

<b>Site Name:</b> Radiation – Kelley Instruments	<b>Site Contact:</b> James Johnson (EPA OSC)	<b>Telephone:</b> 816.516.4954 (cell)
<b>Location:</b> 1024 South Santa Fe Avenue, Wichita, KS	<b>Client Contact:</b> James Johnson (EPA OSC)	<b>Telephone:</b> 816.516.4954 (cell)
<b>EPA ID No.</b>	<b>Prepared By:</b> Rob Monnig	<b>Date Prepared:</b> June 8, 2009
<b>Project No.</b> 103DI9004L090176 T000	<b>Dates of Activities:</b> May 10 – 14, 2010	<b>Emergency Response</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

<b>Objectives:</b> Conduct real-time monitoring of soils for gamma radiation and interior surfaces for alpha, beta, and gamma activity. Collect soils samples for laboratory analysis of radionuclides using hand tools. Collect wipe samples of removable surface contamination within interiors of buildings.	<b>Site Type:</b> <i>Check as many as applicable.</i> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Active</td> <td><input type="checkbox"/> Landfill</td> <td><input type="checkbox"/> Residential</td> </tr> <tr> <td><input type="checkbox"/> Inactive</td> <td><input type="checkbox"/> Railroad</td> <td><input checked="" type="checkbox"/> Industrial</td> </tr> <tr> <td><input type="checkbox"/> Secured</td> <td><input type="checkbox"/> Uncontrolled</td> <td><input type="checkbox"/> Urban</td> </tr> <tr> <td><input checked="" type="checkbox"/> Unsecured</td> <td><input checked="" type="checkbox"/> Controlled</td> <td><input type="checkbox"/> Other (<i>specify</i>)</td> </tr> </table>	<input checked="" type="checkbox"/> Active	<input type="checkbox"/> Landfill	<input type="checkbox"/> Residential	<input type="checkbox"/> Inactive	<input type="checkbox"/> Railroad	<input checked="" type="checkbox"/> Industrial	<input type="checkbox"/> Secured	<input type="checkbox"/> Uncontrolled	<input type="checkbox"/> Urban	<input checked="" type="checkbox"/> Unsecured	<input checked="" type="checkbox"/> Controlled	<input type="checkbox"/> Other ( <i>specify</i> )
<input checked="" type="checkbox"/> Active	<input type="checkbox"/> Landfill	<input type="checkbox"/> Residential											
<input type="checkbox"/> Inactive	<input type="checkbox"/> Railroad	<input checked="" type="checkbox"/> Industrial											
<input type="checkbox"/> Secured	<input type="checkbox"/> Uncontrolled	<input type="checkbox"/> Urban											
<input checked="" type="checkbox"/> Unsecured	<input checked="" type="checkbox"/> Controlled	<input type="checkbox"/> Other ( <i>specify</i> )											


  

**Project Scope of Work**  

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) has been tasked by the U.S. Environmental Protection Agency (EPA) Region 7 Superfund Division to conduct a Removal Site Evaluation (RSE) to determine the extent of radium contamination (and associated radionuclides) in surface and subsurface soils, groundwater, and interior buildings at the Radiation – Kelley Instruments, Inc. (Kelley Instruments) site in Wichita, Kansas. An aircraft instrument repair shop operated on the property from as early as 1971 to as late as 1990 under the name Kelley Instruments, Inc. Results of an investigation that KDHE conducted at the Kelley Instruments site in March and May 2007 indicated the presence of radium in soil at the site. KDHE identified one area of elevated gamma activity on the facility located generally southeast of the northern building. According to KDHE, the highest field-measured surface reading showed 103 microRoentgens per hour (µR/hr) using a Ludlum model 44-2, with a 1- by 1-inch-diameter sodium iodide T1 scintillator probe. KDHE also collected and submitted soil samples to a laboratory for radium-226 analysis. The highest radium-226 concentration measured in soil was 102 picoCuries per gram (pCi/g) detected in a soil sample collected from 6 inches below ground surface (bgs) (KDHE 2007). START will use a Ludlum Model 192 Micro R Meter for general site screening and for health and safety purposes. The following rate meters and detectors will also be using during the assessment:

- 44-2 Nal probe
- 44-9 Pancake probe
- 43-90 ZnS alpha probe
- 44-10 Nal probe
- 44-20 Nal probe
- 44-62 Nal probe (downhole probe)
- Ludlum Model 3030 for checking wipe samples.

