

**REMEDIAL ACTION CONTRACT 2 FOR
REMEDIAL, ENFORCEMENT, OVERSIGHT, AND
NON-TIME-CRITICAL REMOVAL ACTIVITIES
IN REGION 5**

**FINAL HEALTH AND SAFETY PLAN FOR
CBS MULTI-SITES TECHNICAL ASSISTANCE
MONROE COUNTY, INDIANA**

**Prepared for
U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3590**

Date Submitted:	October 9, 2015
U.S. EPA Region:	5
Work Assignment No:	103-TATA-05ZZ
Contract No:	EP-S5-06-02
Prepared by:	SulTRAC
Project Manager:	Jeffrey Lifka
Telephone No:	(312) 201-7491
EPA Work Assignment Manager:	Thomas Alcamo
Telephone No:	(312) 886-7278

Site Name: CBS Multi-Sites	Site Contact: Jeffrey Lifka	Telephone: 312-201-7491												
Location: Bloomington, Monroe County, Indiana	Client Contact: Thomas Alcamo	Telephone: 312-886-7278												
EPA ID No. IND980794341; IND980614556; IND006418651	Prepared By: Jeffrey Lifka	Date Prepared: October 9, 2015												
Project No. 103G1852103	Dates of Activities: October 2014 through June 2016 (HASP is not valid for periods longer than 12 months)	Emergency Response <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
<p>Objectives:</p> <p>Task 1: Collect fish samples from multiple streams associated with each of the three sites that are addressed by this work assignment. Fish samples will be collected using electroshock method. Fish samples will be analyzed for PCBs as Aroclors and as congeners. Conditions will determine whether a boat is used. The Indiana Department of Environmental Management (IDEM) will perform the electroshocking activities and SulTRAC (Tetra Tech) will prepare fish samples for shipment to its subcontractor analytical laboratory. Events that IDEM is not available to help, SulTRAC and its local subcontractor AECOM Technical Services, Inc. (AECOM) will perform the electroshocking activities using Pine Environmental backpack unit LR-24 (equipment specifications included after fish electroshocking AHA at end of text). Field notes will be recorded in a log book and field photographs will be taken.</p> <p>Task 2: Collect surface water, groundwater, and sediment samples from each of the three sites. All samples will be analyzed for PCBs as Aroclors. Field notes will be recorded in a log book and field photographs will be taken.</p> <p>Task 3: RA oversight of any CBS site investigative activities (work assignment 165); no SulTRAC sampling involved, only oversight documentation of any CBS work being performed such as groundwater pump tests to determine recharge rates and pump test sample PCB concentrations, and any other PCB sampling investigations at the sites (including any groundwater, surface water, sediment or soil sampling).</p>														
<p>Site Type: Check as many as applicable.</p> <table> <tr> <td><input checked="" type="checkbox"/> Active</td> <td><input checked="" type="checkbox"/> Landfill</td> <td><input type="checkbox"/> Inner-City</td> </tr> <tr> <td><input checked="" type="checkbox"/> Inactive</td> <td><input type="checkbox"/> Railroad</td> <td><input type="checkbox"/> Rural</td> </tr> <tr> <td><input checked="" type="checkbox"/> Secured</td> <td><input type="checkbox"/> Residential</td> <td><input type="checkbox"/> Remote</td> </tr> <tr> <td><input checked="" 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 checked="" type="checkbox"/> Landfill	<input type="checkbox"/> Inner-City	<input checked="" type="checkbox"/> Inactive	<input type="checkbox"/> Railroad	<input type="checkbox"/> Rural	<input checked="" type="checkbox"/> Secured	<input type="checkbox"/> Residential	<input type="checkbox"/> Remote	<input checked="" type="checkbox"/> Unsecured	<input type="checkbox"/> Industrial	<input type="checkbox"/> Other (<i>specify</i>)
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<p>Project Scope of Work and Site Background</p> <p>The CBS Multi-sites included in this project consist of Lemon Lane Landfill, Neal's Landfill, and Bennett's Dump. Each of these sites was included in a consent decree signed by Westinghouse Electrical Corporation (Westinghouse), now CBS Corporation (CBS) in 1985.</p> <p>Lemon Lane Landfill: The Lemon Lane Landfill site is a former municipal landfill which accepted municipal and industrial waste. PCB-containing transformers and industrial byproducts were discovered on the site and linked to Westinghouse, making CBS the sole responsible party. The site is approximately 10 acres, 3 acres of which are owned by a private citizen. Source control remediation was conducted in 1987. Excavation of contaminated soil was completed in 2000. A water treatment plant for groundwater remediation was also installed in 2000. Additional work is nearly complete to install a new effluent line for the water treatment plant, and to evaluate further areas for both groundwater and sediment/soil remediation.</p>														

Neal's Landfill: The Neal's Landfill site is a former municipal landfill which accepted municipal and industrial waste. PCB-containing transformers and industrial byproducts were discovered on the site and linked to Westinghouse, making CBS the sole responsible party. The site is approximately 18 acres. Excavation of contaminated soil was completed in 2002. Groundwater collection systems and a water treatment plant have been installed at the site, and are currently in use and being evaluated. Sediment in-stream and along stream banks within the site will be excavated in the future.

Bennett's Dump: The Bennett's Dump site is a former limestone quarry that was then used as a dumping ground for various types of waste, including construction debris, household waste, and electrical components, including a large amount of PCB-containing transformers. The site consists of two parcels that constitute approximately 4 acres. PCB-containing transformers located in the site were discovered to have been manufactured by Westinghouse. CBS is the sole responsible party for this site. A passive quarry drain has been installed to aid on controlling groundwater flow. Further construction activities are being planned, including a collection trench and installation of a water treatment plant.

SulTRAC will collect fish tissue samples from streams located on or near the project sites listed above. The samples will be analyzed for PCBs as Aroclors and as congeners. Samples will be collected using electroshock equipment. A boat may be used for sampling if necessary as dictated by stream conditions.

SulTRAC will collect surface water, groundwater, and sediment samples from each of the three project sites listed above. The samples will be analyzed for PCBs as Aroclors. Field notes will be recorded in a log book and field photographs will be taken.

Health and Safety Approver Comments or Additional Instructions: Review Creek Sediment Sampling AHA if needed. While on or near the water, a safety watch person shall be posted on the bank with a safety line to assist with rescue and/or extraction of personnel wading in the river. Chest waders should be used for all wading. Decontamination should be thorough. Ensure that all equipment, reusable PPE, waders, boots, etc. and the exterior of all sample bottles and glassware are decontaminated prior to leaving the site. Avoid contact with dead fish to the extent practicable and NEVER without PPE (i.e. gloves, safety glasses).

Notify your Safety Manager if you are splashed by, submerged in, or ingest any surface water. Maintain a supply of water for eyewash, hand washing, and personal hydration. Use insect repellent and sunscreen as necessary.

Shipping Dangerous Goods requires training. We can prepare the shipments, but may need to deliver samples or use Cordell/Burns for assistance.

Health and Safety Plan Approver Signature:



Date: 10-05-2015

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.

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

Initial Isolation Distance: This zone should extend in all directions; 660 feet for unknown hazards and 0.5 mile for tanker truck or rail car incidents.

NOTE: Keep a maximum distance away for unknown sites until the identity of the materials is determined.

Subsequent Isolation and Protection Action Zones Based on Air Monitoring Results:

NOTE: Distance at sites with unknown hazards should be increased, if necessary, based on air monitoring results.

Investigation-Derived Waste will be disposed of IAW the Work Plan

Wind Speed and Direction (Approach from upwind)	Temperature (°F)	Relative Humidity (%)	Probability of Precipitation (%)	Weather Forecast (such as partly cloudy, snow, etc.)
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Weather information will be captured daily when onsite and documented on Daily Tailgate form or in field logbook

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 checked="" type="checkbox"/> Overhead utilities	<input checked="" type="checkbox"/> Energized electrical systems
<input type="checkbox"/> Onsite laboratory	<input checked="" type="checkbox"/> Buried Utilities	<input checked="" type="checkbox"/> Portable hand tool use
<input 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 type="checkbox"/> Unknown or poorly characterized chemical hazards	<input checked="" type="checkbox"/> Uneven, muddy, rugged terrain	<input type="checkbox"/> Portable fire extinguisher use
<input 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 materiel	<input type="checkbox"/> Wood or metal ladder use	<input type="checkbox"/> Scientific diving operations
<input type="checkbox"/> Compressed Gas Cylinders	<input type="checkbox"/> Dangerous goods shipped by air	<input type="checkbox"/> Injury and Illness Prevention Program (California only)
<input 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 checked="" type="checkbox"/> Working over or near water
<input checked="" type="checkbox"/> Heat stress	<input type="checkbox"/> High noise	<input type="checkbox"/> Mold
<input checked="" type="checkbox"/> Cold stress	<input type="checkbox"/> Grinding operations	<input type="checkbox"/> <i>Other (insert)</i>

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"/> Alconox or Liquinox | <input type="checkbox"/> Calibration gas (Methane) | <input type="checkbox"/> Hydrogen gas | <input type="checkbox"/> Isopropyl alcohol |
| <input type="checkbox"/> Hydrochloric acid (HCl) | <input type="checkbox"/> Calibration gas (Isobutylene) | <input type="checkbox"/> Household bleach (NaOCl) | <input type="checkbox"/> HazCat Kit |
| <input type="checkbox"/> Nitric acid (HNO ₃) | <input type="checkbox"/> Calibration gas (Pentane) | <input type="checkbox"/> Sulfuric acid (H ₂ SO ₄) | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Sodium hydroxide (NaOH) | <input type="checkbox"/> Calibration gas (4-gas mixture) | <input type="checkbox"/> Eyewash solution | <input type="checkbox"/> 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 4-03 Demolition and Decontamination
- 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
- 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 5-30 Laboratory Soil Testing Safe Work Practices

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 Documentation and Oversight Near Drill Rigs
- Backpack Electrofishing
- Sediment Sampling
- Groundwater sampling
- Monitoring Well Sampling (Bailing)
- Fish Filleting

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 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)
PCBs	58 ppb ^a (groundwater) >50 ppm ^b (sediment) 20 ppb (surface water) 42 ppm (fish tissue)	PEL = 0.5 mg/m ³ REL = 0.001 mg/m ³ TLV = 0.5 mg/m ³ [Skin] Hazard <input checked="" type="checkbox"/>	5 mg/m ³	Noncombustible liquid	Skin and eyes: acne, hyperpigmentation of skin and nails, eye discharges, and swelling of the upper eyelids Inhalation and ingestion: fever, hearing difficulty, muscle spasms, headache, vomiting, diarrhea, and liver damage	NA
		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"/>				
		PEL = REL = TLV = [Skin] Hazard <input type="checkbox"/>				

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

^B American Conference of Governmental Industrial Hygienists (ACGIH). "Threshold Limit Values and Biological Exposure Indices for 2012."

