carcinogenic
eV = Electron volt
U = Unknown

IDLH = Immediately dangerous to life or health
mg/m^3 = 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
GW = Groundwater
SW = Surface water
Sed = Sediment

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 typically 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[1]		Date of Activities
	Primary	Contingency	
1 Inspect and inventory existing containers.	☐ A ☐ B ☐ C ☒ D	☐ A ☐ B ☒ C ☐ D	6/2/15-6/3/15
2 Collect samples	☐ A ☒ B ☒ C ☐ D	☐ A ☒ B ☐ C ☐ D	6/2/15-6/3/15
3 Conduct limited hazard categorization	☐ A ☐ B ☒ C ☐ D	☐ A ☒ B ☐ C ☐ D	6/2/15-6/3/15
4 Provide logbook and photographic documentation	☐ A ☐ B ☐ C ☒ D	☐ A ☐ B ☐ C ☒ D	6/2/15-6/3/15
5	☐ A ☐ B ☐ C ☐ D	☐ A ☐ B ☐ C ☐ D	

Site Personnel and Responsibilities (include subcontractors):

Employee Name and Office Code / Location	Task(s)	Responsibilities
Kelly Thomas	1-4	• 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.
Kelly Thomas	1-4	• 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
Kelly Thomas	1-4	• 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.
Andy Kleist	1-4	• Alternate Site Safety Coordinator (if any)
Andy Kleist	1-4	• 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.
Dan Capone	1-4	• 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.

Note:
1. 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	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	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

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**
☒ Combustible gas indicator model:	☒ 1 ☒ 2 ☒ 3 ☐ 4 ☐ 5	0 to 10% LEL	Monitor; evacuate if confined space	
		10 to 25% LEL	Potential explosion hazard; notify SSC	
		>25% LEL	Explosion hazard; interrupt task; evacuate site; notify SSC	
☒ Oxygen meter model:	☒ 1 ☒ 2 ☒ 3 ☐ 4 ☐ 5	>23.5% Oxygen	Potential fire hazard; evacuate site	
		23.5 to 19.5% Oxygen	Oxygen level normal	
		<19.5% Oxygen	Oxygen deficiency; interrupt task; evacuate site; notify SSC	
☐ Radiation survey meter model:	☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	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.
		Two to three times background	Notify SSC	
		>Three times background	Radiological hazard; interrupt task; evacuate site; notify RSO	
☐ Photoionization detector model: ☐ 11.7 eV ☒ 10.6 eV ☐ 10.2 eV ☐ 9.8 eV ☐ Other (specify): _____	☒ 1 ☒ 2 ☒ 3 ☐ 4 ☐ 5	Any response above background to 5 ppm above background	Level B is recommended Level C[a] 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.
		> 5 to 500 ppm above background	Level B	
		> 500 ppm above background	Level A	
☐ Flame ionization detector model:	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Any response above background to 5 ppm above background	Level B is recommended Level C[a] 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.
		>5 to 500 ppm above background	Level B	
		>500 above background	Level A	
☒ Cyanide monitor:	☒ 1 ☒ 2 ☒ 3 ☐ 4 ☐ 5	Any response above background	Level B is recommended. Cover open vats.drums and ventilate mechanically	These action levels are HCN gas
		>2 ppm	Level B	
☐ Other (specify):	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Specify:	Specify:	

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 Safety Manager.

Project-Specific Industrial Hygiene Requirements

OSHA-Regulated Chemicals*:

Check any present on the job site in any medium (air, water, soil)

- ☒ No chemicals below are located on the job site
- ☐ Friable Asbestos
- ☐ Silica, crystalline
- ☐ alpha-Napthylamine
- ☐ Methyl chloromethyl ether
- ☐ 3,3'-Dichlorobenzidine (and its salts)
- ☐ bis-Chloromethyl ether
- ☐ beta-Napthylamine
- ☐ Benzidine
- ☐ 4-Aminodiphenyl
- ☐ Ethyleneimine
- ☐ beta-Propiolactone
- ☐ 2-Acetylaminoflourene
- ☐ 4-Dimethylaminoazobenzene
- ☐ N-nitrosomethylamine
- ☐ Vinyl chloride
- ☐ Inorganic arsenic
- ☐ Lead
- ☐ Chromium (VI)
- ☐ Cadmium
- ☐ Benzene
- ☐ Coke oven emissions
- ☐ 1,2-Dibromo-3-chloropropane
- ☐ Acrylonitrile
- ☐ Ethylene oxide
- ☐ Formaldehyde
- ☐ Methylenedianiline
- ☐ 1,3-Butadiene
- ☐ Methylene chloride

* NOTE: Many states, including California and New Jersey, have chemical-specific worker protection requirements and standards for many chemicals and known or suspected carcinogens.

