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**Removal Action Work Plan No. 1  
Off-Site Soils – Debris Areas and Isolated Areas  
Removal**

**SESCO State Superfund Site**

November 9, 2009

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# **Removal Action Work Plan No. 1 Off-Site Soils – Debris Areas and Isolated Areas Removal**

**SESCO State Superfund Site**

*Prepared for:*

**SESCO Site Working Group**

*926 Pulliam Street  
San Angelo, Texas 76903*

*Prepared by:*

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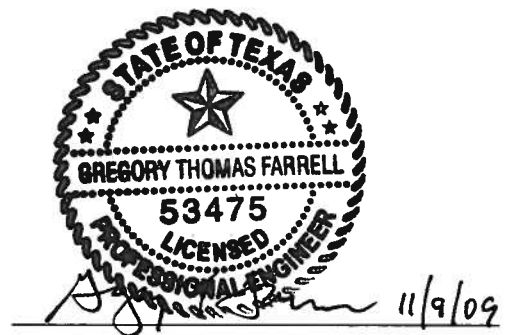
Tetra Tech Project No. 114-021013

November 9, 2009

## PROFESSIONAL ENGINEERING CERTIFICATION

This Removal Action Work Plan No. 1, Off-Site Soils – Debris Areas and Isolated Area Removal has been prepared as outlined in Section VII of the San Angelo Electric Service Company Proposed State Superfund Site Agreed Administrative Order, Docket 2006-0880-SPF, effective October 2, 2006. Information collected as part of the Phase 1 Remedial Investigation was utilized in the preparation of this Removal Action Work Plan.

This is to certify that the Removal Action Work Plan No. 1, Off-Site Soils – Debris Areas and Isolated Area Removal was prepared under the supervision of the undersigned, a Professional Engineer licensed to practice in the State of Texas.



Gregory T. Farrell, Texas PE # 53475

Tetra Tech, Inc. Firm Reg. No. F-3924

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## 1.0 INTRODUCTION

This Removal Action Work Plan No.1 (RAWP) addresses the removal of soil and debris material containing polychlorinated biphenyls (PCBs) from several areas outside of the fence line at, or adjacent to, the San Angelo Electric Service Company (SESCO) facility located at 926 Pulliam Street, San Angelo, Texas. Figure 1 shows the location of the SESCO Site.

### 1.1 Regulatory Setting

This RAWP has been prepared pursuant to the Agreed Administrative Order (AO) for the San Angelo Electric Service Company Proposed State Superfund Site (the Site), Docket Number 2006-0880-SPF, effective October 2, 2006. Section VII (Removals) of the Order allows the Respondents (the SESCO Site Working Group, or SSWG) to request Texas Commission of Environmental Quality (TCEQ) approval of removal actions as necessary and appropriate to protect human health and the environment or to facilitate the Remedial Investigation (RI).

A copy of the AO will be provided to all subcontractors, laboratories and consultants retained to perform work under this RAWP. All activities to be undertaken or performed under this RAWP must comply with the AO.

### 1.2 Previous Site Characterization

Data collected during the Phase I RI and the Phase I RI Addendum conducted at the Site detected the presence of an off-Site area of concern containing demolition debris as well as two other isolated areas of concern outside the Site fence line with soil containing PCBs at levels that exceed the lowest state and federal human health criteria for PCBs in soils (1.0 ppm under the federal Toxic Substances Control Act, TSCA, and 1.1 ppm under the Texas Risk Reduction Program, TRRP). Those areas of concern are as follows:

1. An area along the Texas Department of Transportation (TxDOT) Railroad Right of Way (ROW) east of SESCO East that contains debris mixed with soil;
2. An area located on the east Side of the Untanking Building on SESCO West; and
3. An area located in part of the grass strip along Pulliam Street near the northeast portion of the intersection with North Browning Street.

Figure 2 shows the locations of these three areas of concern.

This RAWP specifies the actions that are planned for the removal of the soil and/or debris from these three areas of concern, as further detailed in the sections that follow.

### 1.3 Description of the Areas of Concern from Which Material will be Removed

The areas of concern covered by this RAWP are more fully described in this section.

### **1.3.1 TxDOT/Railroad ROW**

The TxDOT/Railroad ROW is a corridor located immediately to the east of the eastern property boundary and fenceline of the SESCO Site. This corridor varies in width from approximately 100 to 150 feet (ft) and is approximately 450 ft long. An active set of railroad tracks, owned by TxDOT, and operated by Texas Pacifico Transportation, LTD (TXPF), crosses through the middle of the corridor. The southwestern portion of the TxDOT/Railroad ROW corridor contains debris and soil mixed together. Limited sampling of that area revealed PCB concentrations above 1 ppm, therefore the debris material will be removed under this RAWP.

Figure 2 shows the location of these areas.

### **1.3.2 Area Adjacent to the Untanking Building on SESCO West**

There is an earthen/grassy area (approximately 36 ft. long by 22 ft. wide) located to the east of the Untanking Building, between that building and North Baze Street. During the Phase I RI and the Phase I RI Addendum several soil samples collected from this area were found to contain PCBs at concentrations above 1 ppm. The depths at which those elevated PCB concentrations were identified varied from 0 to 2.5 feet (ft.) below ground surface (bgs).

Figure 2 shows the location of this area.

### **1.3.3 Grass Strip Near Intersection of Pulliam Street and North Browning Street**

There is a small strip of grassy/unpaved area (approximately 25 ft. long by 8 ft. wide) located at the corner of Pulliam and North Browning Streets. During the Phase I RI a single sample was found to have a PCB concentration above 1 ppm (1.7 ppm) at a depth range of 0 to 1 ft. bgs. That sample was collected from the eastern portion of the grassy strip. As part of the Phase I Addendum there were two additional samples collected on the eastern portion of the grassy strip that were found to have PCB concentrations below 1 ppm. Other samples collected from the western portion of the strip (during both the Phase I RI and the Phase I RI Addendum) were all found to have PCB concentrations below 1 ppm.

Figure 2 shows the location of this area.

## **2.0 SITE SPECIFIC HEALTH AND SAFETY PLAN**

A Site-specific Health and Safety Plan (HASP) has been prepared to cover the work specified by this RAWP. The HASP is provided in Appendix A.

## 3.0 DESCRIPTION OF REMOVAL ACTIONS

### 3.1 General Description

The planned removal actions for the three areas addressed in this RAWP are:

- a) All work is to be conducted in accordance with the AO, this RAWP and the Site-specific HASP (see Appendix A).
- b) Access agreements will be obtained from TxDOT and the City of San Angelo; notification will be made to TXPF.
- c) The Texas One Call System will be notified of the planned excavation and grading activities to help identify buried utilities in the area of the work.
- d) Written notification will be provided to the Executive Director (ED) of the TCEQ or his staff and oral notification will be provided to the TCEQ's Project Manager at least 14 days prior to initiating any field activities under this RAWP, in accordance with the AO. Those notices will include a list of those field activities covered by the notice.
- e) If for any reason field activities cannot begin on the date set forth in the notice, revised written and oral notices will be provided to the TCEQ's ED and the Project Manager, respectively. The revised notices will indicate the anticipated start date of the field activities.
- f) Temporary Site support facilities such as access roads, vehicle decontamination areas, materials handling, stockpiling and loading/ unloading areas will be installed as indicated in Figure 3. A separation layer will be installed on the access road and areas to be used for soil/debris stockpiling, haul truck loading, equipment decontamination and other material handling. The separation layers used may consist of crushed stone, geotextile fabric, plastic sheeting and/or other suitable materials as selected by the removal contractor and approved for use by Tetra Tech. The separation layers will be inspected and maintained throughout the course of the work to provide continuous separation between vehicles, equipment and excavated materials and the ground surface at the site.
- g) Erosion and sedimentation control devices will be installed around the excavation areas, stockpile areas, and locations where trucks enter public roadways from non-paved Site property to prevent soils from the disturbed areas from migrating off to adjacent undisturbed areas.
- h) The initial limits of the areas to be excavated are as described later in this RAWP.
- i) Soil and debris that is initially removed from the TxDOT Railroad ROW will be excavated and either direct loaded onto trucks or roll-off containers for transport to the off-Site disposal facilities, or placed in a stockpile area for temporary storage. Open excavations in this area will be secured during non-work hours by temporary fencing, construction fencing or similar means. The excavated soil and debris will be disposed of at a facility that is permitted to accept materials containing PCBs at concentrations greater than 50 ppm. Refer to Section 5 of this RAWP for additional details on the disposal facility.
- j) The planned excavation activities in the TxDOT/Railroad ROW will not encroach closer than 10 ft. to the outside edge of the railroad ties. If conditions are encountered in the field that change this, and work is required that is within 10 ft. of

- the railroad ties, TxDOT and TXPF will be consulted, and this RAWP will be revised prior to proceeding with the work that is within 10 ft. of the railroad ties.
- k) Soil and debris that is removed from the area adjacent to the Untanking building and the grass strip to the northeast of the intersection of Pulliam and North Browning Streets will be kept segregated from the materials removed from the TxDOT Railroad ROW soils. These soils will be excavated and either direct loaded onto trucks or roll-off containers for transport to the off-Site disposal facilities, or placed in a stockpile area separate from the stockpile area used for the soil and debris removed from the TxDOT Railroad ROW. Open excavations in these two areas will be secured during non-work hours by temporary fencing, construction fencing or similar means. The excavated soil and debris will be disposed of at a facility that is permitted to accept materials containing PCBs at concentrations less than 50 ppm. Refer to Section 5 of this RAWP for additional details on the disposal facility.
  - l) Trucks that will be used to transport excavated material to the approved disposal facilities will not enter the excavation areas directly, and will remain outside the areas identified as being impacted with PCBs. Unless excavated material comes into contact with areas of the truck other than the truck bed, these vehicles will not require decontamination before leaving the Site. If necessary, mud will be removed from the truck tires prior to them leaving the loading area. In cases where excavated materials come into contact with areas of the truck (outside of the truck bed) during the loading process, those areas affected by that contact will be decontaminated by the contractor performing the soil loading work.
  - m) Post-excavation soil sampling will be conducted in the TxDOT/Railroad ROW, the area adjacent to the Untanking Building and the grassy strip near the intersection of Pulliam and North Browning Streets to confirm that the soils remaining in place after the completion of the soil removal activities do not contain PCBs at concentrations at or above 1.0 ppm. Section 6 of this RAWP provides additional details on the post-excavation sampling activities. If the post-excavation sampling and analysis activities identify any areas where there are soils or materials remaining in place that contain PCBs at concentrations above 1 ppm then the areas containing those materials will be further excavated at the direction of Tetra Tech to remove those materials. The additional removed materials will be segregated into two stockpiles; one stockpile for materials that came from areas that exhibited PCB concentrations of 50 ppm or greater, and the other stockpile for materials that came from areas that exhibited PCB concentrations of 1 ppm or more, but less than 50 ppm. Another round of post-excavation sampling will then be conducted in the areas where the additional excavation work occurred. The sample spacing will be similar to that used for the initial round of the post-excavation sampling, as described in Section 6 of this RAWP. The collected samples will be analyzed for PCB content. This cycle of re-excavation and re-sampling will continue until the sample results are all below 1 ppm PCBs. The removed materials that exhibit PCB concentrations of 50 ppm or greater will then be transported for disposal at a facility that is permitted to accept materials containing PCBs at concentrations greater than 50 ppm; the removed material that exhibits PCB concentrations of 1 ppm or more, but less than 50 ppm will be disposed of at the San Angelo Landfill, which is authorized to accept such materials. Refer to Section 5 of this RAWP for additional details on these disposal facilities.
  - n) After the excavation work has commenced, and prior to the backfilling and restoration of the areas, the excavated areas will be graded to help prevent stormwater runoff from entering into these disturbed areas, and also to keep

rainwater that falls into the excavation from running out of the excavation onto the surrounding areas. If required, areas surrounding the excavation areas may need to be regraded to provide for appropriate stormwater drainage away from or around the excavated area. Construction fencing will be installed to identify the area and to help control public access.