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/m³ = 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

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 ¹		Date of Activities
	Primary	Contingency	
1 In collaboration with IDEM, SulTRAC will collect fish samples from creeks surrounding Lemon Lane Landfill, Neal's Landfill, and Bennett's Dump. IDEM will use electroshocking equipment and SulTRAC will process (fillet) fish samples for shipment to analytical laboratory. Should IDEM not be available to assist with electroshocking activities, SulTRAC and AECOM will perform all sampling activities. Fish samples will be placed in Ziploc bags, frozen overnight, then packed and shipped in coolers on bagged, wet ice for overnight delivery to TestAmerica, Inc. in Pittsburgh, Pennsylvania for analysis.	<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 type="checkbox"/> C <input type="checkbox"/> D	October 2014 through June 2016
2 Collect surface water, sediment, and groundwater (from existing monitoring wells) samples.	<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 type="checkbox"/> C <input type="checkbox"/> D	May 2014 through June 2016
3 RA oversight (work assignment 165)	<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 type="checkbox"/> C <input type="checkbox"/> D	Through March 2016

Site Personnel and Responsibilities (include subcontractors):

Employee Name and Office Code / Location	Task(s)	Responsibilities
Jeffrey Lifka	1-2	<ul style="list-style-type: none"> 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.
Jeffrey Lifka	1-2-3	<ul style="list-style-type: none"> 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
Dave Franc, Adam Peterca	1-2-3	<ul style="list-style-type: none"> 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. Alternate Site Safety Coordinator (if any)
Dave Franc, Kristi Root, Bethany Hand, Andrew Kleist, Rob Kondreck, Adam Peterca, Lance Summers, Matt Villicana	1-2-3	<ul style="list-style-type: none"> 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.
AECOM Technical Services, Inc. AECOM SSC: John Bassett (812) 327-8074	1-2-3	<ul style="list-style-type: none"> Tetra Tech-hired subcontractor personnel on site (subcontract SSC is John Bassett): 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. Daily tailgate meetings for project will occur at AECOM's local office.

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: N/A Cartridge type (if applicable): N/A CPC material: N/A Glove material(s): Nitrile, Cut-resistant and stainless steel reinforced gloves for filleting fish. Boot material: Steel-toe and shank work boot Other: Hardhat, safety glasses, safety vest, ear plugs, Type 2 or greater personal flotation device, rubber waders	NA	Level C is NOT Authorized for this project
2	D	Respirator type: N/A Cartridge type (if applicable): N/A CPC material: N/A Glove material(s): Nitrile Boot material: Steel-toe and shank work boot Other: Hardhat, safety glasses, safety vest, ear plugs, personal flotation device when near water	NA	Level C is NOT Authorized for this project
3	D	Respirator type: N/A Cartridge type (if applicable): N/A CPC material: N/A Glove material(s): Nitrile Boot material: Steel-toe and shank work boot Other: Hardhat, safety glasses, safety vest, ear plugs, personal flotation device when near water	NA	Level C is NOT Authorized for this project

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 type="checkbox"/> Combustible gas indicator model:	<input type="checkbox"/> 1	0 to 10% LEL	Monitor; evacuate if confined space	
	<input type="checkbox"/> 2	10 to 25% LEL	Potential explosion hazard; notify SSC	
	<input type="checkbox"/> 3			
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5	>25% LEL	Explosion hazard; interrupt task; evacuate site; notify SSC	
<input type="checkbox"/> Oxygen meter model:	<input type="checkbox"/> 1	>23.5% Oxygen	Potential fire hazard; evacuate site	
	<input type="checkbox"/> 2	23.5 to 19.5% Oxygen	Oxygen level normal	
	<input type="checkbox"/> 3			
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5	<19.5% Oxygen	Oxygen deficiency; interrupt task; evacuate site; notify SSC	
<input type="checkbox"/> Photoionization detector model: <input type="checkbox"/> 11.7 eV <input type="checkbox"/> 10.6 eV <input type="checkbox"/> 10.2 eV <input type="checkbox"/> 9.8 eV <input type="checkbox"/> Other (specify): _____	<input type="checkbox"/> 1	Specify:	Specify:	
	<input type="checkbox"/> 2			
	<input type="checkbox"/> 3			
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5			
<input type="checkbox"/> Detector tube models:	<input type="checkbox"/> 1	Specify:	Specify:	
	<input type="checkbox"/> 2			
	<input type="checkbox"/> 3			
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5			
<input type="checkbox"/> Other (specify):	<input type="checkbox"/> 1	Specify:	Specify:	
	<input type="checkbox"/> 2			
	<input type="checkbox"/> 3			
	<input type="checkbox"/> 4			
	<input type="checkbox"/> 5			

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: Telephone No.																																
<p>OSHA-Regulated Chemicals*: <i>Check any present on the job site in any medium (air, water, soil)</i></p> <p><input checked="" type="checkbox"/> No chemicals below are located on the job site</p> <p><input type="checkbox"/> Friable Asbestos</p> <p><input type="checkbox"/> Silica, crystalline</p> <p><input type="checkbox"/> alpha-Naphthylamine</p> <p><input type="checkbox"/> Methyl chloromethyl ether</p> <p><input type="checkbox"/> 3,3'-Dichlorobenzidine (and its salts)</p> <p><input type="checkbox"/> bis-Chloromethyl ether</p> <p><input type="checkbox"/> beta-Naphthylamine</p> <p><input type="checkbox"/> Benzidine</p> <p><input type="checkbox"/> 4-Aminodiphenyl</p> <p><input type="checkbox"/> Ethyleneimine</p> <p><input type="checkbox"/> beta-Propiolactone</p> <p><input type="checkbox"/> 2-Acetylaminoflourene</p> <p><input type="checkbox"/> 4-Dimethylaminoazobenzene</p> <p><input type="checkbox"/> N-nitrosomethylamine</p> <p><input type="checkbox"/> Vinyl chloride</p> <p><input type="checkbox"/> Inorganic arsenic</p> <p><input type="checkbox"/> Lead</p> <p><input type="checkbox"/> Chromium (VI)</p> <p><input type="checkbox"/> Cadmium</p> <p><input type="checkbox"/> Benzene</p> <p><input type="checkbox"/> Coke oven emissions</p> <p><input type="checkbox"/> 1,2-Dibromo-3-chloropropane</p> <p><input type="checkbox"/> Acrylonitrile</p> <p><input type="checkbox"/> Ethylene oxide</p> <p><input type="checkbox"/> Formaldehyde</p> <p><input type="checkbox"/> Methylenedianiline</p> <p><input type="checkbox"/> 1,3-Butadiene</p> <p><input type="checkbox"/> Methylene chloride</p> <p> </p> <p>* NOTE: Many states, including California and New Jersey, have chemical-specific worker protection requirements and standards for many chemicals and known or suspected carcinogens.</p>	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:70%;">WorkCare and Incident Intervention</td> <td style="width:30%; text-align: right;">888.449.7787, or 800.455.6155</td> </tr> <tr> <td>Tetra Tech EMI 24-hour Anonymous Hazard Reporting Line</td> <td style="text-align: right;">866.383.8070</td> </tr> <tr> <td>U.S. Coast Guard National Response Center</td> <td style="text-align: right;">800.424.8802</td> </tr> <tr> <td>InfoTrac</td> <td style="text-align: right;">800.535.5053</td> </tr> <tr> <td>Poison Control</td> <td style="text-align: right;">800.222.1222</td> </tr> <tr> <td>Fire department</td> <td style="text-align: right;">911</td> </tr> <tr> <td>Police department</td> <td style="text-align: right;">911</td> </tr> </table> <p>Personnel Call-Down List:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;">Job Title or Position:</th> <th style="width:30%;">Name</th> <th style="width:35%;">Cell Phone:</th> </tr> </thead> <tbody> <tr> <td>Regional Safety Officer</td> <td>Chris Draper</td> <td style="text-align: right;">615.969.1334</td> </tr> <tr> <td>Project Manager:</td> <td>Jeffrey Lifka</td> <td style="text-align: right;">312-201-7491</td> </tr> <tr> <td>Field Team Leader:</td> <td>Adam Peterca</td> <td style="text-align: right;">312-201-7768</td> </tr> <tr> <td>Site Safety Coordinator (SSC):</td> <td>Adam Peterca</td> <td style="text-align: right;">312-201-7768</td> </tr> <tr> <td>Subcontractor SSC:</td> <td>John Bassett, AECOM</td> <td style="text-align: right;">812-327-8074</td> </tr> </tbody> </table> <hr/> <p>Medical and Site Emergencies:</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: IU Health Bloomington Hospital Address: 601 West 2nd Street Bloomington, IN 47403</p> <p>General Phone: (812) 353-5252 Emergency Phone: 911 Ambulance Phone: 911</p> <p>Hospital called to verify emergency services are offered? 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><u>Route to Hospital:</u> <u>From Neal's Landfill:</u></p> <ol style="list-style-type: none"> 1) Starting on West 3rd St, go east - go 3.7 mi. 2) Veer right to continue on West 3rd St - go 0.1 mi 3) Continue on S Adams St - go 0.1 mi 4) Continue on S Patterson Dr - go 0.2 mi 5) Turn left onto West 2nd St – go 0.5 mi 6) Arrive at IU Health Bloomington Hospital <p>Directions from each specific sampling location will be supplied during daily tailgate meetings.</p>	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	Job Title or Position:	Name	Cell Phone:	Regional Safety Officer	Chris Draper	615.969.1334	Project Manager:	Jeffrey Lifka	312-201-7491	Field Team Leader:	Adam Peterca	312-201-7768	Site Safety Coordinator (SSC):	Adam Peterca	312-201-7768	Subcontractor SSC:	John Bassett, AECOM	812-327-8074
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Note: This page must be posted on site.

Decontamination Procedures		Emergency Response Planning
<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>Personnel Decontamination</p> <p>Level D Decon - <input type="checkbox"/> Wet <input checked="" type="checkbox"/> Dry</p> <p>Level C Decon - <input type="checkbox"/> Wet <input 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>Equipment Decontamination</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>Respirator Decontamination</p> <p>Respirators are decontaminated in compliance with SWP 5-27 and should be included with this HASP.</p> <p>Waste Handling for Decontamination</p> <p>Procedures for decontamination waste disposal meet all applicable local, state, and federal regulations.</p>	<p>Decontamination Equipment</p> <p><input type="checkbox"/> Washtubs</p> <p><input checked="" type="checkbox"/> Buckets</p> <p><input checked="" type="checkbox"/> Scrub brushes</p> <p><input type="checkbox"/> Pressurized sprayer</p> <p><input checked="" type="checkbox"/> Detergent [Alconox or Liquinox]</p> <p><input type="checkbox"/> Solvent [Type]</p> <p><input type="checkbox"/> Household bleach solution</p> <p>Concentration/Dilution: _____</p> <p><input type="checkbox"/> Deionized water</p> <p><input type="checkbox"/> Disposable sanitizer wipes</p> <p><input type="checkbox"/> Facemask sanitizer powder</p> <p><input type="checkbox"/> Wire brush</p> <p><input type="checkbox"/> Spray bottle</p> <p><input type="checkbox"/> Tubs / pools</p> <p><input type="checkbox"/> Banner/barrier tape</p> <p><input type="checkbox"/> Plastic sheeting</p> <p><input type="checkbox"/> Tarps and poles</p> <p><input checked="" type="checkbox"/> Trash bags</p> <p><input type="checkbox"/> Trash cans</p> <p><input type="checkbox"/> Duct tape</p> <p><input checked="" type="checkbox"/> Paper towels</p> <p><input type="checkbox"/> Folding chairs</p> <p><input type="checkbox"/> Other</p>	<p>In the event of an emergency that necessitates evacuation of a work task area or the site, the following procedures will take place.</p> <ul style="list-style-type: none"> • 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. <p>In the event of a severe spill or a leak, site personnel will follow the procedures listed below.</p> <ul style="list-style-type: none"> • 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. <p>In the event of severe weather, site personnel will follow the procedures listed below.</p> <ul style="list-style-type: none"> • 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 information on both. <p>All work-related incidents must be reported. According to TtEMI's reporting procedures, for non-emergency incidents you should:</p> <ul style="list-style-type: none"> • Notify WorkCare and Incident Intervention at 888.449.7787, or 800.455.6155 • Notify your Project Manager or Regional Safety Officer (RSO) via phone immediately. • 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.