Emergency Contacts:	**Telephone No.**
WorkCare and Incident Intervention	888.449.7787, or 800.455.6155
Tetra Tech EMI 24-hour Anonymous Hazard Reporting Line	866.383.8070
U.S. Coast Guard National Response Center	800.424.8802
InfoTrac	800.535.5053
Poison Control	800.222.1222
Fire department	911
Police department	911

Personnel Call-Down List:

Job Title or Position:	**Name**	**Cell Phone:**
Safety Manager	Chris Draper	615.969.1334
Project Manager:	Kelly Thomas	313.574.3176
Field Team Leader:	Kelly Thomas	313.574.3176
Site Safety Coordinator (SSC):	Kelly Thomas	313.574.3176
Subcontractor SSC:	Dan Capone	517.881.8837

Medical and Site Emergencies:

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.

Hospital Name: Allegiance Health
Address: 205 North East Avenue, Jackson MI 49021

General Phone: 517.788.4800
Emergency Phone: 911
Ambulance Phone: 911

Hospital called to verify emergency services are offered? YES ☒ NO ☐

Step-by-step Route to Hospital: (see Page 11 of 12 for route map)

Turn left onto East trail Street 0.2 mil

Turn right onto M-106/Cooper Street 0.3 mil

Turn left onto East Pearl Street 0.4 mil

Keep straight onto South Jackson Square 365 feet

Arrive at Allegiance Health

Note: This page must be posted on site.

Decontamination Procedures

The site safety coordinator overseas implementation of project decontamination procedures and is responsible for ensuring they are effective.

Personnel Decontamination

Level D Decon - ☐ Wet ☒ Dry

Level C Decon - ☐ Wet ☒ Dry

Level B Decon – Briefly outline the level B decontamination methods to be used on a separate page attached to this HASP.

Level A Decon – A Level 3 HASP is required. Notify your Safety Manager.

Equipment Decontamination

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.

Respirator Decontamination

Respirators are decontaminated in compliance with SWP 5-27 and should be included with this HASP.

Waste Handling for Decontamination

Procedures for decontamination waste disposal meet all applicable local, state, and federal regulations.

Decontamination Equipment

- ☐ Washtubs
- ☒ Buckets
- ☐ Scrub brushes
- ☐ Pressurized sprayer
- ☐ Detergent [Type]
- ☐ Solvent [Type]
- ☐ Household bleach solution

  Concentration/Dilution: _____
- ☐ Deionized water
- ☐ Disposable sanitizer wipes
- ☐ Potable eyewash/drench/wash water
- ☐ Wire brush
- ☒ Spray bottle
- ☐ Tubs / pools
- ☐ Banner/barrier tape
- ☒ Plastic sheeting
- ☐ Tarps and poles
- ☒ Trash bags
- ☐ Trash cans
- ☒ Duct tape
- ☒ Paper towels
- ☒ Folding chairs
- ☐ Other

Emergency Response Planning

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.

In the event of an emergency that necessitates evacuation of a work task area or the site, the following procedures will take place.

- The Tetra Tech SSC will contact all nearby personnel using the on-site communications to advise the personnel of the emergency.
- The personnel will proceed along site roads to a safe distance upwind from the hazard source.
- The personnel will remain in that area until the SSC or an authorized individual provides further instructions.

In the event of a severe spill or a leak, site personnel will follow the procedures listed below.

- Evacuate the affected area and relocate personnel to an upwind location.
- Inform the Tetra Tech SSC, a Tetra Tech office, and a site representative immediately.
- Locate the source of the spill or leak, and stop the flow if it is safe to do so.
- Begin containment and recovery of spilled or leaked materials.
- Notify appropriate local, state, and federal agencies.