- o) The final dimensions of each excavation area will be measured and documented prior to commencing Site restoration work.
- p) The excavated areas are to be backfilled to restore them to their pre-excavation grades with clean imported material having similar standard engineering index properties to the adjacent Site soils and as approved by Tetra Tech. The fill will be placed in lifts of 12 inches maximum depth and compacted. Compaction will be to at least 85% of the maximum Modified Proctor density or 90% of the maximum Standard Proctor density values. Vegetative cover of local grass will be established in the backfilled Untanking Building Area and the Grassy Strip near Pulliam and North Browning Streets using either seed or sod.
- q) Upon completion of all the activities listed above and removal of all the excavated soils/debris to the designated disposal facilities, the temporary support facilities (stockpile areas, decontamination area and other support areas) will be decommissioned and the areas where they were located will be restored as necessary. If any of these facilities are required for other future removal activities to be conducted at the Site (to be covered by separate RAWPs) or for other Site uses, they will be kept intact until no longer needed, at which time they will be decommissioned.
- r) A Removal Action Report (RAR) documenting the activities conducted under this RAWP will be prepared.

### 3.2 TxDOT/Railroad ROW Area

This property is owned by TxDOT, and includes railroad tracks that are used by TXPF. An access agreement allowing the debris/soil removal work specified in this RAWP will be obtained from TxDOT prior to commencing the work and TXPF will be notified in advance of the planned removal activities. In addition, the Texas One Call System will be notified of the planned excavation and grading activities to help identify buried utilities in the area of the work. The owners of identified utilities located in the work areas will be contacted prior to the work commencing to coordinate the debris/soil removal activities in the vicinity of the utilities. The excavation contractor will be responsible for utilizing appropriate equipment and methods to accomplish the excavation work specified in this RAWP. The contractor will be responsible for communicating with utility owners/operators to prevent damage to utilities that may be present in the areas to be excavated.

The horizontal and vertical limits of the excavation in this area will be determined in the field by the Tetra Tech representative overseeing the work. Areas will be excavated based on visual observations of the presence of debris and stained soil. Final dimensions of the excavated area may increase beyond the area originally excavated based on the results of the post-excavation sampling and analysis.

Figure 2 shows the approximate limits of the TxDOT/Railroad ROW area of concern.

### **3.3 Area Adjacent to the Untanking Building**

This property is located adjacent to North Baze Street, which is owned by the City of San Angelo. An access agreement (including a traffic control plan) allowing the soil removal work specified in this RAWP will be obtained from the City of San Angelo prior to commencing the work. In addition, the Texas One Call System will be notified of the planned excavation and grading activities to help identify buried utilities in the area of the work. The owners of identified utilities located in the work areas will be contacted prior to the work commencing to coordinate the soil removal activities in the vicinity of the utilities. The excavation contractor will be responsible for utilizing appropriate equipment and methods to accomplish the excavation work specified in this RAWP. The contractor will be responsible for communicating with utility owners/operators to prevent damage to utilities that may be present in the areas to be excavated.

Figure 4 identifies the planned limits of the excavation in the area of the Untanking Building. There is a 22 ft. long by 18 ft wide area that will initially be excavated to a depth of 3.5 ft, and a second area that is 22 ft. long by 18 ft. wide that will initially be excavated to depth of 2 ft. Final dimensions of the excavated area may increase based on the results of the post-excavation sampling and analysis.

### **3.4 Grass Strip Near the Intersection of Pulliam Street and North Browning Street**

This property is located along the edge of Pulliam Street, which is operated by TxDOT. An access agreement allowing the soil removal work specified in this RAWP will be obtained from TxDOT prior to commencing the work. In addition, the Texas One Call System will be notified of the planned excavation and grading activities to help identify buried utilities in the area of the work. The owners of identified utilities located in the work areas will be contacted prior to the work commencing to coordinate the soil removal activities in the vicinity of the utilities. The excavation contractor will be responsible for utilizing appropriate equipment and methods to accomplish the excavation work specified in this RAWP. The contractor will be responsible for communicating with utility owners/operators to prevent damage to utilities that may be present in the areas to be excavated.

Figure 5 identifies the planned limits of the excavation at the grass strip adjacent to the southeast portion of the intersection of Pulliam and North Browning Streets. This area is 8 ft. wide by 15 ft. long; the initial excavation depth will be 2 ft. Final dimensions of the excavated area may increase based on the results of the post-excavation sampling and analysis.

## 4.0 ESTIMATED VOLUME OF MATERIAL TO BE REMOVED

The estimated volumes of debris, soil and sediment material to be removed by the activities described in this RAWP are:

- TxDOT Railroad ROW Areas..... 300 to 700 cubic yards (cy.)
- Area adjacent to the Untanking Building..... 90 cy.
- Area at intersection of Pulliam and North Browning Streets.....10 cy.

Therefore, the total volume of material to be removed is estimated to be approximately in the 400 to 800 cy. range. These values are based on estimates; the actual volumes may increase or decrease from the estimated values based on the conditions encountered in the field. Factors that could impact the volume of material to be removed include the extent of the debris in the TxDOT/Railroad ROW, as well as the results of the post-excavation sampling and analysis in the TxDOT/Railroad ROW, the area adjacent to the Untanking Building and the grass strip at the intersection of Pulliam and North Browning Streets.

## 5.0 IDENTIFICATION OF TRANSPORTERS AND DISPOSAL FACILITIES

Waste transporters may include one or more of the following:

- Jack Herod Trucking; and
- Trashaway/Duncan Disposal.

Other waste transporters may also be considered for use. Whichever firm is used will need to have the required state and federal licenses and permits to haul materials containing PCBs at concentrations of greater than 50 ppm. Per the requirements of the AO, the TCEQ will be informed of the selected transporter.

Disposal facility information:

Disposal facility that can accept materials including those with PCB concentrations greater than 50 ppm:

- Republic Services C.S.C. Disposal Landfill, Avalon Texas.

Disposal facility that can accept materials with PCB concentrations less than 50 ppm:

- Republic Services, Inc. City of San Angelo Landfill

## **6.0 PROCEDURES PROPOSED FOR SAMPLING AND ANALYZING MATERIALS REMAINING ON SITE**

### **6.1 General Sampling and Analysis Requirements**

The post-excavation samples that are collected under this RAWP will be submitted for PCB analysis to a laboratory accredited by the National Environmental Laboratory Accreditation Conference (NELAC). The soil sampling and laboratory analysis will be completed as described herein and in accordance with the Phase 2 Remedial Investigation Field Sampling Plan (FSP) and the Quality Assurance Project Plan (QAPP). These documents describe sampling methods and handling and QA/QC requirements.

### **6.2 TxDOT/Railroad ROW Area**

Upon completion of the initial excavation activities described in Section 3.2 of this RAWP, post-excavation soil sampling and analysis will be conducted to confirm that the soils remaining in place do not have PCB concentrations of 1 ppm or higher. A total of approximately 28 samples will be collected from the surface soils in the bottom of the excavation using a 20 ft. by 20 ft. grid in the locations indicated on Figure 6 (the exact locations and number of samples will depend on the areal extent of the debris material to be removed). The samples will be collected as specified in TCEQ Standard Operating Procedure (SOP) No. 10.1 – Soil Sampling Using a Trowel.

Decontamination of the sampling equipment will be performed in accordance with the procedures specified in TCEQ SOP 1.5 – Decontamination. Investigation derived wastes, such as used disposable personnel protective equipment (PPE), disposable sampling equipment, spent decontamination fluids, etc. will be managed in accordance with TCEQ SOP No. 1.4 – Management of Investigation Derived Waste.

Copies of SOP Nos. 1.4, 1.5, 10.1 are provided in Appendix B of this RAWP.

### **6.3 Post-Excavation Sampling of the Area Adjacent to the Untanking Building**

Upon completion of the initial excavation activities described in Section 3.3 of this RAWP, post-excavation soil sampling and analysis will be conducted to confirm that the soils remaining in place do not have PCB concentrations of 1 ppm or higher. A total of 4 samples will be collected from the surface soils in the bottom of the excavation in the locations indicated on Figure 8. The samples will be collected as specified in TCEQ Standard Operating Procedure (SOP) No. 10.1 – Soil Sampling Using a Trowel.

Decontamination of the sampling equipment will be performed in accordance with the procedures specified in TCEQ SOP 1.5 – Decontamination. Investigation derived wastes, such as used disposable personnel protective equipment (PPE), disposable sampling equipment, spent decontamination fluids, etc. will be managed in accordance with TCEQ SOP No. 1.4 – Management of Investigation Derived Waste.

Copies of SOP Nos. 1.4, 1.5, and 10.1 are provided in Appendix B of this RAWP.

## **6.4 Post-Excavation Sampling of the Grass Strip Located Near the Intersection of Pulliam and North Browning Streets**

Upon completion of the initial excavation activities described in Section 3.4 of this RAWP, post-excavation soil sampling and analysis will be conducted to confirm that the soils remaining in place do not have PCB concentrations of 1 ppm or higher. A total of 2 samples will be collected from the surface soils in the bottom of the excavation in the locations indicated on Figure 9. The samples will be collected as specified in TCEQ Standard Operating Procedure (SOP) No. 10.1 – Soil Sampling Using a Trowel.

Decontamination of the sampling equipment will be performed in accordance with the procedures specified in TCEQ SOP 1.5 – Decontamination. Investigation derived wastes, such as used disposable personnel protective equipment (PPE), disposable sampling equipment, spent decontamination fluids, etc. will be managed in accordance with TCEQ SOP No. 1.4 – Management of Investigation Derived Waste.

Copies of SOP Nos. 1.4, 1.5 and 10.1 are provided in Appendix B of this RAWP.

## **7.0 DESCRIPTION OF OTHER REMOVAL ACTIVITIES TO TAKE PLACE ON THE SITE**

In accordance with the AO, a remedial investigation and feasibility study (RI/FS) is being conducted to determine if there are areas at the Site that require remediation to achieve protective concentration levels (PCLs). One remedial approach that could be considered if such areas are identified is removal. Therefore, additional removal activities beyond those covered by this RAWP are subject to the findings and recommendations of the RI/FS. If such removal activities are identified for the Site in the future, they will be addressed in a separate RAWP.