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

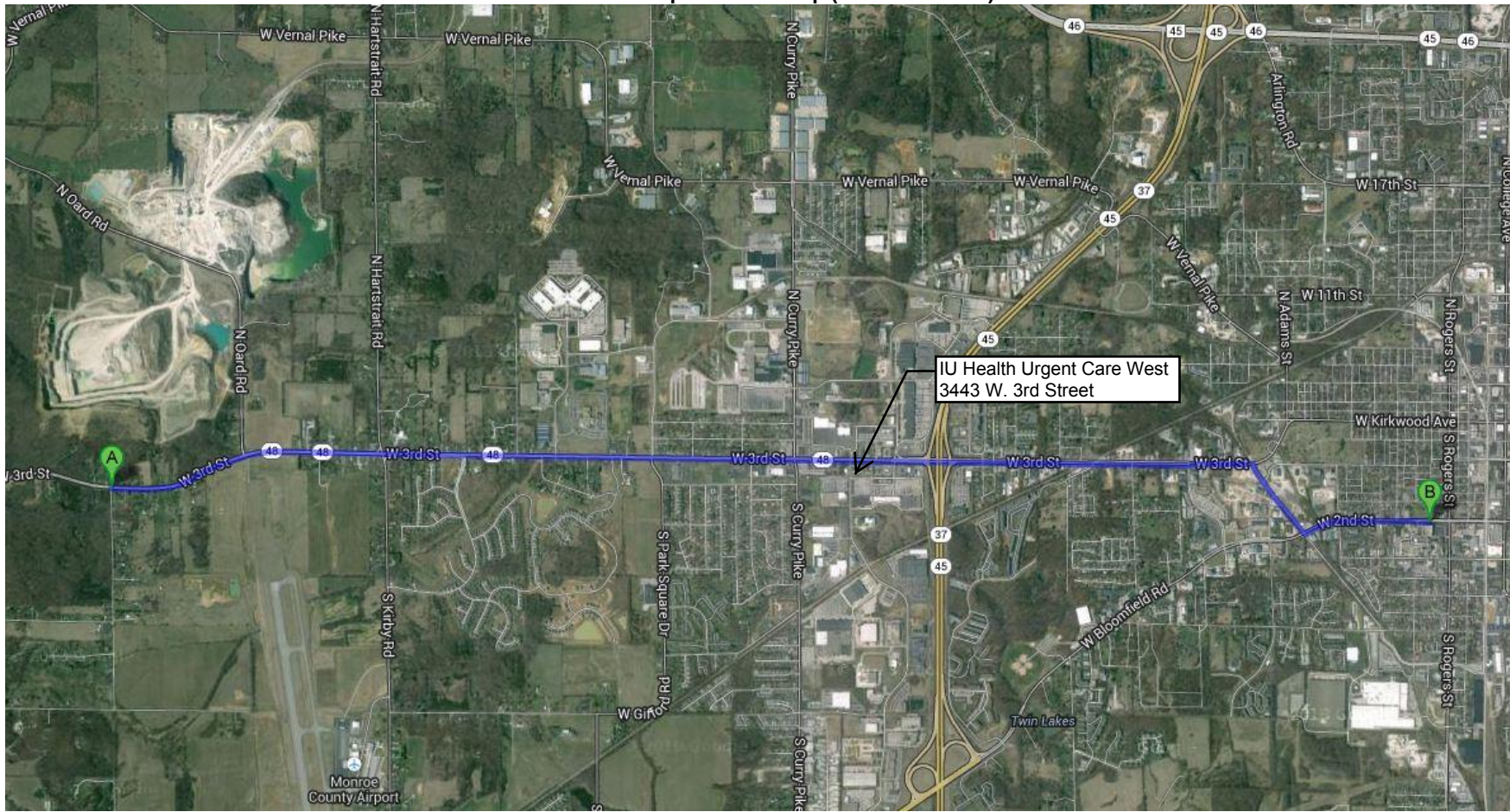


CBS MULTI-SITES
SITE LOCATIONS
MONROE COUNTY, INDIANA

FIGURE 1
SITE LOCATIONS



Hospital Route Map (attach or insert):



Route to Hospital: From Neal's Landfill -Conard's Branch/Richland Creek sampling location B :

- 1) Starting on West 3rd St, go east - go 3.7 mi.
- 2) Veer right to continue on West 3rd St - go 0.1 mi
- 3) Continue on S Adams St - go 0.1 mi
- 4) Continue on S Patterson Dr - go 0.2 mi
- 5) Turn left onto West 2nd St – go 0.5 mi
- 6) Arrive at IU Health Bloomington Hospital

Note: Additional maps from all sampling locations to IU hospital are included after AHAs and LR-24 backpack unit specifications at end of text. IU Health Urgent Care West may also be used as an alternate emergency treatment location at 3443 W. 3rd Street as shown above on this map (not included in subsequent maps). 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.: 103-TATA-05ZZ

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

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
Jeffrey Lifka	Project Manager		
Jeffrey Lifka	Field Team Leader		
Dave Franc/Adam Peterca	Site Safety Coordinator		
John Bassett	Subcontractor SSC		

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.



VOLUNTARY PROTECTION PROGRAM



Management Leadership

Lead by example. Good managers recognize the benefits of a strong safety program and ensure that their personnel and subcontractors have the right tools, equipment, and attitude to work safely.

Some areas where effective management leadership for safety can be demonstrated include:

- Provide visible safety leadership - start meetings with a safety topic, integrate safety into planning, scheduling, and budgeting processes, take personal action to resolve safety issues.
- Become involved in incident reporting, investigation, corrective action - share lessons learned.
- Include subcontractors in your safety program and oversee their work.

Employee Involvement

Get involved! Take personal action and work directly with your supervisor daily to identify, control, or eliminate potential safety hazards.

Other ways to become involved in the safety program and improve work conditions include:

- Initiate hazard reports to identify hazards, suggest improvements, and recognize safe behaviors
- Participate in safety meetings and worksite safety inspections (daily, weekly, monthly, and quarterly)
- Participate in incident reports, investigations, corrective actions, and Lessons Learned

Worksite Analysis

The process of identifying and evaluating potential hazards is a critical element in achieving zero incidents and creating low risk and hazard-free work areas.

Worksite analysis methods used to identify and evaluate potential hazards include:

- Safety inspections (daily, weekly, monthly, and quarterly)
- Develop or review safe work procedures, AHA's, and the HASP
- Monitoring for air quality, heat stress, noise, ergonomics and other job hazards

Hazard Prevention and Control

Eliminating hazards from your job, preventing new hazards, and controlling known hazards are fundamental parts of the projects safety program.

Important points include:

- Control hazards by:
 - Installing and maintaining **Engineering Controls**
 - Following **Administrative/Work Practice Controls** (HASP, AHAs, and safe work practices)
 - Specifying and wearing **Personal Protective Equipment** where needed
- Perform integrated safety reviews for new or modified work tasks
- Consult with qualified medical and safety professionals as needed

Safety and Health Training

Effective safety training is an important element in incident prevention. Remember, if you are unfamiliar with the work or feel that you don't have the necessary training, speak up and notify your team leader or project manager.

Safety training methods that may be used at the project include:

- New employee orientation, including HASP and task-specific training
- Project meetings, daily briefings, and/or task briefings
- Lessons learned and monthly safety communications

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?		
		Yes	No	NA
Health and Safety Plan Requirements				
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?		
		Yes	No	NA
Personal Protection				
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, Inc.

Site Documentation and Oversight Near Drill Rigs

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, Inc. 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
<p><u>Task Steps</u> Observe Near Drill Rigs</p>	<p><u>Potential Hazards</u> NOISE HAZARD SLIP/TRIP/FALL</p> <p>STRUCK BY DRILL RIG</p> <p>EMPLOYEE EXPOSURE LACERATION</p>	<p><u>Critical Safety Procedures and Controls</u></p> <ul style="list-style-type: none"> • Wear hearing protection • Visually inspect the area for slippery spots or debris and correct if found • Ensure a utility locate has been conducted and that borings are a sufficient distances from marked utilities • Ensure drill rig is not operating beneath overhead power lines or other utilities. Do not stand beneath overhead utilities when drill rig is operating. • Wear steel-toed, non-skid boots in accordance with Tetra Tech policy • Ensure all debris has been removed from the path of travel • Wear hard hat and reflective safety vest • Be aware of truck/equipment traffic on the property or site • Stay within drill rig operator's field of vision whenever possible • Discuss hand signals with equipment operator(s) before commencing work • Make eye or verbal contact with equipment operators before walking around moving or potentially moving equipment • Wear safety glasses and nitrile gloves • Have a first aid kit available for small cuts • Have map showing route to hospital in vehicle
<p><u>Equipment to be Used</u></p> <ul style="list-style-type: none"> • Level D PPE (steel-toed boots, safety glasses, nitrile gloves, hard hat, reflective safety vest) • First aid kit & eye wash 	<p><u>Inspection Requirements</u> None</p>	<p><u>Training Requirements</u></p> <ul style="list-style-type: none"> • Personal Protective Equipment • Hazardous Waste Operations and Emergency Response (40-hour and current 8-hour update) • CPR/First Aid (one employee on-site must have current CPR/First Aid training)



ACTIVITY HAZARD ANALYSIS (AHA)

Tetra Tech EM Inc.

Groundwater Sampling

Task Description

This Activity Hazard Analysis (AHA) applies to collection of grab groundwater samples. 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 safety equipment, inspections, and training.