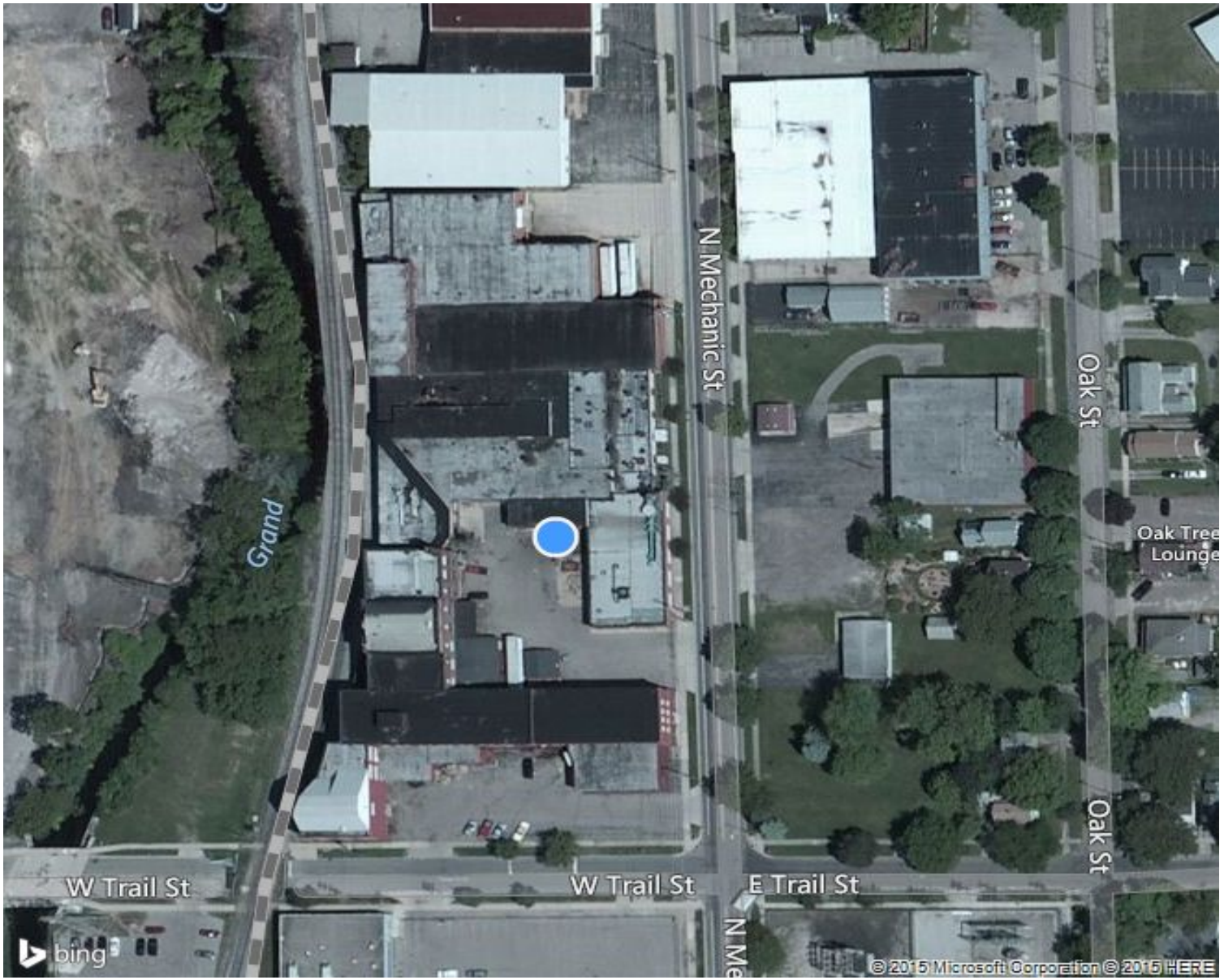
In the event of severe weather, site personnel will follow the procedures listed below.

- Site work shall not be conducted during severe weather, including high winds and lightning.
- In the event of severe weather, stop work, lower any equipment (drill rigs) and evacuate the affected area.
- Severe weather may cause heat or cold stress. Refer to SWPs 5-15 and 5-16 for additional information.