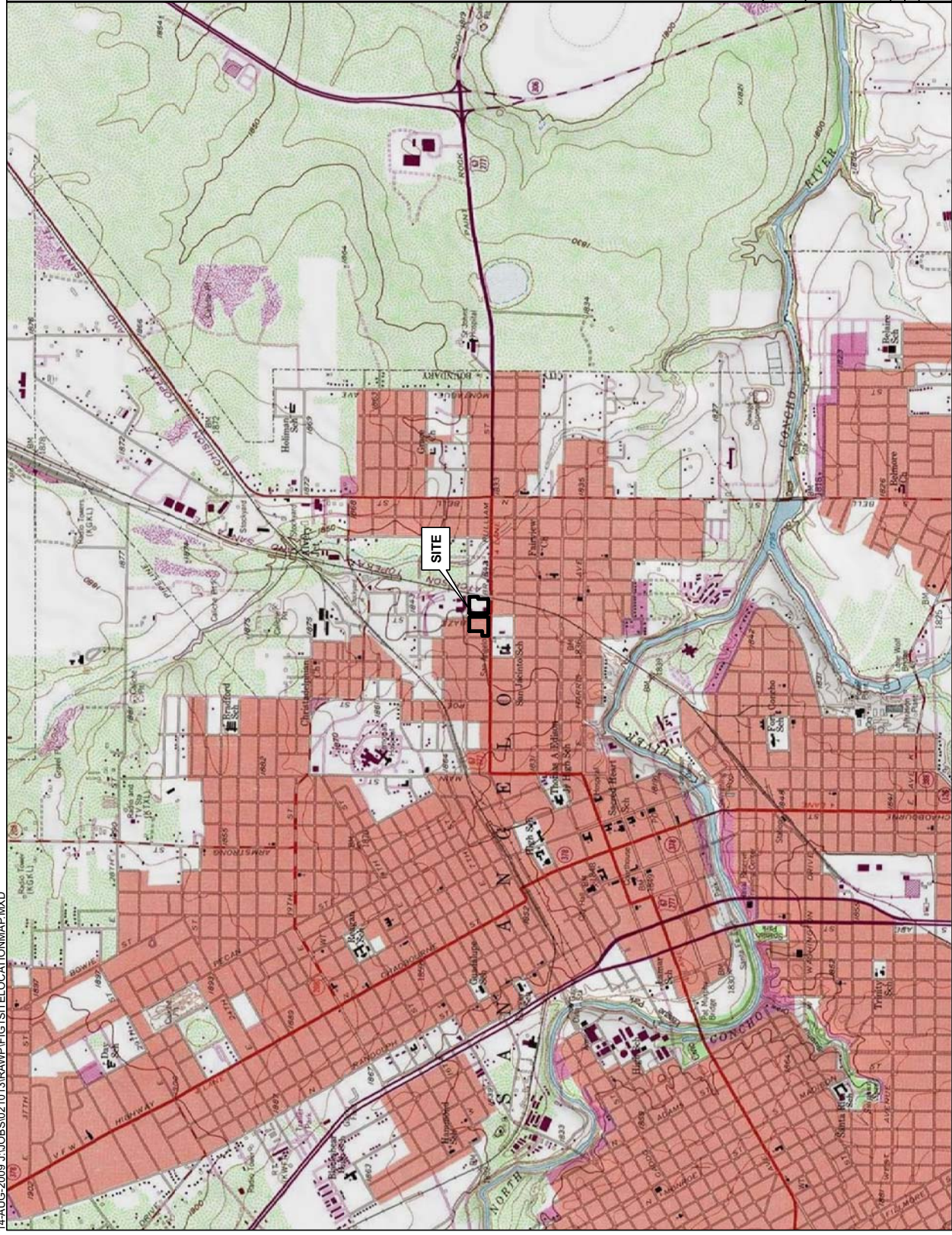
## 8.0 SCHEDULE

Major milestones and their approximate time for completion are:

- Subcontractor (excavation, transportation and disposal) procurement and award – Commence procurement activities 1 to 2 weeks after receipt of TCEQ approval of the RAWP, complete (issue subcontracts) 3 to 6 weeks after commencing.
- Mobilization and Site preparation – 2 to 4 weeks after award of subcontracts (note – this is dependent on selected excavation contractor's availability).
- Complete removal actions and Site restoration – 2 to 4 weeks after completion of Site preparation activities (note – actual time required will depend on conditions encountered in the field during the removal actions).
- Submittal of the RAR – 60 days after completion of removal action.

A detailed project schedule for the work covered by this RAWP will be prepared once the approval of the RAWP has been received from the TCEQ, subject to modification once the excavation contractor has been selected.

## **FIGURES**



**Legend**

— Approximate Site Boundary



Source: Base map San Angelo South, Texas  
7.5 min U.S.G.S. quadrangle (1978).

**SESCO**  
SAN ANGELO, TEXAS

FIGURE 1

**SITE LOCATION MAP  
AND TOPOGRAPHIC MAP**


PROJECT: 021013	DATE: AUG 14, 2009
REV: 0	BY: BWB   CHECKED: JCM

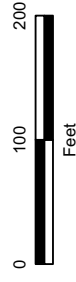
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**Legend**

- - - Approximate Property Boundary
-  Approximate Areas of Concern



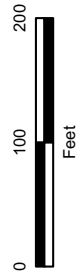
Source: Aerial photograph flown by Aerial Viewpoint in July, 2007.

<b>SESCO</b> SAN ANGELO, TEXAS	
FIGURE 2	
<b>AREAS OF CONCERN ADDRESSED BY RAWP</b>	
PROJECT: 021013	DATE: OCT 14, 2009
BY: BWB	CHECKED: GTF
REV: 0	
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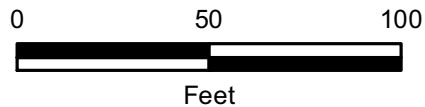
**Legend**

-- Temporary Site Facility Areas



Source: Aerial photograph flown by Aerial Viewpoint in July 2007.

<b>SESCO</b> SAN ANGELO, TEXAS	
FIGURE 3	
<b>TEMPORARY SITE SUPPORT FACILITIES</b>	
PROJECT: 021013	DATE: AUG 14, 2009
BY: BWB	CHECKED: GTF
REV: 0	
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**SESCO**  
SAN ANGELO, TX  
FIGURE 4

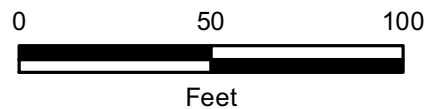
**UNTANKING BUILDING AREA  
PLANNED EXCAVATION LIMITS**

PROJECT: 021013	DATE: AUG 14, 2009
REV: 0	BY: BWB   CHECKED: GTF

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~15' x 8'  
Excavate to  
Depth of 2'



**SESCO**  
SAN ANGELO, TX

FIGURE 5

**GRASS STRIP NEAR  
INTERSECTION OF  
PULLIAM ST & N. BROWNING ST**

PROJECT: 021013

DATE: AUG 14, 2009

REV: 0

BY: BWB



CHECKED: GTF

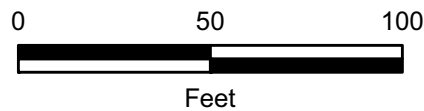
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**Legend**

-  Post Excavation Sampling Location
-  Approximate Area of Concern

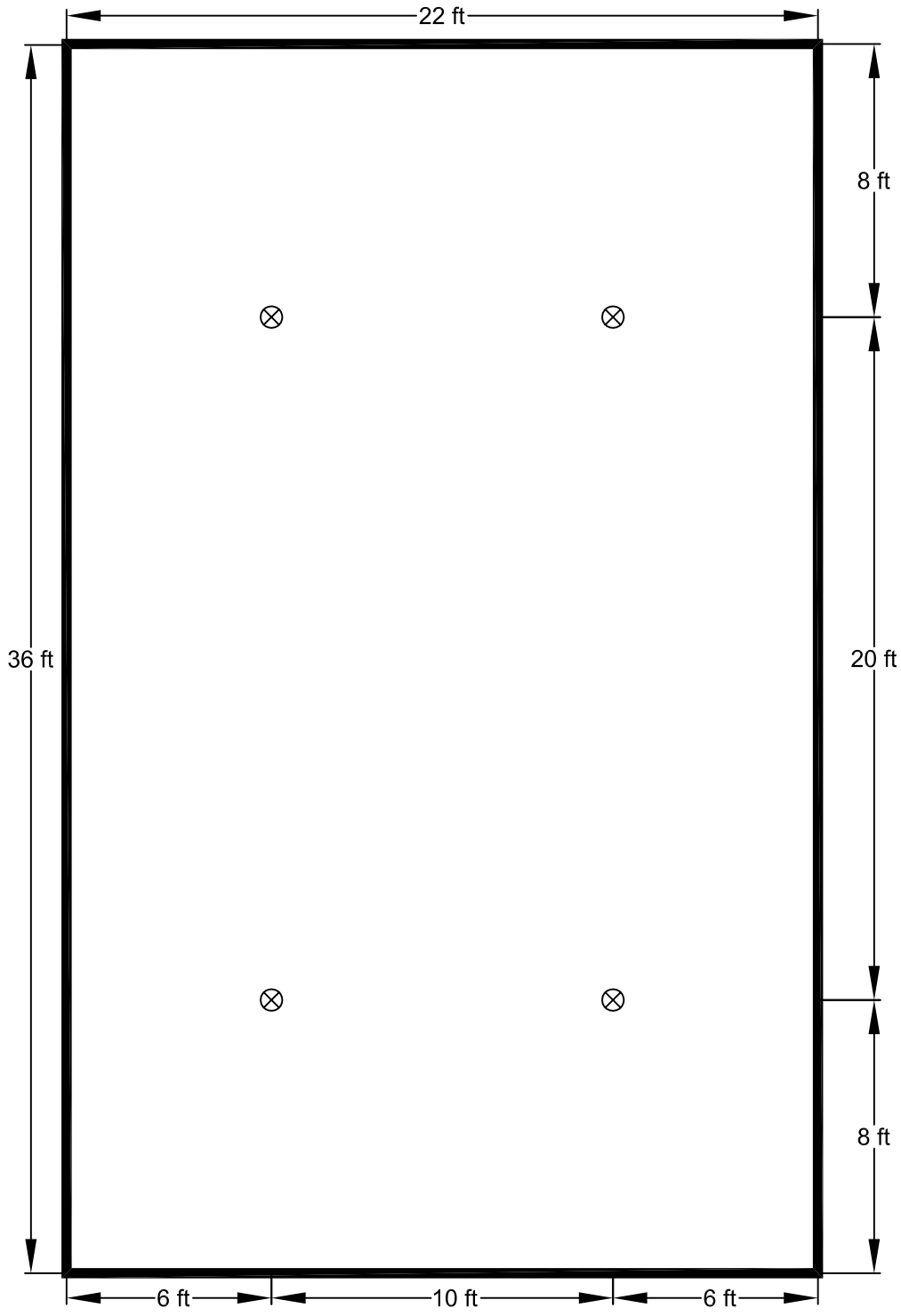


**SESCO**  
SAN ANGELO, TX


FIGURE 6  
**TXDOT/RAILROAD ROW  
POST-EXCAVATION  
SAMPLING LOCATIONS**

PROJECT: 021013	DATE: SEP 28, 2009
REV: 0	BY: BWB   CHECKED: GTF

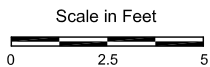
**TETRA TECH**  
*complex world, clear solutions*



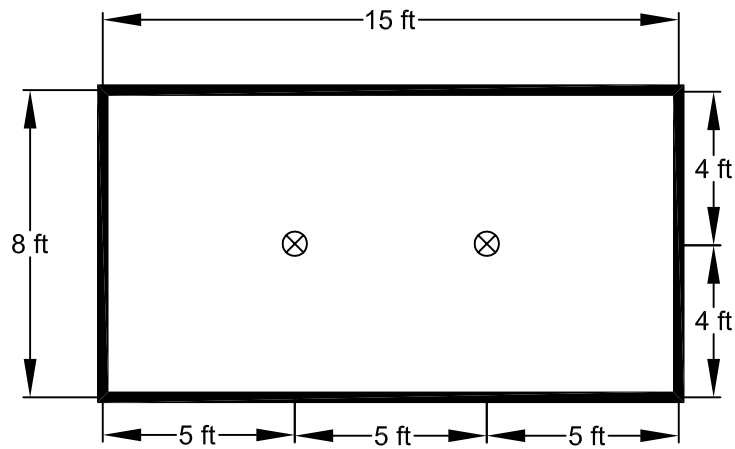
**EXPLANATION**

 Limit of Excavation


 Sample Location



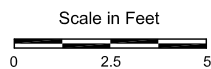
<b>SESCO</b> San Angelo, TX		
FIGURE 7 <b>POST-EXCAVATION SAMPLING          LOCATIONS AREA ADJACENT          TO UNTANKING BUILDING</b>		
PROJECT: 021013	BY: BWB	REVISIONS
DATE: AUG. 2009	CHECKED: GTF	
<b>TETRA TECH</b> COMPLEX WORLD, CLEAR SOLUTIONS		



**EXPLANATION**

 Limit of Excavation

 Sample Location



<b>SESCO</b> San Angelo, TX		
<b>FIGURE 8</b> <b>POST-EXCAVATION SAMPLING</b> <b>LOCATIONS GRASS STRIP AT</b> <b>INTERSECTION OF</b> <b>PULLIAM ST. &amp; N. BROWNING ST.</b>		
PROJECT: 021013	BY: BWB	REVISIONS
DATE: AUG. 2009	CHECKED: GTF	
<b>TETRA TECH</b> COMPLEX WORLD, CLEAR SOLUTIONS		

**APPENDIX A**  
**HEALTH & SAFETY PLAN**

## HEALTH AND SAFETY PLAN (HASP)

PREPARED BY TETRA TECH  
FOR SERVICES PROVIDED TO  
**SESCO Site Working Group**

**SITE NAME:** **SESCO State Superfund Site**

**SITE LOCATION:** **926 Pulliam Street San Angelo, TX 76903**

**DATE PREPARED:** **September 21, 2009**

## EMERGENCY CONTACT INFORMATION

NOTE: Information entered into the emergency section of this HASP will automatically be entered onto this cover page.