Hazards		Actions
<u>Task Steps</u>	<u>Potential Hazards</u>	<u>Critical Safety Procedures and Controls</u>
Set up equipment at piezometer or well	SLIP/TRIP/FALL BACK STRAIN/SPRAIN	<ul style="list-style-type: none"> • Visually inspect the area for slippery spots or debris and correct if found • Wear steel-toed, non-skid boots in accordance with Tetra Tech EMI policy • Use proper lifting techniques (lift with legs not back)
Measure depth to water	EMPLOYEE EXPOSURE	<ul style="list-style-type: none"> • Use PID or FID as indicated in the site-specific APP/HASP to monitor well head and ambient air • Wear safety glasses and nitrile gloves to protect against splash
Measure and insert tube into well	LACERATION	<ul style="list-style-type: none"> • Only use retractable safety blade to cut tubing • Cut in a direction away from the face/body
Begin extracting water from well	EMPLOYEE EXPOSURE	<ul style="list-style-type: none"> • Use PID or FID as indicated in the site-specific APP/HASP to monitor well head and ambient air • Wear safety glasses and nitrile gloves
Fill sample bottles with sample material, load coolers and IDW (if appropriate) into vehicle	LACERATION	<ul style="list-style-type: none"> • Handle all glass containers carefully • Have a first aid kit on-site available for small cuts • Dispose of all broken shards immediately
Store sample containers in coolers and load onto vehicles	SLIP/TRIP/FALL BACK STRAIN/SPRAIN	<ul style="list-style-type: none"> • Ensure all debris has been removed from the path of travel • Use proper lifting techniques, including obtaining help with heavy coolers
<u>Equipment to be Used</u>	<u>Inspection Requirements</u>	<u>Training Requirements</u>
<ul style="list-style-type: none"> • Level D PPE (steel-toed boots, safety glasses, nitrile gloves) • Reflective safety vest if in areas of vehicle traffic • Retractable safety blade • First Aid Kit • PID or FID 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Safe Lifting Procedures • Personal Protective Equipment • Hazardous Waste Operations and Emergency Response (40-hour and current 8-hour update) • CPR/First Aid (one employee on-site must have current CPR/First Aid training)



ACTIVITY HAZARD ANALYSIS (AHA)

Tetra Tech EM Inc.

Monitoring Well Groundwater Sampling - Bailing

Task Description

This Activity Hazard Analysis (AHA) applies to the task listed above. It has been developed and approved by the Health and Safety Department 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 ¹
Review the sampling area and set up sampling equipment	SLIPS, TRIPS, FALLS	<ul style="list-style-type: none"> Don necessary Level D PPE, including safety-toe, non-skid boots, safety glasses, long pants, and nitrile (or similar) gloves Visually inspect the area for slippery spots or debris and correct if found
	BACK STRAIN/SPRAIN	<ul style="list-style-type: none"> Follow SWP 5-19, Safe Lifting Procedures when moving debris or other obstacles, unloading sampling equipment, and opening rusted well casing lids or stuck well caps
	BIOLOGICAL HAZARDS	<ul style="list-style-type: none"> Follow SWP 5-17, Biohazards, when opening the well casings and well boxes specifically for stinging insects, poisonous animals, or irritant vegetation
	LACERATION	<ul style="list-style-type: none"> Use leather work gloves to move open well boxes and rusty well casing lids
Perform water level/well depth measurements	HEAT/COLD-RELATED INJURY	<ul style="list-style-type: none"> Follow SWPs 5-15, Heat Stress; 5-16, Cold Stress; and 5-26, Prevention of Sun Exposure Establish appropriate work-rest schedules, provide water and sports drinks, and cool rest areas in hot weather Take necessary breaks and rest as needed
	CHEMICAL EXPOSURE	<ul style="list-style-type: none"> Don necessary Level D PPE, including safety-toe, non-skid boots, safety glasses, long pants, and nitrile (or similar) gloves Open well cap away from face to avoid potential vapors and splash Use PID or FID to monitor well for vapors in well head and breathing zone.
Purge/bail well water	LACERATION	<ul style="list-style-type: none"> Use retractable safety blade or scissors to cut bailer string Cut away from self or other personnel
	CHEMICAL EXPOSURE	<ul style="list-style-type: none"> Don necessary Level D PPE, including safety-toe, non-skid boots, safety glasses, long pants, and nitrile (or similar) gloves Empty bailer using slow, controlled motions to limit splash up at purge container
Groundwater sample collection and container handling	CHEMICAL EXPOSURE	<ul style="list-style-type: none"> Don necessary Level D PPE, including safety-toe, non-skid boots, safety glasses, long pants, and nitrile (or similar) gloves Fill sample containers slowly to avoid overflow of preserved containers
	LACERATION	<ul style="list-style-type: none"> Handle glass sample containers carefully; dispose of any broken glass shards Have a first aid kit on-site available for small cuts
	HEAT/COLD STRESS	<ul style="list-style-type: none"> Follow SWPs 5-15, Heat Stress; 5-16, Cold Stress; and 5-26, Prevention of Sun Exposure Establish appropriate work-rest schedules, provide water and sports drinks, and cool rest areas in hot weather
	BACK STRAIN/SPRAIN	<ul style="list-style-type: none"> Follow SWP 5-19, Safe Lifting Procedures when moving heavy sample coolers; obtain help as needed
Equipment to be Used <ul style="list-style-type: none"> Level D PPE (steel toed boots, long pants, safety goggles, and nitrile gloves) PID/FID First Aid Kit Sunscreen Pesticide 	Inspection Requirements <ul style="list-style-type: none"> Inspect all equipment prior to use Inspect the sampling area and remove any objects that could present a hazard 	Training Requirements <ul style="list-style-type: none"> Safe Lifting Procedures Personal Protective Equipment Hazardous Waste Operations and Emergency Response (40-hour and current 8-hour update) CPR/First Aid (one employee on-site must have current CPR/First Aid training) [CA projects require Ergonomics, Heat Stress and Injury and Illness Prevention Plan training]



ACTIVITY HAZARD ANALYSIS (AHA)

Tetra Tech EM Inc.

Sediment Sampling

Task Description

This Activity Hazard Analysis (AHA) applies to collection of sediment samples. 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 safety equipment, inspections, and training.

Hazards		Actions
<p>Task Steps</p> <p>Set up equipment at sampling location</p>	<p>Potential Hazards</p> <p>SLIP/TRIP/FALL</p> <p>BACK STRAIN/SPRAIN</p>	<p>Critical Safety Procedures and Controls</p> <ul style="list-style-type: none"> • Visually inspect the area for slippery spots or debris and correct if found • Wear steel-toed, non-skid boots in accordance with Tetra Tech EMI policy • Use proper lifting techniques (lift with legs not back)
<p>Submerge trowel at sampling location</p>	<p>BACK STRAIN/SPRAIN</p> <p>EMPLOYEE EXPOSURE</p>	<ul style="list-style-type: none"> • Wear safety glasses and nitrile gloves • Wear steel-toed, non-skid boots in accordance with Tetra Tech EMI policy • Use proper lifting techniques (lift with legs not back)
<p>Extract sediment by removing submerged trowel</p>	<p>BACK STRAIN/SPRAIN</p> <p>EMPLOYEE EXPOSURE</p>	<ul style="list-style-type: none"> • Wear safety glasses and nitrile gloves • Wear steel-toed, non-skid boots in accordance with Tetra Tech EMI policy • Use proper lifting techniques (lift with legs not back)
<p>Fill sample bottles with sample material, load coolers and IDW (if appropriate) into vehicle</p>	<p>LACERATION</p>	<ul style="list-style-type: none"> • Handle all glass containers carefully • Have a first aid kit on-site available for small cuts • Dispose of all broken shards immediately
<p>Store sample containers in coolers and load onto vehicles</p>	<p>SLIP/TRIP/FALL</p> <p>BACK STRAIN/SPRAIN</p>	<ul style="list-style-type: none"> • Ensure all debris has been removed from the path of travel • Use proper lifting techniques, including obtaining help with heavy coolers
<p>Equipment to be Used</p> <ul style="list-style-type: none"> • Level D PPE (steel-toed boots, safety glasses, nitrile gloves) • Reflective safety vest if in areas of vehicle traffic • First Aid Kit • Disposable scoop • Disposable trowel 	<p>Inspection Requirements</p> <ul style="list-style-type: none"> • None 	<p>Training Requirements</p> <ul style="list-style-type: none"> • Safe Lifting Procedures • Personal Protective Equipment • Hazardous Waste Operations and Emergency Response (40-hour and current 8-hour update) • CPR/First Aid (one employee on-site must have current CPR/First Aid training)



ACTIVITY HAZARD ANALYSIS (AHA)

Tetra Tech EM Inc.

Surface Water Sampling

Task Description

This Activity Hazard Analysis (AHA) applies to collection of surface water samples. 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 safety equipment, inspections, and training.

Hazards		Actions
Task Steps Set up equipment at sampling location	Potential Hazards SLIP/TRIP/FALL BACK STRAIN/SPRAIN	Critical Safety Procedures and Controls <ul style="list-style-type: none"> • Visually inspect the area for slippery spots or debris and correct if found • Wear steel-toed, non-skid boots in accordance with Tetra Tech EMI policy • Use proper lifting techniques (lift with legs not back)
Extract Surface Water by submerging bottleware	EMPLOYEE EXPOSURE	<ul style="list-style-type: none"> • Wear safety glasses and nitrile gloves
Fill sample bottles with sample material, load coolers and IDW (if appropriate) into vehicle	LACERATION	<ul style="list-style-type: none"> • Handle all glass containers carefully • Have a first aid kit on-site available for small cuts • Dispose of all broken shards immediately
Store sample containers in coolers and load onto vehicles	SLIP/TRIP/FALL BACK STRAIN/SPRAIN	<ul style="list-style-type: none"> • Ensure all debris has been removed from the path of travel • Use proper lifting techniques, including obtaining help with heavy coolers
Equipment to be Used <ul style="list-style-type: none"> • Level D PPE (steel-toed boots, safety glasses, nitrile gloves) • Reflective safety vest if in areas of vehicle traffic • First Aid Kit 	Inspection Requirements <ul style="list-style-type: none"> • None 	Training Requirements <ul style="list-style-type: none"> • Safe Lifting Procedures • Personal Protective Equipment • Hazardous Waste Operations and Emergency Response (40-hour and current 8-hour update) • CPR/First Aid (one employee on-site must have current CPR/First Aid training)



ACTIVITY HAZARD ANALYSIS (AHA)

Tetra Tech Inc.

Fish Sampling with Electroshock Equipment

Task Description

This Activity Hazard Analysis (AHA) applies to the collection of fish samples using electroshock equipment. The AHA contains potential hazards posed by each major step in this task, lists procedures to control hazards, and presents required safety equipment, inspections, and training.