In addition, a RAE Systems ppb-RAE will be used to screen soil samples for volatile organic compounds (VOCs). Based on past experience with radium-dial sites, historical releases of radium is sometimes associated with past releases of solvents.

**Health and Safety Plan Approver Signature:** 

**Date:** 5/7/2010

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 is provided on Page 9 of 12.

**Initial Isolation and Protective Action Distances (for emergency response operations only):** Not Applicable

**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.

Wind Speed and Direction (Approach from upwind)		Temperature (°F)	Humidity %	Precipitation %	Forecast (such as partly cloudy, snow, or other)
Speed (mph): TBD	From Direction: TBD	~50 – 85 F	TBD	TBD	TBD

<b>On-Site Supplies:</b>	<input checked="" type="checkbox"/> First Aid Kit	<input type="checkbox"/> Fire Extinguisher	<input type="checkbox"/> Air Horn	<input type="checkbox"/> Oral Thermometer	<input type="checkbox"/> Noise Dosimeter
<input checked="" type="checkbox"/> Heat stress	<input type="checkbox"/> Surface or Underground storage tanks	<input type="checkbox"/> Construction work			
<input type="checkbox"/> Cold stress	<input type="checkbox"/> High Noise	<input type="checkbox"/> Excavation or trenching			
<input type="checkbox"/> Explosion or fire hazard	<input checked="" type="checkbox"/> Buried utilities	<input type="checkbox"/> Benching, shoring, bracing			
<input type="checkbox"/> Oxygen deficiency	<input type="checkbox"/> Overhead utilities	<input type="checkbox"/> Heavy equipment			
<input checked="" type="checkbox"/> Inorganic chemicals	<input type="checkbox"/> Permit-Required Confined spaces	<input type="checkbox"/> Work in strip or underground mines			
<input checked="" type="checkbox"/> Organic chemicals	<input checked="" type="checkbox"/> General slips, trips, falls	<input type="checkbox"/> Grinding operations			
<input type="checkbox"/> Biological hazard	<input type="checkbox"/> Uneven, muddy, or rugged terrain	<input type="checkbox"/> Hand and portable power-tool use			
<input type="checkbox"/> Chemical warfare materiel	<input type="checkbox"/> Industrial truck (forklift) use	<input type="checkbox"/> Lockout-Tagout			
<input checked="" type="checkbox"/> Compressed gases ( <b>calibration gas only</b> )	<input type="checkbox"/> Lift (man lift, cherry picker) use	<input type="checkbox"/> Machine guarding			
<input type="checkbox"/> Asbestos	<input type="checkbox"/> Scaffold use	<input type="checkbox"/> Portable fire extinguisher use			
<input checked="" type="checkbox"/> Respirable particulates	<input type="checkbox"/> Ladder use	<input type="checkbox"/> Driving commercial vehicles			
<input type="checkbox"/> Non-ionizing radiation (lasers, radiofrequencies, UV)	<input type="checkbox"/> Dangerous goods shipping	<input type="checkbox"/> Injury and Illness Prevention Program (California only)			
<input checked="" type="checkbox"/> Radiation Exposure	<input type="checkbox"/> Elevated work (over 6' high)	<input type="checkbox"/> Ergonomics (California only)			
<input type="checkbox"/> Non-Permit Required Confined spaces	<input type="checkbox"/> Hot work (welding, cutting, or brazing)	<input type="checkbox"/> Diving operations			