**24 Hour Ambulance:** 911

**Police Department:** 911

**Fire Department:** 911

**US Poison Control Centers:** 1-800-222-1222

**Tt Project Emergency Contact:** Rachel Weddell  
361-443-9235

**Tt Corporate Emergency Contact:** Yvonne Freix  
Office: 715-845-4100  
Mobile: 888-297-8552  
Home: 715-355-4193

**Name of Closest Hospital:** **Shannon Medical Center; 120 East Harris Av.**  
**Route:** Go west on Pulliam St. (0.6mi) Turn left onto N Main st. (0.4mi). Turn right onto E. Harris Ave.(0.2mi) 120 E. Harris Ave is on the right.



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Note: The sections highlighted in yellow are required for all health and safety plans with the other sections optional depending on the project, tasks and associated hazards. If this template is used for sites without chemical hazards, the following sections may be eliminated as well; H&S Evaluation Chemicals of Concern, Hazard Evaluation of Chemicals of Concern and Precautions for Chemicals of Concern; and Decontamination Plan.

**Forms Attached**

- Worker / Visitor Sign-In Form √
- Daily Tailgate Meeting Form √
- Field Audit Form √
  
- Equipment Calibration Form √
- Chemical/MSDS Inventory √
  
- Other \_\_\_\_\_ √
- Other \_\_\_\_\_ √
- Other \_\_\_\_\_ √

## HEALTH AND SAFETY PLAN (HASP)

**SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903**

<b>Prepared By:</b>	W. Peyton Taylor Tetra Tech Austin	<b>Date:</b>	September 21, 2009
		<b>Tt Project No:</b>	114-021013

**Project Identification:**

<b>Service Type:</b>	Environmental Sciences	<b>Site Name:</b>	SESCO State Superfund Site
<b>Client Name:</b>	SESCO Site Working Group	<b>Site Location:</b>	926 Pulliam Street San Angelo, TX 76903
<b>Client Contact:</b>	Deborah Boyle	<b>Client Phone No:</b>	214-486-2022

<b>Site History:</b>	The Site was the location of an electric transformer rebuild/recycling/repair facility that operated from 1945 to 2003. Several previous Site investigations and removal activities of soil, ground water, and NAPL have occurred at the Site. Data from these investigations indicate PCB contamination in soils.
----------------------	--

<b>Scope of Work:</b>	Removal of soil and debris material containing polychlorinated biphenyls (PCBs) from several areas outside of the fence line at, or adjacent to, the SESCO site
-----------------------	---

**Site Regulatory Status:**

CERCLA/SARA	RCRA	OSHA	OTHER FEDERAL
<b>US EPA:</b> no	<b>US EPA:</b> no	<b>1910:</b> no	<b>Dept of Energy (DOE):</b> no
<b>State:</b> yes	<b>state:</b> no	<b>1926:</b> no	<b>Dept of Trans (DOT):</b> no
<b>NPL site:</b> no	<b>NRC</b>	<b>state:</b> no	<b>USATHAMA:</b> no
<b>TSCA site:</b> yes	<b>10CFR20:</b> no		<b>Air Force:</b> no

NPL - US EPA National Priorities List NRC - Nuclear Regulatory Commission USATHAMA - US Army Toxic and HazMat Agency	OSHA 1910 - General Industry Standards and Regulations OSHA 1926 - Construction Standard and Regulations OSHA state - site located in a state that has its own OSHA regulations
--	---

**Review and Approval Documentation**

<b>Reviewed By:</b>			
	Name: Gregory T. Farrell		Signature _____
	Title: Task Manager		Date: _____
	Name: _____		Signature _____
	Title: _____		Date: _____

Reviewer signature also certifies that the PPE selected for this project was based on a hazard assessment of the tasks to be performed and selected according to the requirements established by OSHA in 29 CFR 1910.132 (d).

<b>Project Dates</b>	<b>HASP Amendment Dates:</b>
----------------------	------------------------------

<b>Project Start Date:</b> October 19, 2009	<b>1</b>	
<b>Project End Date:</b> December 31, 2009	<b>2</b>	Enter date
<b>This site HASP must be reissued/reapproved for</b>	<b>3</b>	Enter date
<b>activities conducted after:</b> December 31, 2009	<b>4</b>	Enter date

**Tetra Tech Representatives**

Branch Address and Phone	Name/Title	Role and Responsibilities
Tetra Tech 7800 Shoal Creek Blvd, Suite 253 East	512-338-1667 Bryan McCulley Greg Ferrell	Project Management Task manager, removal activities



## HEALTH AND SAFETY PLAN (HASP)

**SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903**

Traffic	<input type="checkbox"/> Client <input checked="" type="checkbox"/> Tetra Tech <input checked="" type="checkbox"/> Sub <input type="checkbox"/> Other	Onsite and offsite activities should have traffic patterns established and any work off site should address local traffic as well.
Personal and Equipment Decontamination	<input type="checkbox"/> Client <input checked="" type="checkbox"/> Tetra Tech <input checked="" type="checkbox"/> Sub <input type="checkbox"/> Other	Whichever company(s) will handle PCB contaminated soils should prepare a plan to ensure their employees are protected and that contamination is not relocated to other parts of the site or to off site areas.
Other	<input type="checkbox"/> Client <input type="checkbox"/> Tetra Tech <input type="checkbox"/> Sub <input type="checkbox"/> Other	

Tetra Tech's policy is to provide a safe working environment for all employees and contractors so that work may be conducted in a safe and efficient manner.

Tetra Tech employees and subcontractor employees working at the specific project covered by this HASP shall adopt and adhere to this HASP and the above referenced programs/policies by following all requirements stated in the safe work practices applicable to their work. No work is so urgent or important that we cannot take the time to do it safely. **ALL** personnel on site including subcontractor's have the right and responsibility to stop the work if they feel a safety protocol is not being followed or if they feel an unsafe condition exists.

### Site Specific Health and Safety Personnel

**Adam Hernandez** has been designated **Site Health and Safety Coordinator (SHSC)**

for activities to be conducted at this site. The SHSC has total responsibility for ensuring that the provisions of this HASP are adequate and implemented in the field. Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, the personnel assigned as SHSCs are experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120.

**Greg Ferrell** has (have) been designated as the **alternate SHSC(s)**.

### Activities Covered Under This Plan

<b>Task</b>	<b>1</b>		<b>Schedule:</b> 10/19/09 - 12/31/09
	<b>Installation of temporary access</b>	Identification of utilities, installation of temporary site support facilities (ie. roads, decon areas), installation of sedimentation control devices, maintain temporary support facilities	
<b>Task</b>	<b>2</b>		<b>Schedule:</b> 10/19/09 - 12/31/09
	<b>Soil/debris excavation</b>	Excavation of contaminated soils/debris, loading soil/debris into transport trucks, transportation of excavated materials to disposal facility	
<b>Task</b>	<b>3</b>		<b>Schedule:</b> 10/19/09 - 12/31/09
	<b>Post excavation soil sampling</b>	Confirmation soils remaining in place do not contain soil PCB concentrations above action limits.	
<b>Task</b>	<b>4</b>		<b>Schedule:</b> 10/19/09 - 12/31/09
	<b>Regrading and Backfill</b>	Regrading and backfill to prevent stormwater runoff from entering disturbed excavated areas.	
<b>Task</b>	<b>5</b>		<b>Schedule:</b> 10/19/09 - 12/31/09
	<b>TT Oversight</b>	Oversee work conducted by subcontractors to ensure work is performed in accordance with RAWP No. 1	

### Types and Sources of Hazards

<b>Physiochemical</b>	<b>Radiation</b>	<b>Chemically Toxic</b>
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**HEALTH AND SAFETY PLAN (HASP)**

SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903

<b>Flammable:</b> n	<b>Ionizing:</b> No	<b>Inhalation:</b> y
<b>Explosive:</b> n	<b>Non-Ionizing:</b> UV / IR / RF / Laser / MW	<b>Ingestion:</b> y
<b>Corrosive:</b> n	<b>Other</b>	<b>Absorption:</b> y
<b>Reactive:</b> n	<b>Physical Hazards:</b> y	<b>Carcinogen:</b> y
<b>O2 Rich:</b> n	<b>Construction Activities:</b> y	<b>Mutagen:</b> n
<b>O2 Deficient:</b> n		<b>Teratogen:</b> n
<b>Biological</b>		<b>OSHA listed:</b> n
<b>Etiological Agent:</b> n	<b>Specific OSHA Standards:</b>	
<b>Other:</b> y	Heat Stress, snakes, dogs (offsite)	
(plant, insect, animal)		
Etiological - disease causing agent		Chemical toxicity information (such as routes of entry and whether or not a chemical is carcinogenic, mutagenic, etc) can be found in the Chem worksheet of this template, on the chemicals of concern page under target organs, or in the NIOSH pocket guide

Direct Sources of Hazards		Indirect Sources (Describe)
<b>Air:</b> y	<b>Other:</b> y/n	NA
<b>Groundwater:</b> n		
<b>Soil:</b> y	Dust	
<b>Surface Water:</b> n		

**Health and Safety Evaluation - Chemicals of Concern**

Chemical Name	Entry Route	Carc*	Symptoms	Target Organs
Polychlorinated Biphenyls (PCB's) - Chlorodiphenyl 42% chlorine (54% chlorine)	Inh, Abs, Ing, Con	y	Irritant (eye and skin), chloracne, liver damage, reproductive effects cancer.	Skin, eyes, liver, reproductive system. In animals; tumors of the pituitary gland and liver, leukemia.

**Health and Safety Evaluation - Hazard Evaluation of Chemicals of Concern**

## HEALTH AND SAFETY PLAN (HASP)

SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903

Chemical Name	LEL/UEL (%)	Flam	OT (ppm)	IDLH	Exposure Limits
Polychlorinated Biphenyls (PCB's) - Chlorodiphenyl 42% chlorine (54% chlorine)	NA	n	-	5 mg/m3	<b>OSHA-PEL-TWA</b> = 1 mg/m3 (42%); 0.5 mg/m3 (54%); both with a skin notation <b>ACGIH-TLV-TWA</b> = 1 mg/m3 (42%); 0.5 mg/m3 (54%); both with a skin notation <b>NIOSH-REL-TWA</b> = 0.001 mg/m3 The NIOSH - REL also applies to other PCB's

### Health and Safety Evaluation - Chemicals of Concern / Precautions

#### **PRECAUTIONS**

**INGESTION:** All listed chemicals have the potential for accidental ingestion, however in work place settings it is not considered a primary route of entry. All

**INHALATION:** Listed chemicals capable of inhalation routes of entry should be maintained below the established exposure limits. If there is indication that

**ABSORBANCE/CONTACT:** Listed chemicals presenting an absorbance or contact hazards should be handled only with the use of appropriate PPE.

**NOTE:** Overexposure to any chemical via any route of entry should be addressed by referring to the MSDS and seeking immediate medical attention. Avoid contact with all chemical hazards when possible and consult MSDS before any exposure may occur.