Hazards		Actions
Task Steps	Potential Hazards	Critical Safety Procedures and Controls
Set up equipment at sampling location.	SLIP/TRIP/FALL ELECTROCUTION BACK STRAIN/SPRAIN EMPLOYEE EXPOSURE	<ul style="list-style-type: none"> Visually inspect the area for slippery spots or debris and correct if found. Wear knee high non-skid soled insulated boots on board and personal flotation devices (PFD) on board. Use proper lifting techniques (lift with legs not back). Wear gloves and safety glasses when contacting water.
Electrofishing from boats		
Deploy electroshocking equipment from boat: <ul style="list-style-type: none"> The two dip netters will stand in the boat a safe distance from the anodes. Fish will be collected with long-handled (non-conductive) dip nets. Move boat as needed to collect stunned fish that drift outside the sample area. 	SLIP/TRIP/FALL ELECTROCUTION FALLING INTO WATER WHILE COLLECTING SAMPLES EMPLOYEE EXPOSURE	<ul style="list-style-type: none"> Wear knee high non-skid soled insulated boots, rubber gloves and personal flotation devices (PFD) on board. Turn to float on your back and keep feet elevated. Extend retrieval device to the person in the water. Pull person toward and into boat. Monitor person for shock. Proceed to the nearest dock/rally point. Administer first aid, if needed, activate emergency medical services if needed. Wear gloves and polarized safety glasses when contacting water.
Backpack electrofishing (wadeable areas- backwaters, weedy areas)		
Proceed with backpack electrofishing: <ul style="list-style-type: none"> A minimum two-person crew will perform the electrofishing using backpack mounted equipment. Where there is current, fishing will proceed downstream to upstream using a side-to-side or bank-to-bank sweeping technique to maximize area coverage. One crew member will operate the electrofishing unit and the other will collect the shocked fish with a long-handled dip net. 	SLIP/TRIP/FALL ELECTROCUTION EMPLOYEE EXPOSURE	<ul style="list-style-type: none"> Visually inspect the sample area as much as possible for slippery spots or debris and correct if found. Proceed slowly feeling for sharp objects, submerged objects, or deep holes. Wear rubber chest waders with felt soles, elbow length rubber gloves, polarized sunglasses, and a PFD.



ACTIVITY HAZARD ANALYSIS (AHA)

Tetra Tech Inc.

Fish Sampling with Electroshock Equipment

Task Description

This Activity Hazard Analysis (AHA) applies to the collection of fish samples using electroshock equipment. The AHA contains potential hazards posed by each major step in this task, lists procedures to control hazards, and presents required safety equipment, inspections, and training.

Hazards	Fish Sample Processing		Actions
<ul style="list-style-type: none"> Fish will be held in separate sample location live wells and brought to the field staging area for euthanizing and packaging for transport to Microbac. Packaged fish will be placed whole into coolers containing dry ice. Each cooler will be labeled with the sample name, date and time of collection, and the samplers initials. 	SLIP/TRIP/FALL ELECTROCUTION EMPLOYEE EXPOSURE BACK STRAIN/SPRAIN	<ul style="list-style-type: none"> Wear knee high non-skid soled insulated boots on board and personal flotation devices (PFD) on board. Use proper lifting techniques (lift with legs not back) Wear nitrile gloves and safety glasses. Have a first aid kit on-site available for small cuts. Ensure all debris has been removed from the path of travel. Use proper lifting techniques, including obtaining help with heavy coolers. 	
<u>Equipment to be Used</u> <ul style="list-style-type: none"> Level D PPE (non-skid boots/shoes, safety glasses, nitrile gloves) PFD Rubber Chest Waders, rubber gloves Knee high insulated boots Non-conducting handled dip nets Electroshock equipment Reflective safety vest if in areas of vehicle traffic First Aid Kit 	<u>Inspection Requirements</u> <ul style="list-style-type: none"> Check all electroshock equipment daily before each use. 	<u>Training Requirements</u> <ul style="list-style-type: none"> Safe Lifting Procedures Personal Protective Equipment Working with electroshock equipment- SOP Hazardous Waste Operations and Emergency Response (40-hour and current 8-hour update) CPR/First Aid (one employee on-site must have current CPR/First Aid training) Site-specific training as described in the HASP with respect to hazards presented in Table 4.2 (heat/cold stress, sun exposure, biohazards, noise, working over or near water, and chemical exposure). 	

LR-24 ELECTROFISHER

BATTERY-POWERED BACKPACK ELECTROFISHER



The LR-24 Electrofisher is a rugged 24 volt battery powered electrofisher. It is suitable for extensive field work in any weather conditions. The LR-24 uses premium electronic components and circuitry housed inside a custom molded plastic case.

The LR-24 is the most advanced electrofisher ever produced. The user interface is designed to make the LR-24 quick and easy to use. This has allowed us to offer a number of special features not available on previous backpack electrofishers.



FEATURES

Quick Setup

Quick Setup will select a voltage level necessary to achieve 25 watts average power output through the water between electrodes. This setup uses a default setting of a pulsed DC waveform with a frequency of 30 Hz and a 12% duty cycle (equivalent to a 4ms pulse width). All settings can be adjusted up or down from this starting point to achieve levels necessary for fish capture. This is very useful when electrofishing in a new area and you're not sure what settings to use.

Dual Output

This feature allows the operator to set up two completely independent sets of waveforms and voltages and toggle between them in less than one second simply by releasing and pressing the anode pole switch. This can be very useful if working in waters with multiple age classes, or multiple species where the optimal settings may be quite different.

Safety Features

Emergency stop switch, twin audible alarms, tilt and immersion sensors and Anode-Out-of-Water sensor, combined with the quality of manufacture make the LR-24 the safest backpack electrofisher in the field today.



Power Limit Key and Power Limit Mode

The Power Limit Key allows the user to limit the maximum average power output. It is defaulted to 400 watts, which is the maximum average power output that the LR-24 is capable of producing. It can be changed easily to a lower limit, which can be useful if a study requires staying within a certain power level. The user can decide whether the frequency or the voltage will be automatically decreased in order not to exceed the output power at that limit.

Precise control over output settings

Voltage can be adjusted in 5 volt increments, frequency in 1 Hz increments, and duty cycle (pulse width) in 1% increments. This is very desirable given study results which indicate that fish injury rates decrease corresponding to decreases in all of these settings. Exact control of the settings allows for much greater control of the output waveforms.

Numerous waveform choices

The LR-24 can produce straight DC, pulsed DC, and Burst of Pulses (previously known as CPS waveform).

Storage locations for up to ten user selected settings

There are ten storage locations available either to pre-program desirable settings or to store settings currently in use. These storage locations are filled with Factory Default Stored Waveforms, but can be replaced one by one with settings the user prefers. These can be pre-programmed before going in the field or saved and stored while in the field. This can be very useful if a setting has been found to be very effective with a particular species, or it can be of use if a project supervisor wants to standardize sampling and provide settings for crews to use in the field. Factory default stored waveforms can be restored if desired.

LR-24 ELECTROFISHER

BATTERY-POWERED BACKPACK ELECTROFISHER

Rugged ABS Construction

Offers tough structural support in a lightweight pack-frame and integrated control box enclosure. The removable battery cover protects all cable connections from environmental conditions and wear and tear.



Suspension System

The easy-to-fit Cordura suspension harness allows for quick adjustment, making multi-user operations fast, simple and convenient. The quick release function makes it safer to operate in rough field conditions.



STANDARD EQUIPMENT

- LR-24 Backpack Electrofisher
- Adjustable suspension system

Order Number 06856

LR-24 COMBO

- LR-24 Backpack Electrofisher
- Adjustable suspension system
- 6' 2-Piece Electrode Pole
- 11" Aluminum Ring Electrode
- Rat-tail Cathode
- Two 24V 7Ah Batteries
- BC-24PS Battery Charger
- Wheeled Travel and Storage Case

Order Number 06826

CARRY CASE

LR-series travel and storage case with wheels and retractable handle.

Durable, Hard shell plastic thermoformed case with built-in wheels and TSA locking latches. ATA Rated case provides a practical solution to transporting your backpack electrofisher. These industrial cases are designed to exceed the ATA 300, category 1. Case includes custom closed-cell polyethylene foam designed to securely hold electrofisher and accessories. This case will hold a two-piece 6' pole, electrode ring, rat-tail cathode, extra battery and BC-24PS battery charger, in addition to an LR-24 or LR-20 backpack electrofisher.

These cases are fully warranted against defects in materials and craftsmanship for the life of the case to the original owner. Locks, handles and wheels are field replaceable and will be replaced at no charge.

Order Number09632



LR-24 SPECIFICATIONS

Conductivity Range	10 to 1500 microsiemens/cm ²
Input Voltage	24 VDC Nominal
Input Current	20 Amps Max.
Input Monitoring	Battery voltage and current plus fuel gauge type display for battery voltage
Output Voltage	50 to 900 Volts in 5 Volt steps
Output Current	40 Amps peak max, 4 Amps continuous at 100 Volts
Output Waveforms	Smooth DC, Pulsed DC, Burst of Pulses DC
Output Frequency	1 to 120 Hz in 1 Hz steps (Burst of Pulses frequencies up to 1000Hz)
Duty Cycle	1% to 99% in 1% steps
Waveform Storage	Save voltage, frequency, duty cycle and pulse type for 10 different waveforms
Output Power	400 Watts maximum continuous, 39,600 Watts peak
Operational Duty Cycle	40% Max. (192 seconds on 288 seconds off) at 40°C ambient 400 VA output
Overload Protection	Excessive peak current, average current, or over-temperature will shut down the unit before damage can occur. Resets automatically when condition is corrected
Output Indicator	Audio tone for 30 VDC and greater and increasing pulse rate for output power. Flashing red light. Status display for output voltage both average and peak, output current both average and peak and output power
Output On Timer	0 to 999,999 seconds, resettable via menu
Environmental Requirements	Operational altitude: -400 to 3000 meters; Relative humidity: 10% to 90% noncondensing; Operating temperature: 0° to 40° C; Storage temperature: -15° to 50° C
Construction	Sealed molded polyethylene and ABS case NEMA 4, IP 65
Safety Devices	Tilt switch: Forward 50°, backward 40°, sideways 45° all ± 10°; Immersion sensor; Electrode out of water sensor; Electrode pole switch; Emergency stop switch; Battery compartment interlock; Battery fuseable link; Quick release pack
Battery	24V, 7Ah, sealed, deep discharge with 40 A fuseable link, 12 lb (5.45 kg)
Battery Life	40 minutes continuous at 100 Watts
Size and Weight	Height: 27.5 in (69.9 cm); Width: 14.5 in (36.9 cm); Depth: 14.5 in (36.9 cm); Weight: 33 lb (17 kg) with battery