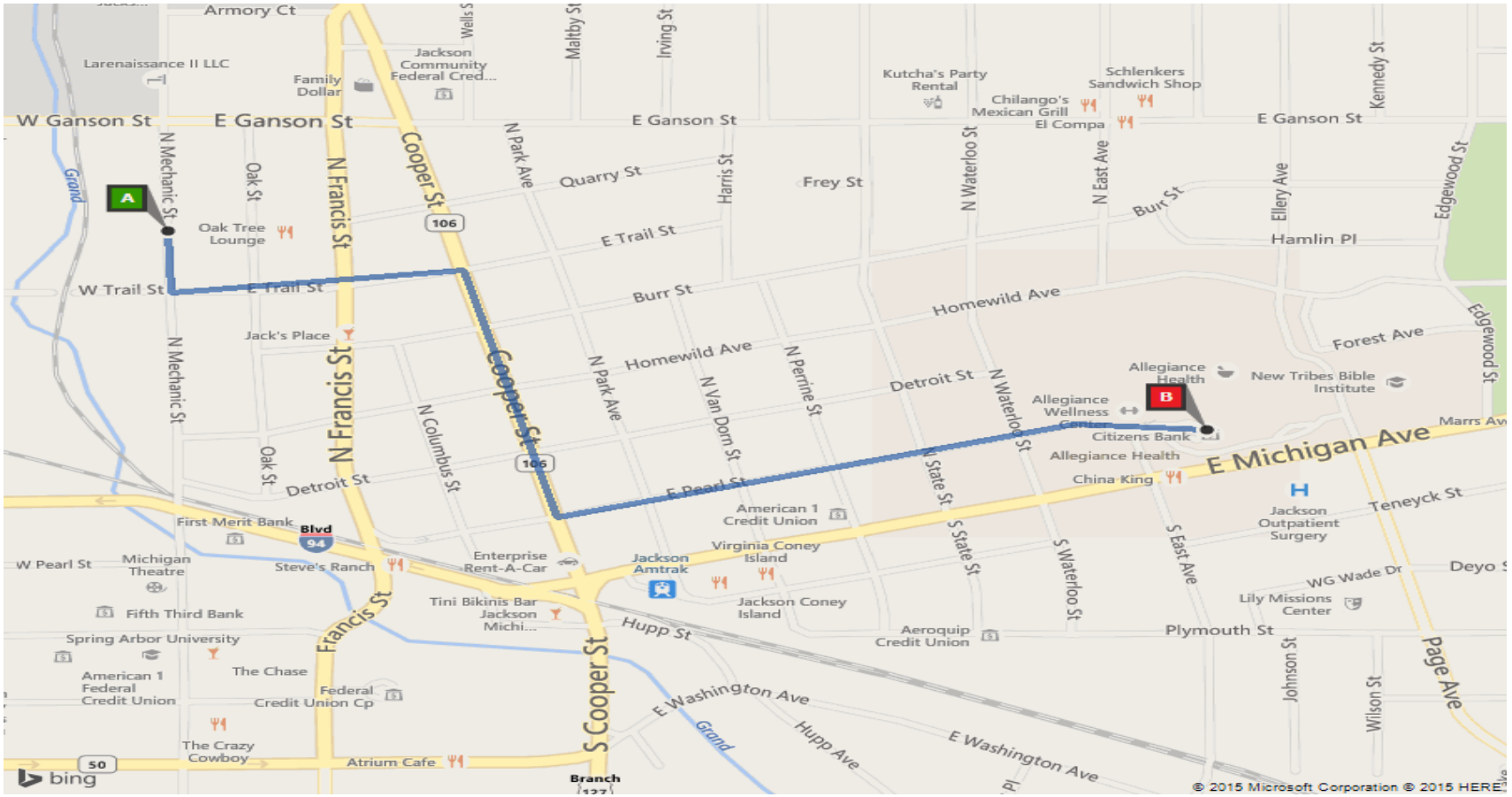
All personnel working on Tetra Tech projects are expected to and responsible for reporting ANY unsafe conditions, behaviors or incidents -- including injuries, illnesses, fires, spills/releases, property damages and near-misses -- they face or encounter while performing their work. According to TtEMI's reporting procedures, for non-emergency incidents you should:

- Notify WorkCare and Incident Intervention at 888.449.7787, or 800.455.6155
- Notify your Office, Project or Safety Manager via phone immediately.
- Complete a "Tetra Tech Incident Report" (Form IR) within 24 hours and send it to your Safety Manager. If an injury or illness has occurred, the Form IR-A must also be completed.
- Additional reports may be necessary

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



Hospital Route Map (attach or insert):



Turn left onto East trail Street 0.2 mil

Turn right onto M-106/Cooper Street 0.3 mil

Turn left onto East Pearl Street 0.4 mil

Keep straight onto South Jackson Square 365 feet

Arrive at Allegiance Health

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: 103X90260001S051505205

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
Kelly Thomas	Tetra Tech		
Andy Kleist	Tetra Tech		
Dan Capone	Mannik Smith Group		

I have read, understood, and agree with the information set forth in this HASP and will comply with and enforce this HASP, as well as procedures and guidelines established in the Tetra Tech, Inc., Health and Safety Manual.
A Post-Project Field Team Check-In SHALL be conducted and documented below to ensure that ALL incidents and near-misses were reported at project completion.