#### **OTHER PRECAUTIONS**

NONE

#### **ABBREVIATIONS**

**LEL** = Lower Explosive Limit

**UEL** = Upper Explosive Limit

**ppm** = parts per million

**mg/m3** = milligram per cubic meter

**TWA** = Time Weighted Average

**STEL** = Short Term Exposure Limit

**Flam** = Flammable

**IDLH** = Immediately Dangerous to Life and Health

**OT** = Odor Threshold

**NOTE:** Odor Thresholds were obtained from the American Industrial Hygiene Association's (AIHA) publication on Odor Thresholds. The listed thresholds are best estimates based on existing experimental data. (d) indicates the threshold for detection and (r) indicates the threshold for recognition.

## HEALTH AND SAFETY PLAN (HASP)

**SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903**

NOTE: \* In 1989, OSHA published new exposure limits (in most cases lower) for some chemical compounds. However, in 1993, under a court decision, these newly established limits were vacated and reverted back to the previous limit or to none if a limit was not previously established for the chemical compound. The limits listed in the table are the older, enforceable OSHA limits. It is recommended that the most conservative exposure limit listed be used in assessing exposures and determining controls and safety measures.

### Health and Safety Evaluation - Physical / Construction Hazards of Concern

**For the hazards that apply to this site, indicate the task(s) to which each particular hazard applies. For the hazards that do not apply to this site,**

HAZARD	Task No(s)	Protection Procedure
Noise	1,2,3,4,5	Wear hearing protection during high noise activities
Heat - Ambient Air	1,2,3,4,5	Frequent intake of fluids and adequate work-rest schedule
Rain	1,2,3,4,5	Wear rain gear; watch footing on wet surfaces
Electrical Storms	1,2,3,4,5	Discontinue operations
Heavy Lifting / Moving	1,2,3,4	Utilize proper lifting techniques
Rough Terrain	1,2,3,4,5	Watch footing
Housekeeping	1,2,3,4,5	Maintain order
Neighborhood	1,2,3,4,5	Awareness of area; comply with contingency / ER plans
Traffic see pg. 3 of this plan	1,2,3,4,5	Obey traffic regulations; implement traffic control
Heavy Equipment Operation	1,2,4	Only qualified operators; inspections and back-up alarms
Lifting Equipment Operation	1,2,4	Only licensed operators; equipment inspections required
Excavating / Trenching	1,2,4	See Tt Safe Work Practice; Comply with OSHA regulations
Materials Handling	1,2,4	Determine safest physical means of handling material
Hazardous Materials Use / Storage	2	Consult MSDS and Tt Safe Work Practices
Utilities - Underground	1,2,4	Have located before any work commences
Utilities - Overhead	1,2,4	Keep objects more than 20 feet from power lines
Electrical - General	1,2,4,5	See Tt Safe Work Practice; Comply with OSHA regulations
Hand Tools	1,2,3,4	Use appropriate tools for the task-inspect prior to use
High Pressure Water	1,2,4	Follow operating instructions - use PPE
Other:		

### Task Based Risk Analysis and Protection Plan

The preceding tables have identified the known and suspected hazards to be present in performing the tasks required to complete this project. Below is a breakdown by task of the hazards, likelihood of exposures, and protective protocols to be used to minimize risk.

**Task: 1 Installation of temporary access**

<b>Associated Hazards:</b>	<b>CHEMICAL</b>	Subcontractors responsibility to write a plan with final review and acceptance by TT.
	<b>PHYSICAL</b>	Subcontractors responsibility to write a plan with final review and acceptance by TT.
	<b>BIOLOGICAL</b>	None
	<b>OTHER</b>	None
<b>Exposure Potential:</b>	<b>CHEMICAL</b>	Not likely
	<b>PHYSICAL</b>	Likely
	<b>BIOLOGICAL</b>	NA
	<b>OTHER</b>	NA
<b>PPE:</b>	Level D	This task will require hard hat, steel toe boots, long pants, leather gloves and hearing protection during the use of specific equipment.
<b>Air Monitoring Plan</b>	If large amounts of dust are generated water will be used for dust control	
<b>Air Monitoring Equipment</b>	None	

## HEALTH AND SAFETY PLAN (HASP)

SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903

<b>Precautions:</b>	<b>CHEMICAL</b>	Use of gloves, no eating within excavation or work areas
	<b>PHYSICAL</b>	Hard hat, leather gloves, steel toed boots, long pants, hearing protection.
	<b>BIOLOGICAL</b>	none
	<b>OTHER</b>	none

### Task Based Risk Analysis and Protection Plan

The preceding tables have identified the known and suspected hazards to be present in performing the tasks required to complete this project. Below is a breakdown by task of the hazards, likelihood of exposures, and protective protocols to be used to minimize risk.

**Task: 2 Soil/debris excavation**

<b>Associated Hazards:</b>	<b>CHEMICAL</b>	Exposure to PCBs from contaminated soils.
	<b>PHYSICAL</b>	Physical hazards associated with this task include strains & sprains from material handling, pinch points related to the equipment, cold/heat stress depending on the season, and underground utilities. Open pits/excavation.
	<b>BIOLOGICAL</b>	none
	<b>OTHER</b>	none

<b>Exposure Potential:</b>	<b>CHEMICAL</b>	likely
	<b>PHYSICAL</b>	likely
	<b>BIOLOGICAL</b>	NA
	<b>OTHER</b>	NA

<b>PPE:</b>	Level	This task will require hard hat, steel toe boots, long pants, leather gloves and hearing protection during the use of specific equipment.
	D	

<b>Air Monitoring Plan</b>	Dust will be controled with water as needed.
----------------------------	--

<b>Air Monitoring Equipment</b>	none
---------------------------------	------

<b>Precautions:</b>	<b>CHEMICAL</b>	Use of gloves, no eating within excavation areas
	<b>PHYSICAL</b>	Hard hat, leather gloves, steel toed boots, long pants, hearing protection. Barricading and traffic control will be implemented around excavations and working areas.
	<b>BIOLOGICAL</b>	none
	<b>OTHER</b>	none

### Task Based Risk Analysis and Protection Plan

The preceding tables have identified the known and suspected hazards to be present in performing the tasks required to complete this project. Below is a breakdown by task of the hazards, likelihood of exposures, and protective protocols to be used to minimize risk.

**Task: 3 Post excavation soil sampling**

<b>CHEMICAL</b>	Exposure to PCBs from contaminated soils.
-----------------	---

## HEALTH AND SAFETY PLAN (HASP)

SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903

<b>Associated Hazards:</b>	<b>PHYSICAL</b>	Physical hazards associated with this task include strains & sprains from material handling, pinch points related to the equipment, cold/heat stress depending on the season, and underground utilities. Open pits/excavation.
	<b>BIOLOGICAL</b>	snakes, heat stress
	<b>OTHER</b>	none
<b>Exposure Potential:</b>	<b>CHEMICAL</b>	Likely
	<b>PHYSICAL</b>	Not likely
	<b>BIOLOGICAL</b>	Snakes - not likely, Heat stress - likely
	<b>OTHER</b>	
<b>PPE:</b>	Level	This task will require hard hat, steel toe boots, long pants, disposable nitrile gloves, changed after each sampling location, and hearing protection during the use of specific equipment.
	D	
<b>Air Monitoring Plan</b>	None	
<b>Air Monitoring Equipment</b>	None	
<b>Precautions:</b>	<b>CHEMICAL</b>	Use of gloves, no eating within excavation areas.
	<b>PHYSICAL</b>	Physical hazards associated with this task include strains & sprains from material handling, pinch points related to the equipment, cold/heat stress depending on the season, and underground utilities. Open pits/excavation.
	<b>BIOLOGICAL</b>	Snake leggings required in grassy areas or with rubble/equipment, where snakes might reside
	<b>OTHER</b>	Heat stress - review Heat Stress materials attached to this document. Implement work/rest regimen
<b>Task Based Risk Analysis and Protection Plan</b>		
The preceding tables have identified the known and suspected hazards to be present in performing the tasks required to complete this project. Below is a breakdown by task of the hazards, likelihood of exposures, and protective protocols to be used to minimize risk.		
<b>Task:           4           Regrading and Backfill</b>		
<b>Associated Hazards:</b>	<b>CHEMICAL</b>	Subcontractors responsibility to write a plan with final review and acceptance by TT.
	<b>PHYSICAL</b>	Subcontractors responsibility to write a plan with final review and acceptance by TT.
	<b>BIOLOGICAL</b>	none
	<b>OTHER</b>	none
<b>Exposure Potential:</b>	<b>CHEMICAL</b>	not likely
	<b>PHYSICAL</b>	not likely
	<b>BIOLOGICAL</b>	not likely
	<b>OTHER</b>	
<b>PPE:</b>	Level	This task will require hard hat, steel toe boots, long pants, leather gloves and hearing protection during the use of specific equipment.
	D	

**HEALTH AND SAFETY PLAN (HASP)**

SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903

<b>Air Monitoring Plan</b>	Dust will be controlled by wetting exposed areas when necessary.	
<b>Air Monitoring Equipment</b>	none	
<b>Precautions:</b>	<b>CHEMICAL</b>	none
	<b>PHYSICAL</b>	Physical hazards associated with this task include strains & sprains from material handling, pinch points related to the equipment, cold/heat stress depending on the season, and underground utilities. Open pits/excavation.
	<b>BIOLOGICAL</b>	none
	<b>OTHER</b>	none
<b>Task: 5 TT Oversight</b>		
<b>Associated Hazards:</b>	<b>CHEMICAL</b>	Exposure to PCBs from contaminated soils
	<b>PHYSICAL</b>	Physical hazards associated with this task include strains & sprains from material handling, pinch points related to the equipment, cold/heat stress depending on the season, and underground utilities. Open pits/excavation.
	<b>BIOLOGICAL</b>	Snakes, Heat stress
	<b>OTHER</b>	none
<b>Exposure Potential:</b>	<b>CHEMICAL</b>	not likely
	<b>PHYSICAL</b>	not likely
	<b>BIOLOGICAL</b>	Snakes - not likely, Heat stress - likely
	<b>OTHER</b>	
<b>PPE:</b>	Level D	This task will require hard hat, steel toe boots, long pants, disposable nitriles gloves, and hearing protection during the use of specific equipment.
<b>Air Monitoring Plan</b>	Dust will be controlled by wetting exposed areas when necessary.	
<b>Air Monitoring Equipment</b>	none	
<b>Precautions:</b>	<b>CHEMICAL</b>	none
	<b>PHYSICAL</b>	Physical hazards associated with this task include strains & sprains from material handling, pinch points related to the equipment, cold/heat stress depending on the season, and underground utilities. Open pits/excavation.
	<b>BIOLOGICAL</b>	Snake leggings required in grassy areas or with rubble/equipment where snakes might reside.
	<b>OTHER</b>	Heat stress - review Heat Stress materials attached to this document. Implement work/rest regiment.
<b>Personal Protective Equipment Level Definitions</b>		
<b>Level D</b>	Level D protection is assigned when minimal protection is warranted. Level D offers protection from nuisance contamination only and is made up of a typical work uniform for the work to be performed. Level D protection includes the following:  <b>Hard hat, safety glasses, hearing protection (as required), gloves, and steel toe boots.</b>	
<b>Level C</b>	Level C protection is assigned when the type(s) and concentration(s) of contaminants is known and the criteria for using an air-purifying respirator are met. Level C is an upgrade from level D and in addition to the requirements of level D, the following	

requirements must be met:

**Level D plus Full-face or half-mask air purifying canister/cartridge equipped respirator, hooded chemical resistant clothing, and inner and outer chemical resistant gloves.**

**Level B**

Level B protection is assigned when the type(s) and concentration(s) of contaminants is unknown or is known and warrants the highest level of respiratory protection with a lesser level of skin protection. Level B is an upgrade from level C and in addition to level C requirements, the following requirements must be met:

**Level C plus pressure-demand full-face SCBA or pressure demand supplied air respirator with escape SCBA.**

**Level A**

Level A protection is assigned when the atmosphere is IDLH (Immediately Dangerous to Life and Health) and warrants the highest degree of respiratory protection and skin protection. Level A is an upgrade from level B and in addition to level B requirements, the following requirements must be met:

**Level B plus totally encapsulating chemical-protective suit.**

**CARTRIDGE CHANGEOUT SCHEDULE**

**Cartridge Changeout Schedule:**

NA

**Method Used to Determine Schedule:**

NA

**Decontamination Plan**

**Personal Decontamination**

The section outlining task by task risk assessment and protection plan specifies the level of protection required for each task. Consistent with the level of protection required, step by step procedures for decontamination for each level of protection are given below.