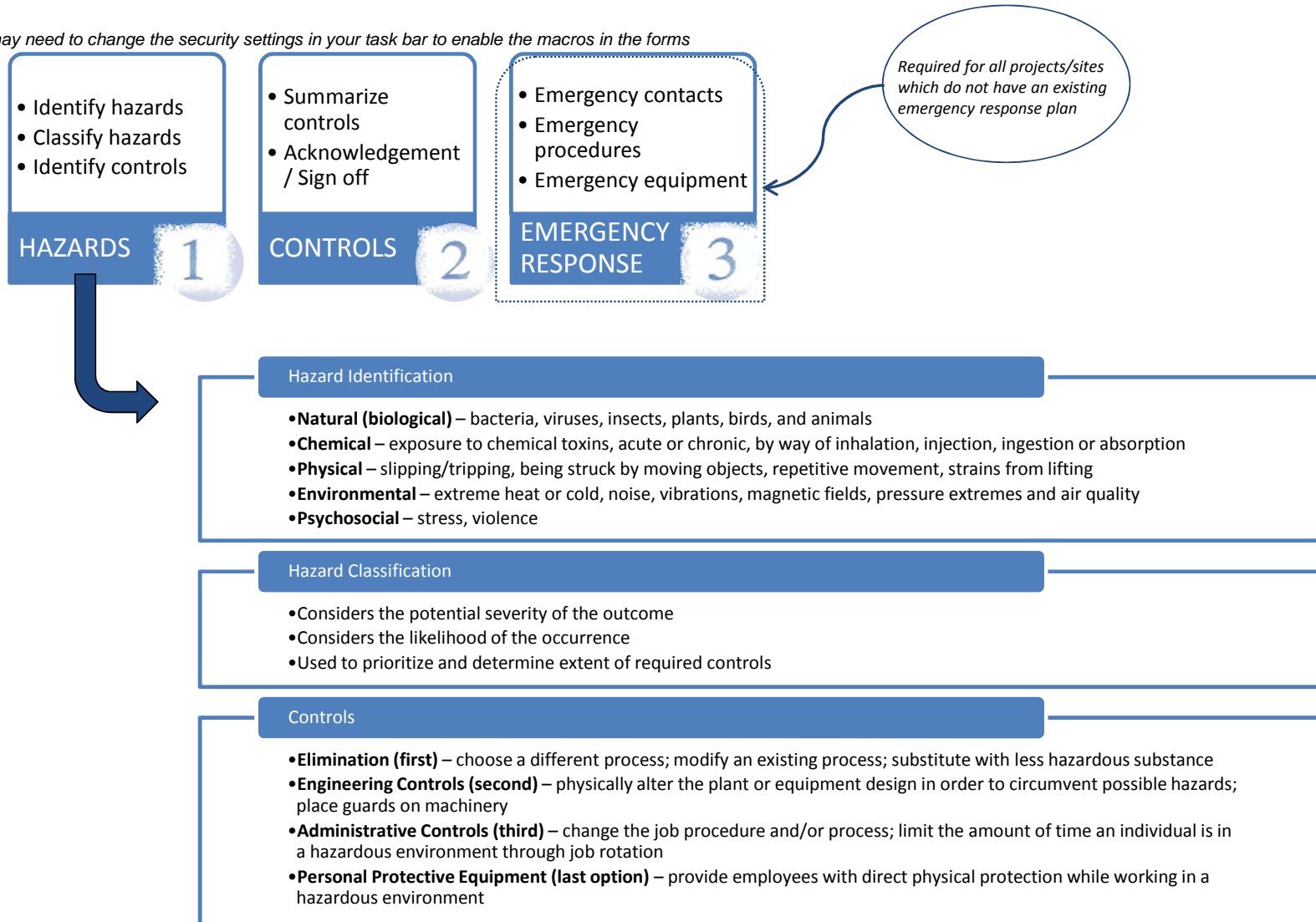
Specifications are subject to change without notice.




S3NA-209-FM TASK HAZARD ANALYSIS

This THA (worksheets 1 & 2) must be completed for all field work.

**you may need to change the security settings in your task bar to enable the macros in the forms



S3NA-209-FM TASK HAZARD ANALYSIS

	Project Name: CBS Multisite RACII Assistance		Project Number:		Client: US EPA / Tetra Tech																																											
	Supervisor: John Bassett		Project Manager: John Bassett		Location: Bloomington, IN																																											
	THA Developed By: John Bassett				Date: Oct 2014 thru Oct 2015																																											
TASK HAZARD ANALYSIS			Task Name: Preparation of fish tissue samples for laboratory submittal			Regularity of Task: One-time <input checked="" type="checkbox"/> Routine <input type="checkbox"/>																																										
Job Event Sequence <small>(List the major steps of the individual task)</small>	Hazards <small>(List primary hazards)</small>	Hazard Classification <small>(before controls)</small>				Controls <small>(List controls that AECOM will implement)</small>																																										
		Severity	Likelihood	Risk Level	Hazard Classification																																											
1 Tail gate safety briefing and review area for potential hazards	Slips, trips, falls	1	2	2	Low	Standard PPE ensemble; training, equipment																																										
2 Prepare area for cutting and sampling	Slips, trips, falls, biological, lifting, pinches	2	3	6	Medium	Standard PPE ensemble; training, equipment																																										
3 Ensure area being worked in has secondary containment	Slips, trips, falls, lifting, pinches	2	3	6	Medium	Standard PPE ensemble; training, equipment																																										
4 Cover the working surface with plastic sheeting or poly	Slips, trips, falls, lifting, pinches	2	3	6	Medium	Standard PPE ensemble; training, equipment																																										
5 Provide receptacles close by lined with appropriate liners	Slips, trips, falls, lifting	2	2	4	Low	Standard PPE ensemble; training, equipment																																										
6 Begin cutting and filleting fish for chemical tissue analysis	Slips, trips, fall, cuts to fingers and hands from knives	3	3	9	Medium	Standard PPE; training, equipment, cut-resistant gloves so spines do not penetrate skin																																										
7 Weighing and measuring fish samples	Stabing injury from fish fins	3	3	9	Medium	Standard PPE; training, equipment, cut-resistant gloves so spines do not penetrate skin																																										
8 Disposal of extra tissue	Slips, trips, falls, cuts, pinches, lifting	3	3	9	Medium	Standard PPE; training, equipment, cut-resistant gloves so spines do not penetrate skin																																										
9 Perform housekeeping	Slips, trips, falls, lifting			0		Slips, trips, falls, lifting																																										
10				0																																												
11				0																																												
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16				0																																												
17				0																																												
Hazard Classification Guidelines																																																
Severity		Likelihood of Occurrence		Hazard Classification Matrix																																												
1 Remote potential for injury, property damage/\$ loss, or env damage 2 Potential for minor first aid injury, property damage/\$ loss, or environmental damage 3 Potential for moderate personnel injuries, including medical treatment, property damage/\$ loss, environmental damage, or negative public impact 4 Potential for a serious injury, major property damage/\$ loss, serious impact to the environment, and public health 5 Catastrophic damage to people, property/equipment, environment, or public health		1 Very unlikely 2 Unlikely 3 Likely 4 Very likely 5 Certain		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2"></td> <th colspan="5">Severity</th> <td colspan="2"></td> </tr> <tr> <td rowspan="5" style="writing-mode: vertical-rl; transform: rotate(180deg);">Likelihood</td> <th>1</th> <td style="background-color: #d9ead3;">1</td> <td style="background-color: #d9ead3;">2</td> <td style="background-color: #d9ead3;">3</td> <td style="background-color: #d9ead3;">4</td> <td style="background-color: #d9ead3;">5</td> <td rowspan="5" style="background-color: #d9ead3; text-align: center;">Low</td> </tr> <tr> <th>2</th> <td style="background-color: #fff2cc;">2</td> <td style="background-color: #fff2cc;">4</td> <td style="background-color: #fff2cc;">6</td> <td style="background-color: #fff2cc;">8</td> <td style="background-color: #fff2cc;">10</td> <td rowspan="4" style="background-color: #fff2cc; text-align: center;">Medium</td> </tr> <tr> <th>3</th> <td style="background-color: #f4cccc;">3</td> <td style="background-color: #f4cccc;">6</td> <td style="background-color: #f4cccc;">9</td> <td style="background-color: #f4cccc;">12</td> <td style="background-color: #f4cccc;">15</td> </tr> <tr> <th>4</th> <td style="background-color: #f4cccc;">4</td> <td style="background-color: #f4cccc;">8</td> <td style="background-color: #f4cccc;">12</td> <td style="background-color: #f4cccc;">16</td> <td style="background-color: #f4cccc;">20</td> </tr> <tr> <th>5</th> <td style="background-color: #f4cccc;">5</td> <td style="background-color: #f4cccc;">10</td> <td style="background-color: #f4cccc;">15</td> <td style="background-color: #f4cccc;">20</td> <td style="background-color: #f4cccc;">25</td> </tr> </table> <p style="text-align: center; margin-top: 5px;">Risk Level = Likelihood x Severity</p>					Severity							Likelihood	1	1	2	3	4	5	Low	2	2	4	6	8	10	Medium	3	3	6	9	12	15	4	4	8	12	16	20	5	5	10	15	20	25
		Severity																																														
Likelihood	1	1	2	3	4	5	Low																																									
	2	2	4	6	8	10		Medium																																								
	3	3	6	9	12	15																																										
	4	4	8	12	16	20																																										
	5	5	10	15	20	25																																										

S3NA-209-FM TASK HAZARD ANALYSIS



Project Name: CBS Multisite RACII Assistance	Project Number:	Client: US EPA / Tetra Tech
Supervisor: John Bassett	Project Manager: John Bassett	Location: Bloomington, IN
THA Developed By: John Bassett		Date: Oct 2014 thru Oct 2015

SUMMARY OF CONTROLS

Task Name: Preparation of fish tissue samples for laboratory submittal Regularity of Task: One-time Routine

Personal Protective Equipment (check all that apply) **Air Monitoring (reference HASP monitoring plan)**

<input checked="" type="checkbox"/> CSA/ANSI Safety-Toed Boots (Leather/Rubber)	<input checked="" type="checkbox"/> No air monitoring required		<input type="checkbox"/> Air monitoring required (see procedures below)	
<input checked="" type="checkbox"/> CSA/ANSI Safety Glasses or Goggles	Parameter	Location/Monitoring Interval	Response/Action Levels	Response Activity
<input type="checkbox"/> CSA/ANSI-approved Hard Hat				
<input type="checkbox"/> CSA/ANSI Type II Reflective Traffic Safety Vest				
<input checked="" type="checkbox"/> Nitrile Gloves				
<input checked="" type="checkbox"/> Cut resistant gloves				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				

Required Training (associated with this THA) **Key SOPs (associated with this THA)** **Client & Other Requirements**


1 Equipment specific training (knives)			Fish tissue preparation will follow written project S&A Plan, in preparation.
2			
3			
4			
5			
6			

Acknowledgement / Signatures

Project Manager / Supervisor (signature): *JOHN BASSETT* Date: 10/6/14

Name	Signature	Company	Date	Name	Signature	Company	Date

S3NA-209-FM TASK HAZARD ANALYSIS

	Project Name: CBS Multisite RACII Assistance		Project Number:		Client: US EPA / Tetra Tech	
	Supervisor: John Bassett		Project Manager: John Bassett		Location: Bloomington, IN	
	THA Developed By: John Bassett				Date: Oct 2014 thru Oct 2015	
EMERGENCY RESPONSE PLAN		Task Name: Preparation of fish tissue samples for laboratory submittal		Regularity of Task: One-time <input checked="" type="checkbox"/> Routine <input type="checkbox"/>		
Check-in Procedures						
Check-in Times		Check-in Person		Phone Number		Cell Phone Number
8:00 am & 5:00 pm		John Bassett		812 334 8301		812 327 8074
Alternate:						
Emergency Coordinators / Key Personnel						
Name		Title		Phone Number		Cell Phone Number
John Bassett		Training in First Aid/CPR		812 334 8301		812 327 8074
John Bassett		AECOM Project Manager		812 334 8301		812 327 8074
Jeff Lifka		Tetra Tech Project Manager		321 201 7491		312 201 7491
John Bassett		Site Supervisor/Site Safety Officer		812 334 8301		812 327 8074
Dan Schillings		AECOM SH&E Manager		210 253 7567		210 601 4129
		Incident Reporting Line (BY THE END OF THE SHIFT)		1.800.348.5046		
Emergency Agencies / Public Utilities						
Name		Type		Details		Phone Number
Bloomington Police Department		Police				911
Bloomington Fire Department		Fire				911
		Ambulance				911
IU Urgent Care West/Occupational Services		Non-emergency medical treatment only		3443 East 3rd Street, Bloomington, IN		(812) 353 3443
Bloomington Hospital Emergency		Emergency medical treatment		IU Health Bloomington Hospital		(812) 353 5252
		Poison Control Center (US)				(800) 222-1222
		Pollution / Environmental (US)				(800) 292-4706
		INFOTRAC (AECOM's Account # 74984)				(800) 535-5053
Emergency Equipment & Supplies						
<input checked="" type="checkbox"/> First Aid Kit - Type: (Vehicle or Office)			<input checked="" type="checkbox"/> Eye Wash			
<input type="checkbox"/> Blankets / Survival:			<input type="checkbox"/> Spill Kit			
<input type="checkbox"/> Fire Extinguishers Type:			<input type="checkbox"/> Other:			
<input checked="" type="checkbox"/> Communication Device						
<input type="checkbox"/> Vehicle Safety Equipment						
Other Emergency Plan Details						