Name	Project-Specific Position	Signature	Date
Kelly Thomas	Project Manager		
Kelly Thomas	Field Team Leader		
Kelly Thomas	Site Safety Coordinator		
Dan Capone	Subcontractor SSC		
	Required Post-Project Field Team Check-In		

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, acknowledge and follow the provisions outlined in this plan at a minimum, should refer to their safety program for specific information related to health and safety.

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[a]: 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:

[a] 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: _____

Safety Topics Discussed	
Protective clothing and equipment:	
Chemical and physical hazards:	
Emergency procedures:	
Equipment hazards:	
Other:	
Attendees	
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

RSO or Designee	_____ Name	_____ Signature	_____ Date
Site Safety Coordinator	_____ 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

Tetra Tech START

Heat Stress Physiological Monitoring Form

Today's Date		**Project Number:**		**Project Name:**	
Site Address:					
Project Manager:		**Site Safety Coordinator:**		**Local EMS/Fire Phone:**	

1. In preparation for hot weather work the project manager is responsible for ensuring the requirements of SWP 5-15, Heat Illness Prevention and Monitoring, are implemented and that a site safety coordinator (SSC) is empowered to 1) identify work that can pose a risk of heat stress and Ultraviolet (UV) exposure; and 2) identify at-risk employees.
2. Identify possible controls, including mandatory work and rest regimens based on current conditions, workload, clothing requirements, temperature and humidity; required fluid and food replacement schedules; a location to cool down during breaks; requirements to address UV exposure (i.e. sunscreen, hats, UV glasses, etc.); physiological monitoring; and emergency procedures.
   - Where the supply of water is not plumbed or otherwise continuously supplied, **water shall be provided in sufficient quantity at the beginning of the work shift to provide 1 quart per employee per hour for drinking for the entire shift**.
   - Frequent drinking of water shall be encouraged by the SSC.
   - At least 2 quarts of water per employee will be available at the start of the shift.
   - The SSC will monitor water containers every 30 minutes, and employees are encouraged to report low levels or dirty water to the SSC when observed.
   - The SSC will provide reminders to the field team members to drink frequently, and more water breaks will be provided as needed.
   - During the daily tailgate safety meeting each morning, the SSC will remind the field team about the importance of frequent water consumption throughout the shift.
   - Water containers will be placed as close to the workers as safety conditions allow.
   - When drinking water levels within a container drop below 50%, the water shall be replenished immediately.
   - If a common water source is used, disposable/single-use drinking cups will be provided to employees each day.
   - Communication devices such as radios, cell phones, or air horns may be used to remind field team members to take water breaks.
3. Determine Wet Bulb Globe Temperature [WBGT, aka: heat Index (HI)] - a measurement used to indicate heat stress that takes into account the effects of humidity. WGBT readings may be taken using wet globe thermometers or similar means, or by using the HI reading from most weather websites (i.e. www.weather.com or www.wunderground.com).
   a. After the wet-bulb globe temperature has been identified adjustments must be made to the reading based on the type of clothing that will be worn when the work is conducted.

Clothing Type	WBGT Correction
Work clothes (long sleeve shirt and pants)	0
Cloth (woven material) coveralls	0
Double layer woven clothing	+3
SMS polypropylene coveralls (Tyvek coverall)	+0.5
Polyolefin coveralls (Tychem QC or SL)	+1
Limited-use vapor-barrier coveralls (Level B chemical and Level A ensembles)	+11

4. Establish a work / rest regimen:

PERMISSIBLE HEAT EXPOSURE THRESHOLD LIMIT VALUE															
Clothing Type	Summer Lightweight			Cotton Coveralls			Winter Work			Permeable Water Barrier (Tyvek QC, SL and similar)			Fully-Encapsulating Suit (Level A)		
Work Load	Light	Moderate	Heavy	Light	Moderate	Heavy	Light	Moderate	Heavy	Light	Moderate	Heavy	Light	Moderate	Heavy
Work/Rest Schedule / WBGT	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)
Continuous Work	86	80	77	82	76	73	79	73	70	75	69	66	68	62	59
75% Work, 25% Rest / Hr	87	82	79	83	79	75	80	75	71	76	72	68	69	64	61
50% Work, 50% Rest / Hr	89	85	82	85	81	79	81	78	75	78	74	71	71	67	64
25% Work, 75% Rest / Hr	90	88	86	86	84	82	83	81	79	79	77	75	72	70	68

Notes: Temperature is approximate WBGT from accompanying tables, based on outdoor work, temperature, and relative humidity measurement during work activities. Light Work includes walking, writing notes, handling samples, and similar activities (metabolic rate up to 200 kilocalories [kcal]/hour). Medium Work includes bailing wells, moving light equipment, driving nails, and similar tasks (metabolic rate of 200-350 kcal/hour). Heavy Work is digging, heavy lifting, cutting trees, using heavy hand tools, and similar tasks (metabolic rate above 350 kcal/hour).