Wash with Alconox/water solution, rinse with tap water. Dispose of PPE in containers containing like solid waste.

**Levels of Protection Required for Decontamination Personnel**

**The level of protection required for a person assisting with decontamination is:**

	LEVEL: D	
<p><b>Modification: (upgrade or downgrade) will be made under the following conditions:</b>          If muddy conditions are encountered personnel assisting in decontamination should wear disposable tyvek suits and nitrile gloves in addition to other level D ppe.</p>		
<b>Disposition of Contaminated Wastes</b>		
<p><b>The following outlines the protocol to be followed for contaminated wastes that are encountered:</b>          All wash and waste water will be containerized, disposed of through the on-site treatment system. PPE waste including gloves and decon gear will be containerized and disposed of along with the contaminated soils.</p>		
<b>Sampling Equipment Decontamination</b>		
<p><b>The following outlines the protocol to be followed for decontamination of sampling equipment:</b>          All sampling equipment will be washed with Alconox/DI water solution, followed by rinsing with DI water.</p>		
<b>Non-Sampling Equipment Decontamination</b>		
<p><b>The following outlines the protocol to be followed for decontamination of non-sampling equipment:</b>          Subcontractor's responsibility to write and submit to TT for review.</p>		
<b>Contingencies</b>		
<b>Emergency Contacts and Phone Numbers</b>		
<b>Agency</b>	<b>Contact</b>	<b>Phone Number</b>
<b>Tt Project Emergency Contact</b>	Bryan McCulley	512-338-1667/ 512-680-3006
<b>24 Ambulance Service</b>		911
<b>Fire Department</b>		911
<b>Police Department</b>		911
<b>US Poison Control Center</b>	NA	1-800-222-1222
<b>Onsite Coordinator</b>	Adam Hernandez	325-227-7102
<b>Site Telephone</b>		none
<b>Nearest Telephone</b>		
<p>In the event of an incident, the TT-MM reporting protocol requires that a corporate contact be notified as soon as possible.</p>	Yvonne Freix	<b>Office:</b> 715-845-4100 <b>Mobile:</b> 888-297-8552 <b>Home:</b> 715-355-4193
	Nancy Garreud	<b>Office:</b> 801-364-2027 <b>Mobile:</b> 801-550-0894
	Tory Fravel	<b>Office:</b> 970-223-9600 <b>Mobile:</b> 970-481-0883 <b>Home:</b> 970-266-9409

## HEALTH AND SAFETY PLAN (HASP)

SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903

Local Medical Emergency Facility(s)																									
<b>Name of Hospital:</b>	Shannon Medical Center <span style="float: right;"><b>Distance:</b> 2 miles</span>																								
<b>Address:</b>	120 E. Harris Ave <span style="float: right;"><b>Time:</b> 5 minutes</span>																								
<b>Type of Service:</b>	ER, 24 hr, trauma																								
<b>Route:</b>	Go west on Pulliam St. (0.6mi) Turn left onto N Main st. (0.4mi). Turn right onto E. Harris Ave.(0.2mi) 120 E. Harris Ave is on the right.																								
In the case of a <b>SERIOUS OR LIFE-THREATENING EVENT</b> (any injury, accident or near-miss event): 1. Seek emergency medical treatment immediately 2. Once the injured person(s) is appropriately cared for, call a corporate contact listed on the emergency wallet card and update the employee's supervisor and project manager as soon as possible.																									
Secondary Provider (Occupational Health Clinic)																									
<b>Name of Occ Clinic:</b>	Enter name if there if occupational clinic is available <span style="float: right;"><b>Distance:</b> X miles</span>																								
<b>Address:</b>	Enter address <span style="float: right;"><b>Time:</b> X minutes</span>																								
<b>Type of Service:</b>	Types of services available																								
<b>Route:</b>	Give explicit directions. NOTE: WORKCARE IS AVAILABLE TO LOOK UP POSSIBLE OCCUPATIONAL CLINICS IN THE PROJECT AREA. AN OCCUPATIONLA CLINIC SHOULD BE UTILIZED WHENEVER POSSIBLE FOR NON-EMERGENCY INJURIES. (WorkCare 1-800-455-6155)																								
In the case of a <b>NON-EMERGENCY/NON-LIFE THREATENING INCIDENT</b> (any injury, accident or near-miss event) call one of the corporate contacts listed on the wallet card (and above) prior to an Employee visiting a physician and implementing the following procedure: 1. Administer first aid immediately. 2. Tetra Tech employees call WorkCare (Tetra Tech contracted physicians) at 1-800-455-6155 for a triage call/discussion with an Occupational Health Nurse (OHN). 3. Mention that this is regarding an injury. At this point the nurse/physician will assist the employee/supervisor/H&S Coordinator to determine the best treatment plan. For example, he/she will recommend first aid or urgent care. 4. WorkCare will require the following information when a call is placed: Name of person calling, phone number, location, name of person injured, Social Security number, date and type of injury.																									
Response Plans																									
Medical - General																									
<b>First Aid Kit:</b>  <b>Eye Wash:</b>  <b>Safety Shower:</b>  <b>Special Procedures:</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Type:</b></td> <td>portable and wall mounted</td> <td style="width: 30%;"><b>Special First Aid Precautions:</b></td> <td></td> </tr> <tr> <td><b>Location:</b></td> <td>vehicle and office building</td> <td><b>Hydrofluoride on Site:</b></td> <td>n</td> </tr> <tr> <td><b>Required?:</b></td> <td>y</td> <td><b>Cyanides on Site:</b></td> <td>n</td> </tr> <tr> <td><b>Location:</b></td> <td>office building, vehicles, and at work area</td> <td><b>Other:</b></td> <td></td> </tr> <tr> <td><b>Required?:</b></td> <td>n</td> <td></td> <td></td> </tr> <tr> <td><b>Location:</b></td> <td></td> <td></td> <td></td> </tr> </table> <p>Consult MSDS for appropriate first aid measures related to chemical exposures. Seek immediate medical attention when incidents warrant anything beyond minor first aid response.</p>	<b>Type:</b>	portable and wall mounted	<b>Special First Aid Precautions:</b>		<b>Location:</b>	vehicle and office building	<b>Hydrofluoride on Site:</b>	n	<b>Required?:</b>	y	<b>Cyanides on Site:</b>	n	<b>Location:</b>	office building, vehicles, and at work area	<b>Other:</b>		<b>Required?:</b>	n			<b>Location:</b>			
<b>Type:</b>	portable and wall mounted	<b>Special First Aid Precautions:</b>																							
<b>Location:</b>	vehicle and office building	<b>Hydrofluoride on Site:</b>	n																						
<b>Required?:</b>	y	<b>Cyanides on Site:</b>	n																						
<b>Location:</b>	office building, vehicles, and at work area	<b>Other:</b>																							
<b>Required?:</b>	n																								
<b>Location:</b>																									
Fire/Explosion																									
<b>Special Procedures:</b>	Stop work, evacuate the site and call 911																								
<b>Fire Extinguisher:</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Type:</b></td> <td>ABC</td> </tr> <tr> <td><b>Location:</b></td> <td>Vehicles, site, office building</td> </tr> </table>	<b>Type:</b>	ABC	<b>Location:</b>	Vehicles, site, office building																				
<b>Type:</b>	ABC																								
<b>Location:</b>	Vehicles, site, office building																								
Spill Response																									

**HEALTH AND SAFETY PLAN (HASP)**

SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903

<b>Special Procedures:</b>		
<b>Special Gear:</b>	<b>Type:</b>	
	<b>Location:</b>	
<b>Weather/Natural Disaster Emergency</b>		
<b>Special Procedures:</b>	In the event of lightning cease work immediately and head for home base (SESCO office). If travel is not possible seek immediate shelter as available.	
<b>Site Control Measures</b>		
<b>Work Zones</b>		
<b>Exclusion Zone:</b>	Within excavation pit while equipment is in operation. Other than equipment spotters and other necessary workers no personnel will be allowed in and around excavation or stockpile areas while equipment is being operated. Figure 2	
<b>Decon Zone:</b>	Figure 3	
<b>Support Zone:</b>	Figure 3	
<b>Other Zones:</b>		
<b>Methods for Delineating Zones</b>		
<b>Work Zone Delineation Plan</b>	Work zones will be delineated using fencing, cones, and/or signage, etc.	
<b>Delineation Equipment</b>	This may include but not be limited to traffic cones, flags, fencing, specific signs etc.	
<b>Security Measures</b>		
In this section describe any additional security measures the will be taken at the site including details on locking and securing the site after hours, thrid party professional security if appropriate, client specific security that might be in place, etc.		
<b>Security Related Contacts</b>		
<b>Agency</b>	<b>Contact Name</b>	<b>Phone Number</b>
<b>Site Map</b>		
Figure 1		
<b>Site Personnel and Certification Status</b>		
<b>Name:</b>	Bryan McCulley	<b>Medical Current:</b> y
<b>Title:</b>	Project Management	<b>HAZWOPER Current:</b> y
<b>Task(s):</b>	1,2,3,4	<b>Fit Test Current:</b> qual

## HEALTH AND SAFETY PLAN (HASP)

**SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903**

<b>CPR/First Aid:</b>	CPR/First aid trained	
<b>Other:</b>		
<b>Name:</b>	Doug Laymon	<b>Medical Current:</b> y
<b>Title:</b>	Field Management	<b>HAZWOPER Current:</b> y
<b>Task(s):</b>	1,2,3,4	<b>Fit Test Current:</b> qual
<b>CPR/First Aid:</b>	CPR/First aid trained	
<b>Other:</b>		
<b>Name:</b>	Adam Hernandez	<b>Medical Current:</b> y
<b>Title:</b>	Field Personal	<b>HAZWOPER Current:</b> y
<b>Task(s):</b>	1,2,3,4	<b>Fit Test Current:</b> qual
<b>CPR/First Aid:</b>	CPR/First aid trained	
<b>Other:</b>		
<b>Name:</b>	Peyton Taylor	<b>Medical Current:</b> y
<b>Title:</b>	Field Personal	<b>HAZWOPER Current:</b> y
<b>Task(s):</b>	1,2,3,4	<b>Fit Test Current:</b> qual
<b>CPR/First Aid:</b>	CPR/First aid trained	
<b>Other:</b>		
<b>Name:</b>		<b>Medical Current:</b>
<b>Title:</b>		<b>HAZWOPER Current:</b>
<b>Task(s):</b>		<b>Fit Test Current:</b>
<b>CPR/First Aid:</b>		
<b>Other:</b>		
<b>Medical Current:</b>	All personnel, including visitors entering the exclusion or contamination reduction zones must be certified as medically fit to work and to wear a respirator if appropriate.	
<b>Training Current:</b>	All personnel, including visitors entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910.120.	
<b>Fit Test Current:</b>	All personnel, including visitors entering any area requiring the use or potential use of any negative pressure respirator must have at a minimum, a qualitative fit test administered in accordance with OSHA 29 CFR 1910.134 or ANSI within the last 12 months. If site conditions require the use of a full face negative pressure air purifying respirator for protection against asbestos or lead, employees	
<b>Note:</b>	These requirements should be verified for any subcontractor personnel assigned to the site.	
<b>Training and Briefing Topics</b>		
<b>Note: The following topics will be covered as indicated (i.e., the initial site training, daily, monthly or periodically). Delete the X's corresponding to the topics that do not apply to this site. Indicate the frequency for the topics that do apply.</b>		
Site characterization and analysis (29 CFR 1910.120 i)	X	monthly
Physical Hazards	X	initial
Chemical Hazards	X	initial
Site Control (29 CFR 1910.120 d)	X	daily
Engineering Controls and Work Practices (29 CFR 1910.120 g)	X	daily
Heavy Machinery	X	daily
Backhoe	X	daily
Equipment	X	daily
Tools	X	daily
Overhead and Underground Utilities	X	daily
Unguarded Openings	X	daily
PPE (29 CFR 1910.120 g; and 1910.134)	X	daily
Level D - Personal Protective Equipment	X	daily
Decontamination (29 CFR 1910.120 k)	X	daily
Emergency Response (29 CFR 1910.120 l)	X	initial
Electrical Material and Equipment Handling	X	initial
Sampling Drums and Containers	X	daily