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Food Preparation

The Food Preparation area of a restaurant offers young workers an opportunity for developing skills in culinary art, sanitation principles, and in the use of kitchen equipment. Young workers in this area may also be exposed to the following hazards:

- [Machine Guarding](#)
 - [Knives and Cuts](#)
 - [Kitchen Equipment](#)
- [Strains and Sprains](#)
 - [Slips/Trips/Falls](#)

[Take the Quiz](#)


[Safety Poster](#)

Knives and Cuts

Potential Hazard

Young workers often help prepare foods for restaurants and are exposed to cuts while using sharp kitchen tools such as knives or cleavers.

Other sharp surfaces and equipment may also provide a cutting hazard for workers.




Possible Solutions

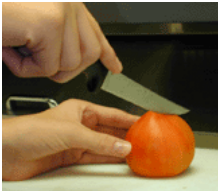
Young Worker Solutions

Employers have the primary responsibility for protecting the safety and health of their workers. Employees are responsible for following the safe work practices of their employers.

- **Handle** , use, and store knives and other sharp utensils safely.
- **Cut in** the direction away from the body.
- **Keep** your fingers and thumbs out of the way of the cutting line.
- **Use** any protective clothing provided by employer such as steel mesh or Kevlar gloves.
- **Use** a knife only for its intended purpose and use the appropriate knife for the cutting job.
- **Store** knives, saws, and cleavers in a designated storage area when not in use. Do not store the blades with the cutting edge exposed.
 - Install knife holders on work tables to prevent worker injury.
 - Equip newly purchased knives with blade guards or knuckle guards that protect the hand from slipping onto the blade.
- **Let** a falling knife fall. Do not try to catch it.



Dangerous cutting position



Cut away from the body keeping thumb out of the cutting line

- **Carry** knives with the cutting edge angled slightly away from your body, with the tip pointed down to your side.
- **Place** a knife that you are handing to someone, down on a clean surface, and let the other person pick it up.
- **Clean** the knife immediately after use or place it in a dishwasher or a container labeled "for knives only."
- **Do not** store knives and other sharp objects in sinks between periods of use.
- **Do not** touch knife blades.
- **Avoid** placing knives near the edge of a countertop.
- **Do not** talk with coworkers while using a knife. When interrupted, stop cutting and place the knife down on a secure surface. Do not try to cut while distracted.



Store knives in knife holders



Sheath storage bag

Employer Solutions

Employers have the primary responsibility for protecting the safety and health of their workers. Employees are responsible for following the safe work practices of their employers.

Follow OSHA Standards including:

- **Follow** the Personal Protective Equipment (PPE) Standard [1910.132]:
 - Assess tasks to identify potential worksite hazards and provide and ensure employee use of appropriate personal protective equipment.
 - Require employees to use appropriate hand protection when hands are exposed to hazards such as cuts and lacerations. For example, use steel mesh or Kevlar gloves when cutting. Hand Protection Standard [1910.138(a)].



Steel mesh gloves protect against blade cuts



Kevlar gloves protect against blade cuts

Consider implementing recommended safe work practices, including:

- **Allow** only experienced, trained workers to sharpen knives. This is done correctly by keeping the thumb beneath the knuckle guard rim protection on the handle of the sharpener, rather than on top of the rim where it may get cut.
- **Keep** knives sharpened and in good condition; dull knives tend to slip and may cause injuries. Tell other staff when knives are newly sharpened.
- **Protect** workers who use shake mixer blades. Remind workers to securely hold the top of the container onto the shake cup while mixing to avoid exposure to the blade.



Unsafe way to sharpen knives



Safer way to sharpen knives



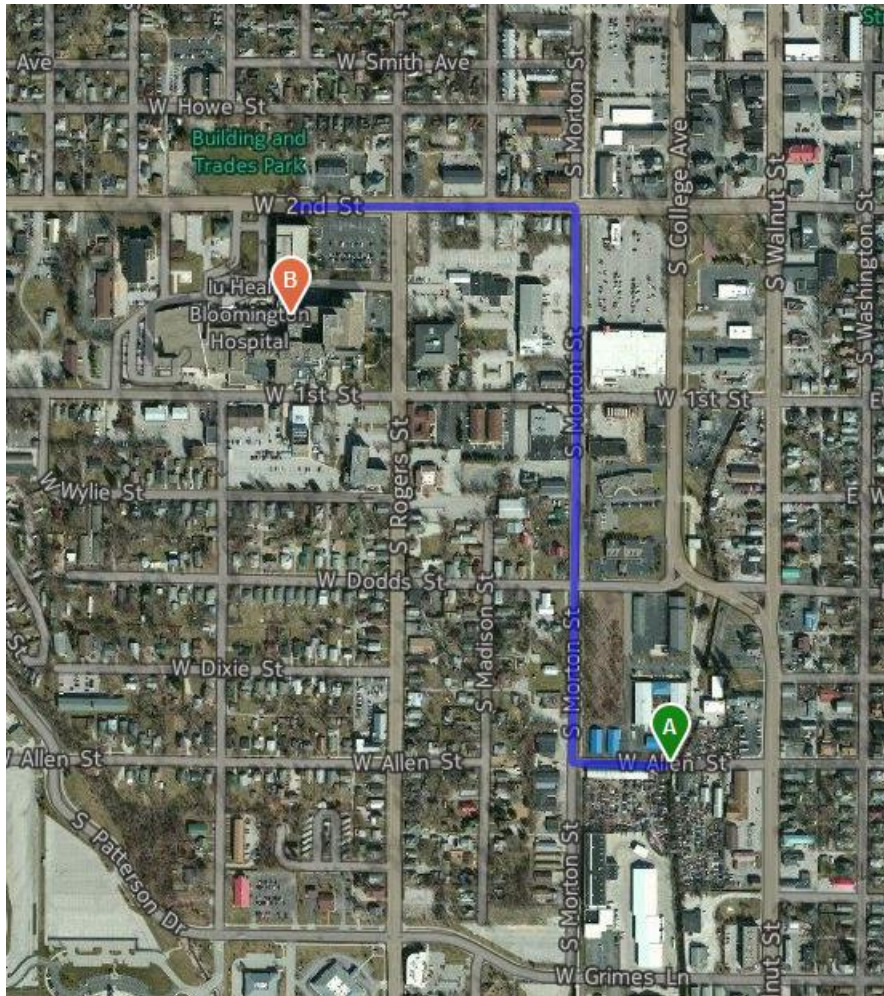
Shake mixer blade



Securely hold shake cup container on mixer blade

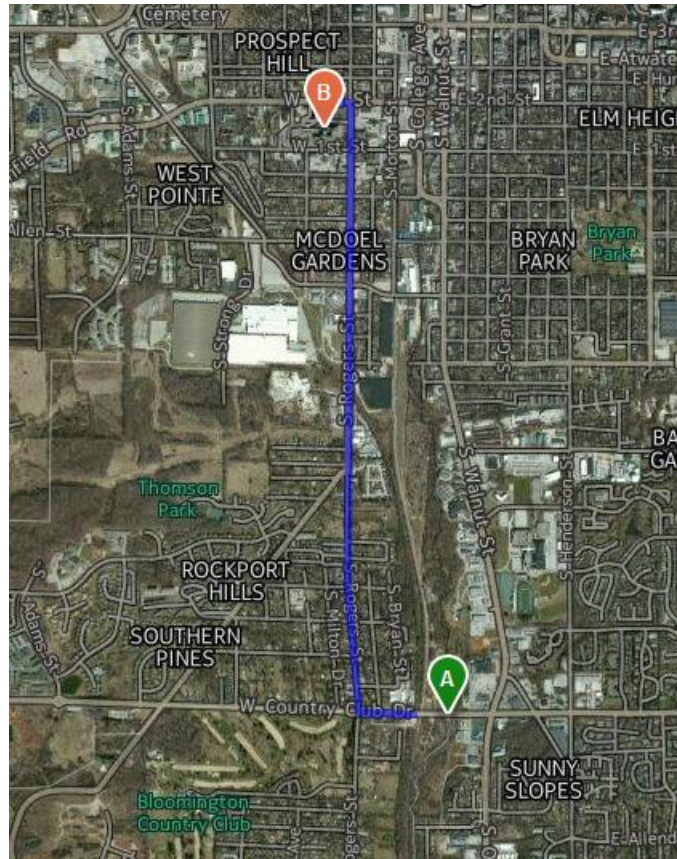
[Go on to Food Prep - Kitchen Equipment](#) ▶

Clear Creek Sampling: Allen St.