**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 type="checkbox"/> Alconox or Liquinox             | <input type="checkbox"/> Calibration gas (Methane)                | <input type="checkbox"/> Hexane  | <input type="checkbox"/> Isopropyl alcohol                    |
| <input type="checkbox"/> Hydrochloric acid (HCl)         | <input checked="" type="checkbox"/> Calibration gas (Isobutylene) | <input type="checkbox"/> Household bleach (NaOCl)                        | <input type="checkbox"/> Hazcat Kit                           |
| <input type="checkbox"/> Nitric acid (HNO <sub>3</sub> ) | <input type="checkbox"/> Calibration gas (Pentane)                | <input type="checkbox"/> Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> ) | <input type="checkbox"/> Mark I Kits ( <i>number?</i> ) _____ |
| <input type="checkbox"/> Sodium hydroxide (NaOH)         | <input type="checkbox"/> Hydrogen gas                             | <input type="checkbox"/> Acetic acid                                     | <input type="checkbox"/> Other ( <i>specify</i> ) _____       |

**WARNING: Eyewash solution shall be readily available on ALL projects where corrosives (acids or bases) are used, including as sample preservatives**
**Applicable Safe Work Practices (SWP) Attach to HASP:** *Check as many as apply*

- ☒ SWP 6-1 - General Safe Work Practices for Field Work
- ☐ SWP 6-2 - Control of Hazardous Energy (Lockout-Tagout)
- ☐ SWP 6-3 - Work Near Drill Rigs
- ☐ SWP 6-4 - Excavation Work
- ☐ SWP 6-5 - Working Over or Near Water
- ☐ SWP 6-6 - Hot Work
- ☐ SWP 6-7 - Various Special Site Hazards
- ☐ SWP 6-8 - Electrical Work
- ☐ SWP 6-9 - Fall Protection
- ☐ SWP 6-10 - Use of Portable Ladders
- ☐ SWP 6-11 - Drum and Container Handling
- ☐ SWP 6-12 - Shipping Dangerous Goods
- ☐ SWP 6-13 - Flammable Hazards and Ignition Sources
- ☐ SWP 6-14 - Accidental Spill and Discharge Controls
- ☒ SWP 6-15 - Heat Stress
- ☐ SWP 6-16 - Cold Stress
- ☐ SWP 6-17 - Various Biohazards
- ☐ SWP 6-18 - Underground Storage Tank Removal Procedures
- ☒ SWP 6-21 - Sites with Ionizing Radiation Sources
- ☐ SWP 6-22 - Data Collection on Rivers
- ☐ SWP 6-23 - Permit-Required Confined Space
- ☐ SWP 6-24 - Non-Permit-Required Confined Space
- ☐ SWP 6-25 - Oil and other Petroleum Fuel Products
- ☐ SWP 6-26 - Working Near Heavy Equipment
- ☐ SWP 6-27 - Respirator Cleaning
- ☐ SWP 6-28 - Use of Air Purifying Respirators
- ☐ SWP 6-29 - Qualitative Fit Test Procedures
- ☐ SWP 6-30 - Office Employees
- ☐ SWP 6-31 - Hurricane Affected Areas
- ☐ SWP 6-33 - UXO/MEC Field Work

**Tasks Performed At Job Site not Covered by SWPs**
*Attach Activity Hazard Analysis for each non-covered task*

- ☒ Soil Sampling at Radium Dial Sites
- ☐ (non-covered task)
- ☐ (non-covered task)
- ☐ (non-covered task)
- ☐ (non-covered task)

**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 (minimum 1 Tetra Tech employee on site)
- ☒ Current CPR Training (minimum 1 Tetra Tech employee on site)
- ☐ Current Respirator Fit-Test (Quantitative)

**Other Specific Training and Medical Surveillance Requirements**

- ☐ Confined Space Training
- ☐ Level A Training
- ☐ Radiation Training
- ☐ OSHA 10-hour Construction Safety
- ☐ Blood Lead Level and ZPP Pre and Post-Project
- ☐ Urinary Arsenic Level Pre and Post-Project
- ☒ Other Dosimetry Program participation (all personnel will wear real-time Siemens dosimeters in addition to their assigned TLD badges)

Materials Present or Suspected at Site	Highest Observed Concentration (specify units and medium)	Exposure Limit (specify ppm or mg/m <sup>3</sup> )	IDLH Level (specify ppm or mg/m <sup>3</sup> )	Primary Hazards of the Material (explosive, flammable, corrosive, toxic, volatile, radioactive, biohazard, oxidizer, or other)	Symptoms and Effects of Acute Exposure	Photoionization Potential (eV)
Radium (gamma radiation)	103 µR/hr			Ionizing radiation		
Radium-226 (in soil)	102 pCi/g			Ionizing radiation		
Various VOCs	Unknown					
<b>Information Sources:</b> NIOSH Pocket Guide to Hazardous Chemicals, September 2005 and American Conference of Governmental Industrial Hygienists (ACGIH). "Threshold Limit Values and Biological Exposure Indices for 2008."						