## HEALTH AND SAFETY PLAN (HASP)

**SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903**

Shipping and Transportation (49 CFR 172.101)	X	initial	
Sanitation (29 CFR 1910.120 n)	X	initial	
Other:	Proper opening of containers and drums		
<b>Drilling Considerations</b>			
<b>Unfilled Bore-holes</b>			
Will bore-holes be drilled and need to be left unfilled for a period of time?		n	
If yes, length of time before filled or well installed.		NA	
Safe guarding requirements:	NA		
<b>Filling Bore-holes</b>			
Will bore-holes be drilled which require filling?		n	
Procedure for backfilling of bore-holes	NA		
<b>Other Site Specific Drilling Concerns:</b>			
Na			
<b>Intrusive Activities Checklist</b>			
Will intrusive activities be performed for work under this HASP?		Y	
If yes, describe the type(s) of intrusive activity.		Excavation of soils	
<b><u>Subsurface Structures Present</u></b>			
Type	Present?	Located ?	Method Used/To Be Used for Locating
Electrical	Possible	Will be prior to project	Will be located and marked by utility company.
Gas	Y	Will be prior to project	Will be located and marked by utility company.
Water	Y	Will be prior to project	Will be located and marked by utility company.
Product Line	n		
Product Tank	n		
Other			
<b><u>Shut-Offs Located</u></b>			
Type	Location of Shut-Off		
Electrical	NA		

## HEALTH AND SAFETY PLAN (HASP)

SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903

Gas	NA
Water	NA
Product	NA
<b>Emergency Contacts for Subsurface Structure Repair</b>	
<b>Type</b>	<b>Appropriate Contact for Emergency Repair of Specific Subsurface Structure Type/Material</b>
Electrical	
Gas	
Water	
Product	
Other	
<b>Procedure for Ensuring Unknown Substructures Identified</b>	
<p>Although potential known and unknown subsurface structures are identified per the above sections, there is always the potential for unknown subsurface structures to be encountered during intrusive activities. Therefore, a protocol needs to be established for each particular site. For this site, the following procedures will be followed for the intrusive activities identified above: (Delete the X's in front of the procedure(s) that do not apply to this site.)</p>	
X	"One Call" or equivalent utility locate per the local system for the site will be made (this is mandatory on all sites)
X	Follow up with one-calls (i.e. document who will be contacted with respect to the one call service along with their phone numbers and place and document calls to those organizations that did not respond). Form for one call follow up is attached.
<b>Other Specific Subsurface Identification Requirements for this Site</b>	
<b>Required PPE and Equipment Checklist</b>	
Delete the X's corresponding to the PPE/Equipment that does not apply to this site.	
HEALTH AND SAFETY BINDER / HASP, SITE CHECK IN/OUT PROCEDURES, ETC.	X
RELATED MSDS's	X
SAFETY GLASSES WITH SIDE SHIELDS	X
HARD HAT	X
STEEL-TOED BOOTS	X
GLOVES TYPE: Leather, Nitrile	X
HEARING PROTECTION TYPE:	X
HIGH VISIBILITY WEAR TYPE: reflective vests	X
WASTE DISPOSAL BAGS / LABELS	X
FIRE EXTINGUISHER	X
EYE WASH BOTTLE	X
FIRST AID KIT	X
WASH WATER	X
SOAP	X
INSECT REPELLENT	X
ALCONOX	X
DRINKING WATER	X
UV PROTECTION	X
<b>FIELD AUDITS</b>	
<p>A field auditing program should be determined for the project based on the scope of work, duration of the project and degree of hazards associated with the tasks involved.</p>	

## HEALTH AND SAFETY PLAN (HASP)

**SESCO State Superfund Site AT 926 Pulliam Street San Angelo, TX 76903**

During the course of this project a minimum number of field audits will be conducted as follows:	1
The following person is responsible for ensuring the audits and associated corrective actions are completed:	Greg Ferrell
<b>HAZARDOUS MATERIALS / DANGEROUS GOODS PACKAGING AND SHIPPING</b>	
Will known or suspect hazardous materials / dangerous goods be packaged and shipped?	yes
If shipping materials classified or suspected as hazardous materials or dangerous goods attach and follow SWP 5.38 entitled "SHIPPING HAZARDOUS MATERIALS". NOTE: DOT HAZMAT training is required to package, label, prepare paper work and ship hazardous materials. TMM personnel typically do	
<b>CONFINED SPACES</b>	
Are there any identified or potential confined spaces associated with the project?	No
Will the project involve any confined space entry?	No
If confined space entry is involved in the project, a confined space entry and permitting procedure needs to be identified here and attached to this HASP. If there are confined spaces present but they will not be entered, the spaces should be identified here and an indication provided as to how they will be	
<b>TRAFFIC CONTROL</b>	
Is there exposure to traffic at this site during any of the designated work activities?	Yes
For which task(s) will traffic be an issue of concern ?	1, 2, 3, 4
Will the project require an extensive or formal traffic control plan?	No
Cones and signage will be utilized around work zones. High visibility vests will be worn by work personal.	
<b>Traffic Control Sketch</b>	
Included with the city of San Angelo access agreements.	
<b>FATIGUE MANAGEMENT</b>	
Is the work extensive or out of the ordinary typical work schedule with the potential to result in worker fatigue that could increase the potential for incidents to occur during work tasks or travel to/from the site?	
	Yes
<b>Describe situations or circumstances that have to potential to significantly impact worker fatigue.</b>	
Work will be performed out doors, temperatures could be in the 90's or above 100 degrees Farenheit. Sample collection will involve hand digging soil samples, which can result in fatigue in hot conditiions	
<b>Define precautions that will be taken to minimize worker fatigue and eliminate/minimize its impact on safety.</b>	
Workers will be instructed to work at a pace that helps prevent overexertion. Breaks will be taken to allow workers to rest as needed. Shaded break areas with liquids will be provided.	
<b>PROVISIONS FOR LONE WORKERS</b>	
Will Tetra Tech employees or subcontractor employees be required to or have the potential to work alone?	No
For which task(s) will a site worker be or have the potential to be working alone?	NA
List the type of employees that will be permitted to work alone and under what conditions:	
<b>Note:</b> Personnel should not be allowed to work alone if there is high hazard potential associated with the site and/or task they will be performing, including but not limited to high physical hazard potential (such as heavy equipment operation, high voltage, intrusive activities, etc.), potential for extreme acute chemical exposure, high crime areas, remote sites, etc.	
<b>Lone Worker Check-In Procedure</b>	
Detail a daily check-in procedure for all site personnel who will be working alone. Note: There may be a need to detail different check-in procedures for different tasks, personnel etc.	
Form of communication to be used for check-in:	Example: phone, radios, etc.
Primary check-in person:	Name of person who should be contacted for check-in
Alternate check-in person:	Name of alterante person in the event the primary is not available











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**Standard Practices and Procedures**

*TtMM Health & Safety*

HSMS Forms & Tools  
Environmental Field Audit Checklist

Project Name: \_\_\_\_\_ Number: \_\_\_\_\_ Location: \_\_\_\_\_

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

Completed by: \_\_\_\_\_ Date: \_\_\_\_\_

Subcontractors on Site:  yes  no Subcontractor Company \_\_\_\_\_

Subcontractor Company \_\_\_\_\_

Note: Tetra Tech includes subcontracted personnel in all field audits.

General Items		In Compliance?		
Hazard Assessment and General Site Conditions		Yes	No	NA
1	Approved health and safety plan (HASP) on site or available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	If non-HAZWOPER site, is there an accident prevention plan or job safety analysis (JSA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Names of on-site personnel recorded in field logbook or daily log	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	HASP compliance agreement form signed by all on-site personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Material Safety Data Sheets on site or available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Designated site safety coordinator present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Daily tailgate safety meetings conducted and documented	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Site personnel meet medical exams, fit test, training requirements (including subs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Documentation of training, medical exams, and fit tests available from employer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Compliance with specified safe work practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Exclusion, decontamination, and support zones delineated and enforced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Windsock or ribbons in place to indicate wind direction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Barricades used in areas where appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Proper signage and postings in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Planning		Yes	No	NA
15	Emergency telephone numbers posted or available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Emergency route to hospital posted or available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Local emergency providers notified of site activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	Adequate safety equipment inventory available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	First aid provider and supplies available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Eyewash stations in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air Monitoring		Yes	No	NA
21	Monitoring equipment specified in HASP available and in working order	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Monitoring equipment calibrated and calibration records available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Personnel know how to operate monitoring equipment / equipment manuals available on site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Environmental and personnel monitoring performed as specified in HASP and documented	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Project Name \_\_\_\_\_

Project # \_\_\_\_\_

Safety Items		In Compliance?		
Personal Protection (Specify)		Yes	No	NA
25	Splash suit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	Chemical protective clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	Safety glasses, goggles or face shield	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	Gloves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	Steel-Toed Boots	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	Chemical Resistant Overboots	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	Hard hat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	Dust mask	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	Hearing protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	Respirator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	Other: (describe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instrumentation		Yes	No	NA
36	Combustible gas meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	Oxygen meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	Organic vapor analyzer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	Other: (describe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplies		Yes	No	NA
40	Decontamination equipment and supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41	Fire extinguishers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	Spill cleanup supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	First Aid Kit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44	Other: (describe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
Corrective Action Taken During Audit:				
Corrective Action Still Needed:				

NA = Not applicable

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

Date \_\_\_\_\_

NOTE: This checklist provides a list of general items to look for during the field audit. It should not be considered all encompassing as each site and project is unique. The auditor should look for and address all safety and health issues associated with the site and tasks being performed. Additional items can be addressed in the comments and corrective actions sections or on an additional sheet.



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TtMM Health & Safety

HSMS Forms & Tools

Subcontractor Project Specific Requirements Form

SUBCONTRACTOR PROJECT SPECIFIC REQUIRMENTS VERIFICATION

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

Tt Project Manager: \_\_\_\_\_ Client: \_\_\_\_\_

Occupational Safety and Health Administration (OSHA) Title 29 of the Code of Federal Regulations (CFR), Part 1910.120, "Hazardous Waste Operations and Emergency Response," contains training, supervised experience, medical surveillance, and respirator fit testing requirements for individuals working at hazardous sites. To ensure compliance with this and other applicable regulations, Tetra Tech, Inc. (Tetra Tech), and its subsidiary companies require documentation of this training from subcontractors working under Tetra Tech or subsidiary supervision.

(To be checked by Tetra Tech)

- Checkboxes for course completion certificates, medical clearance documents, fit-test records, and evidence of supervised field experience.

Additionally, a site-specific health and safety plan (HASP) has been developed for this project. A copy of the HASP will be provided to subcontractors, and a separate copy will be maintained on site. A pre-work safety meeting will be held to discuss the HASP and general site activities. The subcontractor is responsible for ensuring that all subcontractor employees are aware of and have read the HASP and will attend the pre-work safety meeting and all other site safety meetings. Any questions regarding the HASP should be directed to the Tetra Tech project manager.

Other Requirements

- Checkboxes for additional requirements.