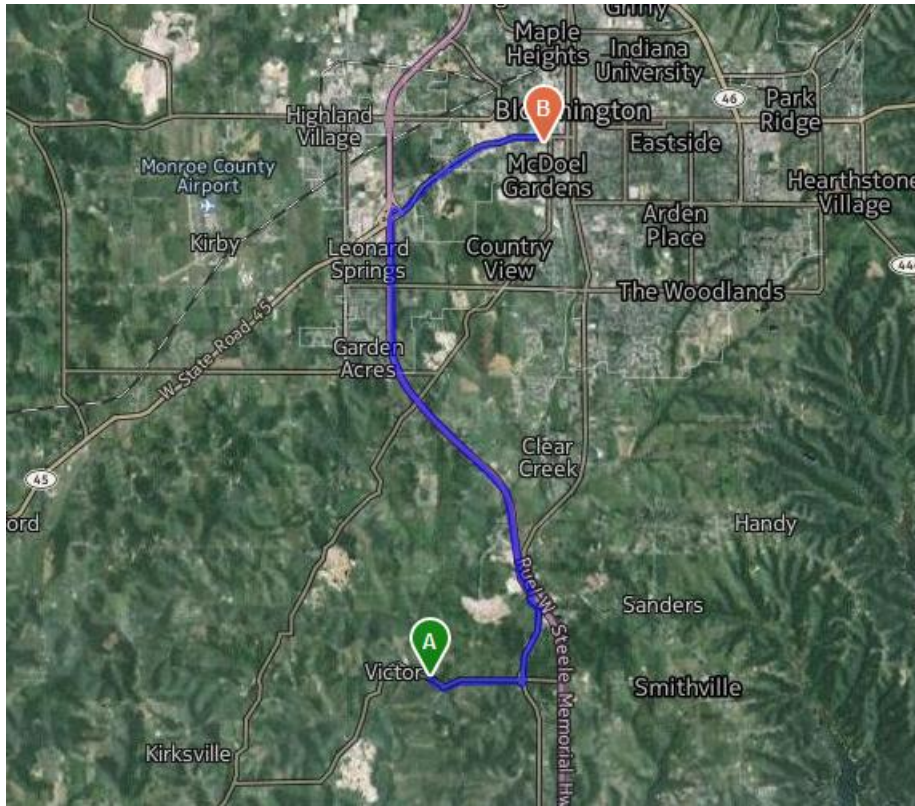
1. Head toward S Morton St on W Allen St: 347 ft/106 m
2. Turn right onto S Morton St: 0.4 mi/640 m
3. Turn left onto W 2nd St: 0.2 mi

Clear Creek Sampling: Country Club Road



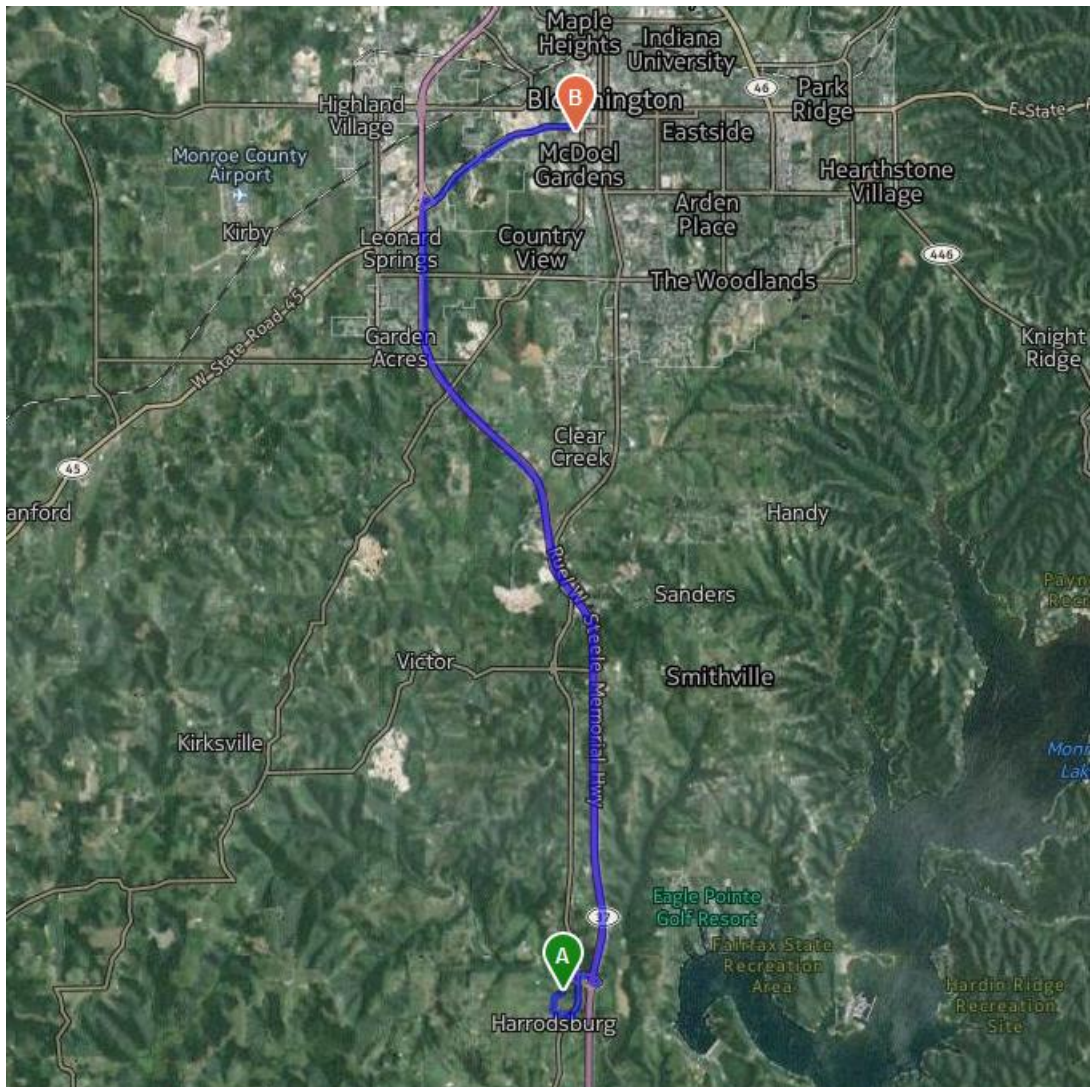
1. Head toward S Madison St on W Country Club Dr: 0.2 mi/255 m
2. Turn right onto S Rogers St: 1.7 mi/2.8 km
3. Turn left onto W 2nd St: 383 ft

Clear Creek Sampling: Fluck Mill Road



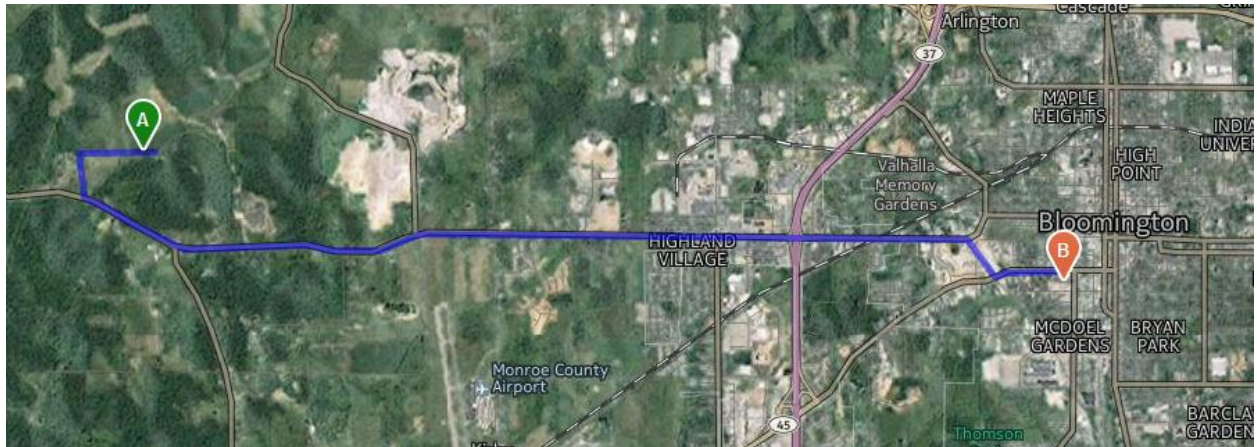
1. Head toward S Ketcham Rd on W Fluck Mill Rd: 0.2 mi/325 m
2. Turn left onto S Ketcham Rd: 0.9 mi/1.4 km
3. Bear right to stay on S Ketcham Rd: 387 ft/118 m
4. Turn left onto S Old IN-37: 1.1 mi/1.8 km
5. Turn left onto IN-37 N: 4.8 mi/7.8 km
6. Take ramp toward IN-45 S/Second St/Bloomfield Rd: 0.3 mi/457 m
7. Turn left onto W Bloomfield Rd (IN-45 N) toward Bloomington: 1.6 mi/2.6 km
8. Continue on W 2nd St: 0.3 mi

Clear Creek Sampling: Gore Road



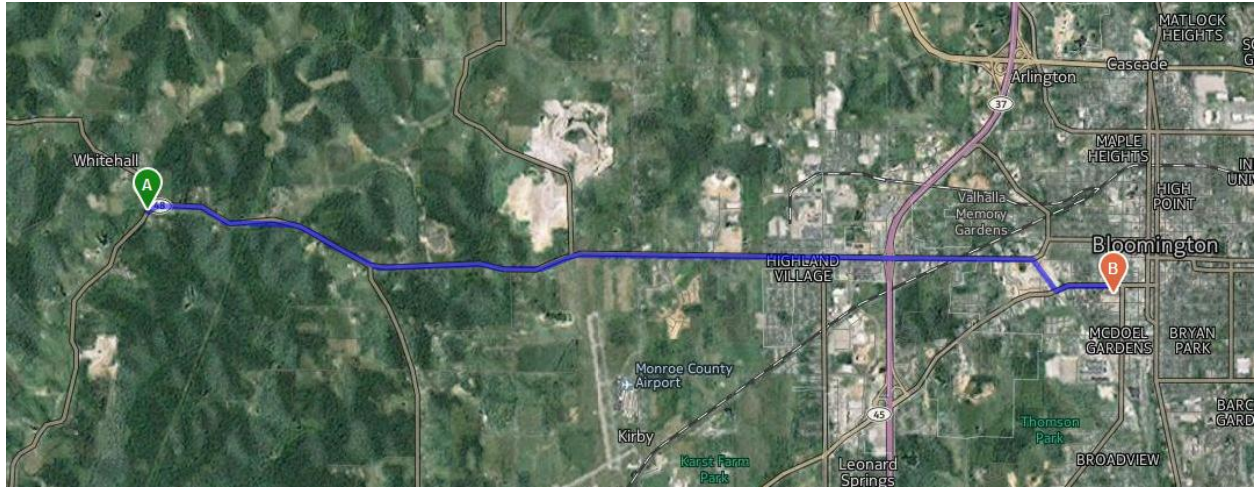
1. Head toward W Hobart Rd on S Gore Rd: 0.3 mi/464 m
2. Bear left onto W Hobart Rd: 0.2 mi/354 m
3. Bear left onto S Old IN-37: 0.4 mi/591 m
4. Turn left onto W Monroe Dam Rd: 0.5 mi/778 m
5. Take ramp onto IN-37 N: 9.7 mi/15.5 km
6. Take ramp toward IN-45 S/Second St/Bloomfield Rd: 0.3 mi/457 m
7. Turn left onto W Bloomfield Rd (IN-45 N) toward Bloomington: 1.6 mi/2.6 km
8. Continue on W 2nd St: 0.3 mi

Conard's Branch/Richland Creek Sampling: Richland Creek (D)



1. Head toward IN-48 on W Vernal Pike: 0.8 mi/1.3 km
2. Turn left onto IN-48: 5.0 mi/8.0 km
3. Continue on W 3rd St: 1.0 mi/1.6 km
4. Turn right onto S Patterson Dr: 0.3 mi/504 m
5. Turn left onto W 2nd St: 0.5 mi

Conard's Branch/Richland Creek Sampling: Richland Creek (F)



1. Head toward IN-48 on IN-43: 439 ft/134 m
2. Turn right onto IN-48: 6.1 mi/9.9 km
3. Continue on W 3rd St: 1.0 mi/1.6 km
4. Turn right onto S Patterson Dr: 0.3 mi/504 m
5. Turn left onto W 2nd St: 0.5 mi