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

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

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

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

TLV = Threshold limit value

**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. This information is available on the chemical hazards page of this HASP.**

**Field Activities Covered Under This Plan:**

Task Description	Level of Protection <sup>1</sup>		Date of Activities
	Primary	Contingency	
1 Conduct real-time monitoring of soil for gamma	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D	Stand down if reading on Ludlum 192 held at waist level exceeds 500 µR/hr or if visible dust is generated.	May 10 – 14, 2010
2 Collect soil samples up to a depth of 6 feet using handtools	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D	Stand down if reading on Ludlum 192 held at waist level exceeds 500 µR/hr or if visible dust is generated. Stand down if ppbRAE exceeds 5 ppm above background in breathing zone.	May 10 – 14, 2010
3 Collect wipe samples of removable surface contamination.	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D	Stand down if reading on Ludlum 192 held at waist level exceeds 500 µR/hr or if visible dust is generated.	May 10 – 14, 2010
4	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	
5	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	

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

Employee Name and Office Code	Task(s)	Responsibilities
Rob Monnig, KC	1, 2, 3	<ul style="list-style-type: none"> <li>Project Manager or Field Team Leader: Directs project investigation activities, makes site safety coordinator (SSC) aware of pertinent project developments and plans, and maintains communications with client as necessary.</li> <li>Site Safety Coordinator (SSC): Ensures that appropriate personal protective equipment (PPE) is available, enforces proper use of PPE by on-site personnel, suspends investigative work if he or she believes that site personnel are or may be exposed to an immediate health hazard, implements the health and safety plan, and reports any deviations observed from anticipated conditions described in the health and safety plan to the health and safety representative. For sites lasting longer than one week the SSC is responsible for performing one safety audit on Form AF-1.</li> <li>Alternate Site Safety Coordinator (SSC): List the alternate SSC here for projects where the SSC may change.</li> <li>Field Personnel: Complete tasks as directed by the project manager, field team leader, and SSC, and follow all procedures and guidelines established in the Tetra Tech, Inc., Health and Safety Manual.</li> <li>Tetra Tech-hired subcontractor personnel on site: Completes tasks as outlined in the project scope of work in accordance with the contract. Participates in all Tetra Tech on-site safety meetings and follows all procedures and guidelines established in this HASP, as well as the company health and safety plan and program.</li> </ul>
Tom Scroggin, KC	1, 2, 3	

Note:

1. See next page for details on levels of protection

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

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

Task	Primary Level of Protection (A,B,C,D)	PPE Component Description (Primary)	Contingency Level of Protection (A, B, C, D)	PPE Component Description (Contingency)
1	D	Respirator type: Not needed Cartridge type (if applicable): Not needed CPC material: Not needed Glove material(s): Nitrile Boot material: Steel toe/Steel Shank, Tyvek booties Other: Safety glasses, hardhats, dosimetry badge	(stand down)	Stand down if reading on Ludlum 192 held at waist level exceeds 500 $\mu$ R/hr or if visible dust is generated.
2	D	Respirator type: Not needed Cartridge type (if applicable): Not needed CPC material: Not needed Glove material(s): Nitrile Boot material: Steel toe/Steel Shank, Tyvek booties Other: Safety glasses, hardhats, dosimetry badge	(stand down)	Stand down if reading on Ludlum 192 held at waist level exceeds 500 $\mu$ R/hr or if visible dust is generated. Stand down if ppbRAE exceeds 5 ppm above background in breathing zone.
3	D	Respirator type: Not needed Cartridge type (if applicable): Not needed CPC material: Not needed Glove material(s): Nitrile Boot material: Steel toe/Steel Shank, Tyvek booties Other: Safety glasses, hardhats, dosimetry badge	(stand down)	Stand down if reading on Ludlum 192 held at waist level exceeds 500 $\mu$ R/hr or if visible dust is generated.
4		Respirator type: Cartridge type (if applicable): CPC material: Glove material(s): Boot material: Other:		Respirator type: Cartridge type (if applicable): CPC material: Glove material(s): Boot material: Other:
5		Respirator type: Cartridge type (if applicable): CPC material: Glove material(s): Boot material: Other:		Respirator type: Cartridge type (if applicable): CPC material: Glove material(s): Boot material: Other:

**Respirator Notes:**

Respirator cartridges may only be used for a maximum time period 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 changeout 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	Task	Instrument Reading	Action Guideline	Comments
Combustible gas indicator model:	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	0 to 10% LEL 10 to 25% LEL >25% LEL	Monitor; evacuate if confined space Potential explosion hazard; notify SSC Explosion hazard; interrupt task; evacuate site; notify SSC	<input checked="" type="checkbox"/> Not needed
Oxygen meter model:	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	>23.5% Oxygen 23.5 to 19.5% Oxygen <19.5% Oxygen	Potential fire hazard; evacuate site Oxygen level normal Oxygen deficiency; interrupt task; evacuate site; notify SSC	<input checked="" type="checkbox"/> Not needed
Radiation survey meter model: Ludlum 192	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	< 500 µR/hr > 500 µR/hr	Proceed Radiological hazard; interrupt task; evacuate site; notify Health Physicist	Annual exposure not to exceed 1,250 mrem per quarter  Background reading must be taken in an area known to be free of radiation sources. <input type="checkbox"/> Not needed
Photoionization detector model:  <input type="checkbox"/> 11.7 eV <input checked="" type="checkbox"/> 10.6 eV <input type="checkbox"/> 10.2 eV <input type="checkbox"/> 9.8 eV <input type="checkbox"/> eV	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Any response above background to 5 ppm above background > 5 to 500 ppm above background > 500 ppm above background	Level C <sup>a</sup> is acceptable Level B is recommended Level B Level A	These action levels are for unknown gases or vapors. After the contaminants are identified, action levels should be based on the specific contaminants involved. <input type="checkbox"/> Not needed
Flame ionization detector model:	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Any response above background to 5 ppm above background >5 to 500 ppm above background >500 above background	Level C <sup>a</sup> is acceptable Level B is recommended Level B Level A	These action levels are for unknown gases or vapors. After the contaminants are identified, action levels should be based on the specific contaminants involved. <input checked="" type="checkbox"/> Not needed
Detector tube models:	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Specify: < 2 the PEL > 2 the PEL	Specify:	The action level for upgrading the level of protection is one-half of the contaminant's PEL. If the PEL is reached, evacuate the site and notify a safety specialist <input checked="" type="checkbox"/> Not needed
Other (specify):	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Specify:	Specify:	<input type="checkbox"/> Not needed

**Notes:**

eV= electron volt

LEL=Lower explosive limit

mrem=Millirem

PEL=Permissible exposure limit

ppm=Part per million

a. Level C may be acceptable for certain tasks in some situations. If you are uncertain whether Level C is appropriate, consult the Regional Safety Officer. Additionally, when working with unknown respiratory hazards, Level C cartridge must provide protection for organic vapors, acid gases, ammonia, amines, formaldehyde, hydrogen fluoride, and particulate aerosols.