5. Conduct physiological monitoring:
   a. Take and record measurement of temperature and pulse at the following times:
      i. Before beginning shift / entry or donning PPE
      ii. As close as possible to the beginning of each preventive rest period (break)
      iii. At the end of the day
   b. Heart rate:
      i. Count the radial (wrist) pulse during a 30-second period or use a standard heart rate meter to establish resting heart rate prior to donning PPE or beginning the work activity
      ii. Following each work period, count pulse again as early as possible in preventive recovery period
         1. if heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third without changing the length of the rest period;
         2. if the heart rate still exceeds 110 beats per minute at the beginning of the next period, shorten the following work cycle by one-third and lengthen the rest period by 50%
   c. Body temperature:
      i. Use an oral, tympanic (ear), or temporal (forehead) thermometer to establish body temperature prior to donning PPE or beginning the work activity
      ii. Take temperature again as early as possible in each rest period
         1. If body temperature exceeds 99.6 degrees Fahrenheit (°F) (37.6 degrees Celsius [°C]), shorten the next work cycle by one-third without changing the rest period;
         2. if body temperature still exceeds 99.6 °F at the beginning of the next period, shorten the following work cycle by one-third and lengthen the rest period by 50%;
         3. Do not permit a worker to wear impermeable PPE when body temperature exceeds 100.6 °F (38.1 °C), or if experiencing fatigue, nausea, dizziness, or lightheadedness

Weather Conditions:

Ambient air temperature (°F)		**Relative Humidity (%RH)**		**Heat Index / Calculated WBGT**		**Percent Cloud Cover**	

Describe complete work ensemble (i.e. long sleeve shirt and pants, coveralls, Tyvek SL with double gloves and APR, Level A fully-encapsulant suit, etc.)

Personnel Physiological Monitoring Data (use separate line for additional monitoring periods):

Employee Name	**Time**	**Heart Rate**	**Body Temperature**	**Time**	**Heart Rate**	**Body Temperature**

Tetra Tech, Inc.	ACTIVITY HAZARD ANALYSIS (AHA) Tetra Tech EM Inc. **(Insert Task Name Here)**

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.

Insert a brief narrative description of each task to be completed.

Below, go step by step through the whole process. For each step, identify the potential hazards and describe the "actions" taken to control the hazard (i.e. PPE, lock-out tagout, training, keeping unauthorized parties out of the area, etc.), Example below.

Hazards		Actions
Task Steps	**Potential Hazards**	**Critical Safety Procedures and Controls**
Insert additional rows as needed		
Equipment to be Used	**Inspection Requirements**	**Training Requirements**

Assessed By _____ (Name) _____ (Signature) _____ (Date)

Approved By _____ (Name) _____ (Signature) _____ (Date)

Tetra Tech, Inc.

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	• Wear boots, hardhats, eye protection, Tyvek coveralls, and high-visibility (Class 2) safety vests as appropriate to the hazards encountered. • Power and water may not be available. Be prepared with and utilize portable lighting. • 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. • If climbing or walking over 6 feet above the ground, fall protection is required in accordance with SWP 5-10, Fall Protection Practices. • 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. • 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. • 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. • Always use ladders or stiles to cross fences, ditches, or production lines. • In material storage areas, always walk around storage racks or containers, rather than walking on or stepping over racks or containers.
Conduct visual walk-around of facility	EMPLOYEE EXPOSURE	• Water may not be available. 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. • Handle containers of waste carefully and wear hardhats, safety glasses and gloves as appropriate until the hazards have been characterized. • Bring fire extinguishers and stage in work areas. • Observe all facility-specific health and safety procedures and exposure alarms, if present. • Wash hands after conducting the visual inspection and before eating, drinking or tobacco use.