Subcontractor Representative Acceptance and Tetra Tech, Inc., Representative Approval sections with fields for Name, Signature, Title, and Date.

**APPENDIX B**  
**STANDARD OPERATING PROCEDURES**



**STANDARD OPERATING PROCEDURE NO. 1.4**  
**MANAGEMENT OF**  
**INVESTIGATIVE DERIVED WASTE**

SOP#: 1.4  
DATE: 11/29/01  
REVISION #: 0  
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## 1.0 METHOD SUMMARY

This standard operating procedure (SOP) provides standard operating procedures for managing investigative derived waste (IDW) generated during field activities. Materials which may become IDW include:

- Personnel protective equipment (PPE) including disposable coveralls, gloves, booties, respirator canisters, splash suits, etc.
- Disposable equipment including plastic ground and equipment covers, aluminum foil, conduit pipe, composite liquid waste samplers (COLIWASAs), disposable bailers, rope or twine, Teflon® tubing, broken or unused sample containers, sample container boxes, tape, etc.
- Soil cuttings from drilling or hand augering.
- Excess soil sample material.
- Drilling mud or water used for water rotary drilling.
- Ground water obtained through well development or well purging.
- Cleaning fluids such as spent solvents and washwater.
- Packing and shipping materials.

## 2.0 EQUIPMENT/APPARATUS/REAGENTS

### 2.1 Equipment List

- |   |                                       |
|---|---------------------------------------|
| • 55-gallon drums                                   | • Plastic sheeting (for storage area) |
| • Labels for drums                                  | • Plywood (for storage area flooring) |
| • Wrenches for securing drum lids                   | • 5-gallon buckets                    |
| • Marking pens (for marking on labels and on drums) | • Manifests                           |
| • Lumber (for creating storage area)                | • Drum log                            |

## 3.0 PROCEDURES

Be sure to keep all hazardous waste separate from non-hazardous waste. Label each container properly and keep a log (Appendix A) of all the drums or containers, stating their identification number and contents. Drill cuttings from different holes can be put in the same drums provided they originate from similar areas of the site (e.g., upgradient, background borings, etc.).

### 3.1 Management of Non-Hazardous IDW

1. If necessary, compact the waste into a reusable container, such as a 55-gallon drum to reduce the volume of non-hazardous waste.
2. If the waste is generated from an active facility, seek permission from the operator of the facility to place the *non-hazardous* PPE, disposable equipment, and/or paper/cardboard wastes into the facility dumpsters. These materials may also be taken to a nearby permitted landfill. On larger studies, waste hauling services may be obtained and a dumpster located at the study site.



**STANDARD OPERATING PROCEDURE NO. 1.4**  
**MANAGEMENT OF**  
**INVESTIGATIVE DERIVED WASTE**

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3. Dispose of *non-hazardous* IDW such as drill cuttings, purge or development water, decontamination washwater, drilling muds, etc. in a unit with an environmental permit such as a landfill or sanitary sewer. These materials must not be placed into dumpsters.
4. Seek permission to place these types of IDW into the facility treatment system if the facility is active.

**3.2 Management of Hazardous IDW**

1. Properly contain and label all suspected or identified hazardous wastes. Wastes should be stored in labeled 55-gallon drums at a segregated staging facility with a secondary containment structure.
2. Take care to keep non-hazardous materials segregated from hazardous waste contaminated materials.
3. Review appropriate sample results to determine waste characterization and perform any specific analysis required by the permitted disposal facility.
4. Hazardous wastes may be stored on site for a maximum of 90 days before they must be manifested and shipped to a permitted treatment or disposal facility.
5. Dispose of hazardous IDW as specified in the USEPA and TNRCC regulations. If appropriate, place these wastes in an active facility waste treatment system.
6. Anticipate generation of hazardous IDW, if possible, to permit arrangements for proper containerization, labeling, transportation, and disposal/treatment in accordance with USEPA and TNRCC regulations.

**4.0 CAUTIONS AND INTERFERENCES**

1. All liquid and soil/sediment IDW *must* be containerized and analyzed before disposal.
2. The collection handling, and proposed disposal method must be specified in the site work plan.



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MANAGEMENT OF  
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**APPENDIX A**





## STANDARD OPERATING PROCEDURE NO. 1.5 DECONTAMINATION

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### 1.0 METHOD SUMMARY

This standard operating procedure (SOP) provides a description of the methods used for preventing, minimizing, or limiting cross-contamination of samples due to inappropriate or inadequate equipment decontamination and to provide general guidelines for developing decontamination procedures for sampling equipment to be used during hazardous waste operations. This SOP does not address personnel decontamination.

Removing or neutralizing contaminants from equipment minimizes the likelihood of sample cross contamination, reduces or eliminates transfer of contaminants to clean areas, and prevents the mixing of incompatible substances. Gross contamination can be removed by physical decontamination procedures. These abrasive and non-abrasive methods include the use of brushes, air and wet blasting, and high and low pressure water cleaning.

### 2.0 EQUIPMENT/APPARATUS/REAGENTS

- Non-phosphate detergent
- Tap water
- Distilled or deionized water
- Long and short handled brushes
- Bottle brushes
- Drop cloth/plastic sheeting
- Paper towels
- Plastic or galvanized tubs or buckets
- Pressurized sprayers
- Aluminum foil
- Ziploc® bags
- Trash bags
- Appropriate personal protective equipment (PPE)
- Face shield (for hard hat)
- High pressure washer (if necessary)
- Fuel for high pressure washer
- 55-gallon drums
- Plywood
- Sump pump
- Landscape timbers, 4 x 4's, or 2 x 4's

### 3.0 PROCEDURES

#### 3.1 Decontamination

The prime contractor shall describe all decontamination of drilling equipment, well construction materials, sampling equipment, tools, etc in the project work plan. All samples and equipment leaving the contaminated area of a site must be decontaminated to remove any contamination that may have adhered to equipment. This includes casing, drill bits, auger flights, the portions of drill rigs that stand above boreholes, sampling devices, and instruments, such as slugs and sounders. In addition, the contractor shall take care to prevent the sample from coming into contact with potentially contaminating substances, such as tape, oil, engine exhaust, corroded surfaces, and dirt.

The following procedures shall be used to decontaminate large pieces of equipment, such as casings, auger flights, pipe and rods, and those portions of the drill rig that may stand directly over a boring or well location or that come into contact with casing, auger flights, pipe, or rods.



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1. Prepare the decontamination zone in accordance with SOP 1.2.
2. Don appropriate PPE.
3. Deposit the contaminated equipment on the plastic drop cloth/sheet or in a container inside the CRZ.
4. Place large pieces of equipment (e.g., auger flights) on sawhorses.
5. Use a high-pressure washer and a low-phosphate soap (e.g., Alconox) to remove encrusted material from grossly contaminated equipment. If necessary, use a brush to scrub the equipment until all visible dirt, grime, grease, oil, loose paint, rust flakes, etc., have been removed.
6. Rinse all equipment with potable water.
7. Store the equipment on sawhorses or wrapped in clean plastic sheeting.
8. Decontamination water should be collected and transferred to a 55-gallon drum at the end of the day or whenever significant quantities of water have accumulated. Drums of investigative derived waste (IDW) should be managed in accordance with SOP 1.4.

The following procedures shall be used to decontaminate small pieces of sampling equipment such as split spoons, bailers, trowels/spoons and bowls.

1. Prepare the decontamination zone in accordance with SOP 1.2.
2. Don appropriate PPE.
3. Scrub the equipment with a solution of potable water and low-phosphate soap (e.g., Alconox).
4. If organic constituents are contaminants of concern, rinse the equipment with a pesticide-grade solvent, typically acetone. If acetone is a constituent of concern, substitute methanol as the rinse agent.
5. Rinse the equipment with copious quantities of distilled or deionized water.
6. Allow the equipment to air dry on a clean surface or rack elevated at least two feet above ground.
7. Wrap the sampling device in aluminum foil or place in Ziploc® bags prior to reuse.

At the completion of the decontamination activities, all fluids and solid waste should be containerized and managed in accordance with SOP 1.4.

If a particular contaminant fraction is not present at the site, the ten (10) step decontamination procedure specified above may be modified for site specificity. For example, the solvent rinse may be eliminated if organics are not of concern at a site. Modifications to the standard procedure should be documented in the site specific work plan or subsequent report.

### 4.0 CAUTIONS AND INTERFERENCES

- The use of distilled/deionized water commonly available from commercial vendors is typically acceptable for decontamination of sampling equipment.



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- The use of an untreated potable water supply is not an acceptable substitute for tap water. Tap water may be used from any municipal or industrial water treatment system.
- If solvents are utilized in decontamination they raise health and safety, and waste disposal concerns.
- Damage can be incurred by solvent washing of complex and sophisticated sampling equipment.



## STANDARD OPERATING PROCEDURE NO. 10.1 SOIL SAMPLING USING A TROWEL

SOP#: 10.1  
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### 1.0 METHOD SUMMARY

Surface soil sampling involves the removal of a representative portion of the topsoil (0-6 in.) to be analyzed in a lab. This sampling method attempts only to ascertain the extent of contamination on the upper most layer of soil. Above ground plant debris is excluded from the sample.

### 2.0 EQUIPMENT/APPARATUS/REAGENTS

The contractor shall describe the equipment to be used to collect the sample, field screening equipment including calibration and quality control (QC) requirements for the samples to be taken. Each instrument will be calibrated according to the manufacturer's operating manual prior to each day's use. Instrument calibrations will be documented in the field book. During this calibration, an appropriate maintenance check will be performed on each piece of equipment. If damaged or failed parts are identified during the daily maintenance check and it is determined that the damage can impact the instrument's performance, the instrument will be removed from service until the part or parts are replaced or repaired. An equivalent piece of equipment will be substituted for the malfunctioning instrument to maintain schedule, if possible. Typical equipment required for surface sampling includes:

- Stainless steel trowel
- Stainless steel bowl
- Stainless steel spoon
- Field logbook
- Waterproof and permanent marking pens
- Duct tape
- Decontamination supplies
- Paper towels
- Appropriate personal protective equipment (PPE)
- Sample jars with labels (volume based on analysis)
- Cooler with ice
- Zip-lock bags
- Organic Vapor Meter

### 3.0 PROCEDURES

Surface soil samples shall be collected from the land surface not to exceed six inches below the surface. The sample shall be homogenized and quartered in accordance with the following procedures:

1. Select the proper sample containers for collecting the sample.
2. Complete the sample labels with the appropriate information.
3. Place the sample material into a stainless steel bowl and homogenize the sample in accordance with SOP 6.2 (Homogenization of Soil Samples) with a stainless steel spoon. Do not homogenize samples for VOC analysis as the homogenization will cause a release of VOC constituents.
4. Collect VOC samples in accordance with SOP 6.3 (Collection of VOCs).
5. Fill the appropriate sample jars using the material from the bowl, placing equal portions of sample into the sample jar.
6. Collection of QC samples will done in accordance with SOP 6.5 ( Collection of QC Samples).



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SOIL SAMPLING USING A TROWEL**

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7. Tighten the caps securely on the sample jars.
8. Place samples in a cooler with ice and fill out the chain of custody in accordance with SOP 6.4 (Sampling Handling and Control).
9. Sample location, time, and sample type shall be documented in the logbook in accordance with SOP 6.1 (Documentation).

Grab samples shall be collected by obtaining a representative volume of soil from the area to be sampled and placing it directly into the appropriate sample jar.

The sampling equipment shall be decontaminated in accordance with SOP 1.5 (Decontamination) between each sample, and new gloves should be worn each time.

#### **4.0 CAUTIONS AND INTERFERENCES**

Interferences and potential problems for surface sampling include rocky or extremely hard surface soil, fill material over natural surface, and dense vegetation. The soil could be impenetrable, so sampling may be impossible at that particular location. Also, if backfill has been recently applied, it will not show accurate results for that area. Digging through the fill down to the native soil or moving to another location may be necessary.