Project-Specific Industrial Hygiene Requirements	Emergency Contacts:	Telephone No.
<b>OSHA-Regulated Chemicals:</b> <i>Check any present on the job site in any medium (air, water, soil)</i> <input checked="" type="checkbox"/> No chemicals below are located on the job site <input type="checkbox"/> Friable Asbestos <input type="checkbox"/> OSHA-Regulated Carcinogen (found at 29 CFR 1910.1003) <input type="checkbox"/> alpha-Naphthylamine <input type="checkbox"/> Methyl chloromethyl ether <input type="checkbox"/> 3,3'-Dichlorobenzidine (and its salts) <input type="checkbox"/> bis-Chloromethyl ether <input type="checkbox"/> beta-Napthylamine <input type="checkbox"/> Benzidine <input type="checkbox"/> 4-Aminodiphenyl <input type="checkbox"/> Ethyleneimine <input type="checkbox"/> beta-Propiolactone <input type="checkbox"/> 2-Acetylaminoflourene <input type="checkbox"/> 4-Dimethylaminoazobenzene <input type="checkbox"/> N-nitrosomethylamine <input type="checkbox"/> Vinyl chloride <input type="checkbox"/> Inorganic arsenic <input type="checkbox"/> Chromium (VI) <input type="checkbox"/> Cadmium <input type="checkbox"/> Benzene <input type="checkbox"/> Coke oven emissions <input type="checkbox"/> 1,2-Dibromo-3-chloropropane <input type="checkbox"/> Acrylonitrile <input type="checkbox"/> Ethylene oxide <input type="checkbox"/> Formaldehyde <input type="checkbox"/> Methylenedianiline <input type="checkbox"/> 1,3-Butadiene <input type="checkbox"/> Methylene chloride	Work Care and Incident Intervention (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 Fire department 911 Police department 911 Tetra Tech EM Inc. Personnel: Regional Safety Officer: Denny Cox (816) 668-7464 Health and Safety Representative: Matt Soltis (412) 921-8924 Office Health and Safety Coordinator: Denny Cox (816) 668-7464 RSO: Lawson Bailey, TtNUS (706) 830-7530 Project Manager: Robert Monnig (816) 729-5621 SSC: Robert Monnig (816) 729-5621	
	<b>Medical and Site Emergencies:</b>	
	Signal a site or medical emergency with three blasts of a loud horn (car horn, fog horn, or similar device). Site personnel should evacuate to the area of safe refuge designated on the site map.	
	Hospital Name:	Via Christi Regional Medical Center
	Hospital Address:	929 N Saint Francis St Wichita, KS 67214
	Hospital Telephone:	
	Emergency:	911                                  General: 316-268-5384
	Hospital called to verify emergency services are offered? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
	Ambulance Telephone:	911
	Step-by-step Route to Hospital: (see Page 10 of 12 for route map)	
	1. Head north on S Santa Fe toward E Gilbert St	262 ft
	2. Turn left at E Gilbert St	0.3 mi
	3. Turn right at S Broadway Ave	1.8 mi
	4. Turn right at E 9th St N	377 ft
	5. Turn left at N Topeka	167 ft
	6. Take the 1st right onto E 9th St N	0.1 mi
	7. Take the 2nd right onto St Francis N	
	the right	Destination will be on