		• Decontaminate or dry doff to avoid cross-contamination. • Limit time spent in areas where solvents or other volatile organic compounds are being used or have been spilled or released. • Avoid walking in solid waste materials or powders or other dusty areas. • 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. • 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. • 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. • If heat stress is not a significant possibility, wear long-sleeved shirts and long pants or Tyvek coveralls.
Conduct visual walk-around of facility	STRUCK BY	• Wear boots, hardhats, eye protection and high-visibility (Class 2) safety vests as appropriate to the hazards encountered. • 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. • Whenever crossing rail spurs, make sure to stop and look both ways before crossing. • Check for overhead rack lines. When possible, walk around the line rather than under the line. • In areas where empty containers are stacked, maintain a safe distance to minimize the chance of being struck by a falling container.
Conduct visual walk-around of facility	HEAT/COLD STRESS	• When inspecting facilities that are likely to have substantial operational areas outdoors, consider predicted high and low temperature and dress in appropriate layers.
Equipment to be Used Gloves, safety glasses, steel-toed boots, hardhat and Tyvek coverall (recommended)	**Inspection Requirements** PPE prior to use Calibrate and check all monitoring equipment Inspect all tools prior to use	**Training Requirements** HAZWOPER, first aid, CPR

Tetra Tech, Inc.	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	• Wear steel-toed, non-skid boots in accordance with Tetra Tech EMI policy. • Establish work zones and restrict unauthorized access. • Prepare the work area and establish emergency equipment, sampling supplies, and a decontamination zone. • Visually inspect the area for slippery spots, trip hazards, spilled chemicals, or debris and correct if found. • Use proper lifting techniques (lift with legs not back). Follow SWP 5-19, Safe Lifting Procedures. • Bring fire extinguishers and stage in work areas. • Ensure water is available for hand washing, eye washing, drenching, decontamination, and drinking.
Container opening and sampling	STRUCK BY PINCH POINTS EMPLOYEE EXPOSURE LACERATION SPRAIN/STRAIN	• In areas where empty containers are stacked, maintain a safe distance to minimize the chance of being struck by a falling container. • 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. • Develop a sampling plan prior to sampling any containers. • Handle CLOSED containers carefully and wear hardhats, safety glasses and gloves as appropriate until the hazards have been characterized. • Inspect containers to be sampled for signs of pressure, such as bulging or swelling, as well as for leaks and damage. • If a container of unknown material must be opened, avoid lifting or moving it. • When OPENING containers of unknown materials, Level B personal protection, including supplied air, chemical protective clothing and CONTINOUS monitoring, is required. • Conduct physiological monitoring of personnel PRIOR to donning PPE and during all breaks. Follow SWP 5-15, Heat Illness Prevention and Monitoring. • 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. • If a container must be moved, use mechanical assistance if possible and clear a path to the new location using a spotter to assist with moving.

		• Use proper lifting techniques (lift with legs not back). Follow SWP 5-19, Safe Lifting Procedures. • Wear leather work gloves over nitrile surgical gloves when moving AND opening containers. • Open container slowly and listen for sounds of venting indicative of over-pressurization, reactivity, or polymerization. • Handle glass containers and sampling equipment carefully; dispose of any broken glass shards • Have absorbent pads boom and other necessary spill control supplies/equipment nearby to collect spillage that may occur. • 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. • DO NOT stand or lean over other drums or container to obtain samples.
Handling of samples	EMPLOYEE EXPOSURE LACERATION SPRAIN/STRAIN	• Handle CLOSED containers carefully and wear safety glasses and gloves as appropriate. • Clean sample jars upon completion of sampling. • Wear leather work gloves over nitrile surgical gloves when moving AND opening containers. • Limit time spent in areas where solvents or other volatile organic compounds are being used or have been spilled or released. • Handle glass containers and sampling equipment carefully; dispose of any broken glass shards
Performing hazard categorization testing of unknown substances	EMPLOYEE EXPOSURE (chemicals and heat) FIRE/EXPLOSION	• Handle CLOSED containers to be sampled carefully and wear hardhats, safety glasses and gloves as appropriate until the hazards have been characterized. • Attempt to read all container labels and markings and, if possible, locate and review the MSDS sheets PRIOR to opening containers. • 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. • 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. • Do not place a hot copper wire directly into sample jar of unknown chemical. • Follow the action levels prescribed in the HASP. • A generator and portable fume hood or fan are recommended to ensure adequate airflow while opening containers. • Handle all chemicals and HazCat reagents carefully to avoid spillage and breakage. • Use appropriate chemical hygiene procedures, including washing hands after conducting HazCat / sampling activities and before eating, drinking or tobacco use. • Observe all facility-specific health and safety procedures and exposure alarms, if present. • Commensurate with the chemicals and hazards present, decontaminate or dry doff as prescribed in the HASP to avoid cross-contamination.
Equipment to be Used Required: Gloves, safety glasses, steel-toed boots, hardhat, chemical protective clothing, APRs, SCBAs, heat stress monitoring equipment, HazCat kit, bung wrench, ratchet, Coliwasa or drum thieves, spill control supplies and equipment, air monitoring equipment,	**Inspection Requirements** PPE prior to use Calibrate and check all monitoring equipment Inspect all tools prior to use	**Training Requirements** HAZWOPER, first aid, CPR

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

TIPS FOR THE LEVEL 2 HEALTH AND SAFETY PLAN (HASP)

This page presents tips for word processing the Level 2 HASP form. This page is not part of the HASP. The *boilerplate* text of the form should never be changed and is issued in read-only format. After revising the form, save the revised document under a new name. **Save your work frequently.**

WARNING: Work slowly and carefully. Print this page out now so you have the following instructions while you work on the form. Delete this page when you are finished working on the HASP form.

- ✓ RED text contains instructions or sample text only. **Red text should be deleted and formatted in black throughout the document after information is added.**
- ✓ Double-click or right-click on any box and then select the "checked" option to enter an X. The boxes are set up to center the text both horizontally and vertically.
- ✓ Most of this document is set up in table format. A table row may be preset to a specific size, and not all text within the row will be displayed. When not all text is displayed, place the cursor in the row in question.

Additional Comments:

- ✓ **The HASP must be reviewed and approved before any work can begin on site**. After the initial project work, data and subsequent decisions related to health and safety may be recorded in the field log book.
- ✓ HASPs should be submitted to your Safety Manager by emailing it to EMI.RSO.com for review and approval prior to the start of operations.
- ✓ Ensure that all subcontractors are approved prior to submission for HASP approval. If you are unsure a subcontractor is currently pre-qualified, please visit the health and safety website at: https://int.tetratech.com/sites/EMI/hs/High%20Hazard%20Subcontractor%20Documentation/Forms/AllItems.aspx
- ✓ Subcontractor and persons from other organizations that will be following this HASP must be identified by name where applicable and sign the Approval and Sign-off Form.
- ✓ This HASP may be completed electronically or by hand, as necessary to ensure that a complete HASP is available to support the project.
- ✓ All blanks should be filled in with appropriate information or marked as not applicable (NA)
- ✓ Mark all applicable items with an X in the box in sections that contain lists and boxes to check.
- ✓ An amendment is required when changes that were not within contingency plans are made or a new task is added to Tetra Tech's scope of work. A signature by a HASP approver is also required for amendments.
- ✓ An approved copy of the HASP must be kept on jobsites at all times Tetra Tech personnel are present. **Failure to have an approved HASP on site at all times will lead to disciplinary actions.**
- ✓ The HASP located on the jobsite must contain signatures from each person entering the jobsite signifying review and acceptance of the plan.
- ✓ Following project completion, a Post-Project Field Team Check-In SHALL be conducted and documented on the Approval and Sign-Off Form on page 12 of this HASP to ensure that ALL incidents and near-misses were reported.

Rights and Responsibilities

- ✓ All personnel working on Tetra Tech projects are expected to and responsible for reporting ANY unsafe conditions, behaviors or incidents -- including injuries, illnesses, fires, spills/releases, property damages and near-misses -- they face or encounter while performing their work. As such, reports of safety hazards are viewed as positive interactions and no employee of Tetra Tech EMI will retaliate against anyone who reports a safety hazard.
- ✓ Tetra Tech employees have the right to refuse to perform work involving significant safety hazards they feel have not been addressed.
- ✓ All personnel working on Tetra Tech projects have the right to stop work if they feel any worksite condition, practice, or operation causes or presents a hazard that can reasonably be expected to result in immediate death, serious physical harm, or severe damage to the environment.

Attachments to the HASP

- ✓ Daily Tailgate Safety Meeting form (to be completed at the beginning of each day and stored with the HASP onsite)
- ✓ HASP Amendment Form (to be completed when new tasks are added to Tetra Tech's scope of work, an existing HASP changes substantially, or new hazards are encountered on the jobsite)
- ✓ Form AF-1 (Field Audit Checklist to be completed once per week onsite and submitted to your Regional Safety Officer)
- ✓ Activity Hazard Analysis (AHA) template. Additional AHAs are posted at: https://int.tetratech.com/sites/EMI/hs/Activity%20Hazard%20Analysis%20Documents/Forms/AllItems.aspx
- ✓ Any referenced or applicable Tetra tech policies, procedures, programs or Safe Work Practices SHALL be attached https://my.tetratech.com/go3/index.php?option=com_wrapper&view=wrapper&Itemid=376
- ✓ Any safety data sheets for chemicals brought or used on site SHALL be attached https://int.tetratech.com/sites/EMI/hs/MSDS%20Documents/Forms/AllItems.aspx.