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

<b>Decontamination Procedures</b>		<b>Emergency Response Planning</b>
<p>The site safety coordinator oversees implementation of project decontamination procedures and is responsible for ensuring they are effective.</p>		<p>During the pre-work briefing and daily tailgate safety meetings, all on-site employees will be trained in the provisions of emergency response planning, site communication systems, and site evacuation routes.</p>
<p style="text-align: center;"><b>Personnel Decontamination</b></p> <p>Level D Decon - <input type="checkbox"/> Wet <input checked="" type="checkbox"/> Dry  <b>Personnel collecting samples will have hands and feet frisked between samples. All personnel will have a whole body frisk before leaving the site. See following pages for frisking procedures.</b></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 style="text-align: center;"><b>Equipment Decontamination</b></p> <p>All tools, equipment, and machinery from the Exclusion Zone (hot) or Contamination Reduction Zone (warm) are decontaminated in the CRZ before they are removed to the Support Zone (cold). Equipment decontamination procedures are designed to minimize the potential for hazardous skin or inhalation exposure, cross-contamination, and chemical incompatibilities.</p> <p style="text-align: center;"><b>Respirator Decontamination</b></p> <p>Respirators are decontaminated in compliance with SWP 6-27 and should be included with this HASP.</p> <p style="text-align: center;"><b>Waste Handling for Decontamination</b></p> <p>Procedures for decontamination waste disposal meet all applicable local, state, and federal regulations.</p>	<p style="text-align: center;"><b>Decontamination Equipment</b></p> <div style="display: flex; flex-direction: column; gap: 5px;"> <input type="checkbox"/> Washtubs             <input type="checkbox"/> Buckets             <input type="checkbox"/> Scrub brushes             <input type="checkbox"/> Pressurized sprayer             <input type="checkbox"/> Detergent [Type]             <input type="checkbox"/> Solvent [Type]             <input type="checkbox"/> Household bleach solution [Indicate Dilution]             <input type="checkbox"/> Deionized water             <input type="checkbox"/> Disposable face piece sanitizer wipes             <input type="checkbox"/> Facemask sanitizer powder             <input type="checkbox"/> Wire brush             <input type="checkbox"/> Spray bottle             <input type="checkbox"/> Banner/barrier tape             <input type="checkbox"/> Plastic sheeting             <input type="checkbox"/> Tarps and poles             <input checked="" type="checkbox"/> Trash bags             <input type="checkbox"/> Trash cans             <input type="checkbox"/> Duct tape             <input checked="" type="checkbox"/> Paper towels             <input type="checkbox"/> Folding chairs             <input type="checkbox"/> Other           </div>	
<p><b>In the event of an emergency that necessitates evacuation of a work task area or the site, the following procedures will take place.</b></p> <ul style="list-style-type: none"> <li>• The Tetra Tech SSC will contact all nearby personnel using the on-site communications to advise the personnel of the emergency.</li> <li>• The personnel will proceed along site roads to a safe distance upwind from the hazard source.</li> <li>• The personnel will remain in that area until the SSC or an authorized individual provides further instructions.</li> </ul> <p><b>In the event of a severe spill or a leak, site personnel will follow the procedures listed below.</b></p> <ul style="list-style-type: none"> <li>• Evacuate the affected area and relocate personnel to an upwind location.</li> <li>• Inform the Tetra Tech SSC, a Tetra Tech office, and a site representative immediately.</li> <li>• Locate the source of the spill or leak, and stop the flow if it is safe to do so.</li> <li>• Begin containment and recovery of spilled or leaked materials.</li> <li>• Notify appropriate local, state, and federal agencies.</li> </ul> <p><b>In the event of severe weather, site personnel will follow the procedures listed below.</b></p> <ul style="list-style-type: none"> <li>• Site work shall not be conducted during severe weather, including high winds and lightning.</li> <li>• In the event of severe weather, stop work, lower any equipment (drill rigs) and evacuate the affected area.</li> <li>• Severe weather may cause heat or cold stress. Refer to SWPs 15 and 16 for information on both.</li> </ul> <p><b>All work-related incidents must be reported. According to TtEMI's reporting procedures, you should:</b></p> <ul style="list-style-type: none"> <li>• For non-life threatening emergencies notify WorkCare Incident Intervention at (800) 455-6155</li> <li>• Notify your Project Manager, Regional Safety Officer (RSO), or Rick Ecord directly via phone.</li> <li>• Complete a "Tetra Tech Incident Report" (Form IR) within 24 hours and send it to your RSO. If an injury or illness has occurred, the Form IR-A and the WorkCare HIPAA form must be completed at the same time the Form IR is completed.</li> </ul>		

## **Instructions for WHOLE BODY FRISK with Hand-Held Instruments**

1. Verify that the instrument is in service, is set to the proper scale, and the audio output can be heard during frisking.
2. Hold probe less than 1/2 inch from surface being surveyed for beta and gamma contamination, approximately 1/4 inch for alpha contamination.
3. Move probe slowly over surface, approximately 2 inches per second.
4. If the count rate increases during frisking, pause for 5 to 10 seconds over the area to provide adequate time for instrument response.
5. If the count rate remains increased or the instrument alarms, remain in the area and notify radiological control personnel.
6. The whole body frisk should take at least two to three minutes.

### **Performance of Monitoring:**

1. Frisk the hands before picking up the probe.
2. Perform the frisk in the following order:
  - a. Head (pause at mouth and nose for approximately 5 seconds)
  - b. Neck and shoulders
  - c. Arms (pause at each elbow for approximately 5 seconds)
  - d. Chest and abdomen (including badge and dosimetry)
  - e. Back, hips and seat of pants
  - f. Legs (pause at each knee for approximately 5 seconds)
  - g. Shoe tops
  - h. Shoe bottoms (pause at sole and heel for approximately 5 seconds)
  - i. Personnel Items.
3. Return the probe to its holder and leave the area. The probe should be placed on the side or face up to allow the next individual to monitor his/her hands before handling the probe.

## **Instructions for Hand and Foot Frisk with Hand-Held Instruments**

1. Verify that the instrument is in service, is set to the proper scale, and the audio output can be heard during frisking.
2. Hold probe less than 1/2 inch from surface being surveyed for beta and gamma contamination, approximately 1/4 inch for alpha contamination.
3. Move probe slowly over surface, approximately 2 inches per second.
4. If the count rate increases during frisking, pause for 5 to 10 seconds over the area to provide adequate time for instrument response.
5. If the count rate remains increased or the instrument alarms, remain in the area and notify radiological control personnel.

### **Performance of Monitoring:**

1. Frisk the hands before picking up the probe.
2. Frisk shoe bottoms (pause at sole and heel for approximately 5 seconds)
3. Frisk any personnel Items.
4. Return the probe to its holder and leave the area. The probe should be placed on the side or face up to allow the next individual to monitor his/her hands before handling the probe.

**Site Map (May be drawn after crews arrive at site):**

**Label the following on your map:**

1. Orientation
2. Wind direction
3. Evacuation route
4. Area of safe refuge
5. Exclusion zone
6. Contamination reduction zone (CRZ)
7. Support zone
8. Location(s) of hazardous materials
9. Monitoring locations
10. Sampling locations
11. Command post

A map of downtown Wichita, Kansas, showing a route from the airport to the hospital. The route is highlighted in blue, starting at the airport (marked with a green 'A') and ending at the hospital (marked with a green 'B'). The route follows N Broadway St north from the airport, then turns east onto E 9th St N, and finally turns north onto N Broadway St again. Key landmarks include the Via Christi Regional Med Ctr-St Francis hospital, Central Riverside Park, South Riverside Park, and the Lawrence-Dumont Stadium. Major highways shown include I-135, I-81, and I-400. Other streets labeled include W 13th St N, W 11th St N, W 10th St N, W 9th St N, W 8th St N, W 7th St N, W 6th St N, W 5th St N, W 4th St N, W 3rd St N, W 2nd St N, W 1st St N, W Douglas Ave, W Kellogg Ave, W McCormick St, W Lincoln St, N Market St, N Jackson Ave, N Waco St, N Broadway St, N Mosley, N Washington Ave, N Hydraulic Ave, N Grove St, S Washington St, S Hydraulic St, S Grove St, S McLean, S Seneca, S Sycamore, S Broad, and S Lincoln.

07/08



**APPROVAL AND SIGN-OFF FORM****Project No.:**103DI9004L100176

*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 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	_____ Signature	_____ Date
_____ Name	_____ Signature	_____ Date
_____ Name	_____ Signature	_____ Date
_____ Name	_____ Signature	_____ Date
_____ Site Safety Coordinator Approval Signature		_____ Date
_____ Project Manager Approval Signature		_____ Date

**Note:**

Use Additional sheets as necessary to ensure that all personnel, including subcontractor SSC, signs and affirms this document.

Guidance in the *START Health and Safety Plan Approval Procedures*, dated September 19, 2001, must be followed by personnel who prepare and approve any Level 2 HASP.



## DEFINITIONS AND NOTES

### Emergency Contacts

**Work Care** - 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

### 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 1 month must employ the Level 3 HASP**
- **Projects with more than five tasks must employ the Level 3 HASP**

### Decontamination:

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

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

**Decontamination Corridor:** The decontamination setup can be adjusted to meet the needs of the situation. The Level A decontamination setup is included on Page 10 because it is the most complicated and critical. The decontamination procedures can be altered to meet the needs of the specific situation when compound- and site-specific information is available.

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

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

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

### Notes:

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