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R.L.D

**SITE SPECIFIC**  
**HEALTH and SAFETY PLAN**

*for*

**Tetra Tech**  
**Purity Oil Superfund Site**  
**Fresno County, CA**

RECEIVED  
4/29/02

**Purity Oil Site**  
**3281 South Maple Avenue**  
**Malaga, California**

WRS Project #602-924

*Tetra Tech*

Prepared by:

WRS Infrastructure & Environment, Inc.  
Western Region

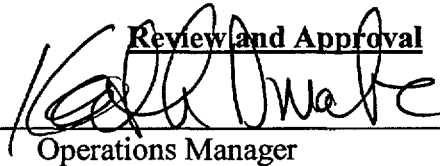
April, 2002



**WRS Infrastructure & Environment, Inc.  
Western Region  
Site Specific Health and Safety Plan**

**Date:** April 22, 2002  
**Project Name:** Purity Oil Superfund Site  
**Job Description:** Off-Site Trench & Test Pit Project  
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**Review and Approval**

  
Operations Manager

  
Date

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## ACRONYMS & ABBREVIATIONS

This list is supplied as an easy reference guide for the acronyms and abbreviations most used throughout this Health and Safety Plan:

ACGIH	American Conference of Governmental Industrial Hygienist
ANSI	American National Standards Institute
CAS	Chemical Abstracts Service
CFR	Code of Federal Regulations
CPR	Cardiopulmonary Resuscitation
DOT	Department of Transportation
EPA	U.S. Environmental Protection Agency
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Site Operations Emergency Response
HSC	Region Health and Safety Coordinator
H&S	Health & Safety
SHSP	Site Health & Safety Plan
IDLH	Immediately Dangerous to Life or Health
MSDS	Material Safety Data Sheet
MSHA	Mine Safety & Health Administration
NIOSH	National Institute for Occupational Safety & Health
NRC	National Response Center
OSHA	Occupational Safety & Health Administration
PEL	Personal Exposure Limit
PM	Project Manager
PPE	Personal Protective Equipment
REL	Recommended Exposure Limit
RFP	Request for Proposal
RQ	Reportable Quantities
SHSO	Site Health & Safety Officer
SOP	Standard Operating Procedure
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weighted Average

## 1.0 INTRODUCTION

This site-specific Health and Safety Plan (HASP) was designed by WRS Infrastructure & Environment, Inc. (WRS) to define the requirements and procedures that shall be followed at the Purity Oil project site during all WRS work activities. It was developed in accordance with both the comprehensive WRS Health and Safety manual and current safety standards defined in the Federal regulations. Utilizing these sources, the plan addresses adverse health effects that could result from exposure to site-specific physical hazards, describes procedures to monitor and avoid such hazards, and describes emergency response actions to follow in the event of exposure to these hazards. Federal regulations utilized as references during preparation of this plan are:

- OSHA 29 CFR 1910;
- EPA, OERR ERT Standard Operating Safety Guides
- California Code of Regulations
- NIOSH/OSHA/USCG/EPA Occupational Health and Safety Guidelines
- ACGIH Threshold Limit Values
- NIOSH Pocket Guide to Chemical Hazards; and
- Sax's Dangerous Properties of Industrial Chemicals

This site-specific HASP shall be adhered to by WRS employees, subcontractors, and visitors associated with work activities at the site. Prior to admittance to the portion of the site where work activities will be conducted, all personnel will be informed of potential hazards and appropriate emergency procedures. This plan shall be read and signed as an agreement to comply with all of its provisions by all personnel entering the exclusion (work) zone.

Site specific activities may warrant modifications to this plan. Any modifications will be approved and implemented by either the WRS Regional H&S Coordinator or the WRS H&S Manager.

## 2.0 PROJECT DESCRIPTION

### 2.1 SITE & BACKGROUND

The site is located at 3281 South Maple Avenue, Malaga, Fresno County, CA. The property occupies approximately 7 acres in a primarily industrial setting. This site is a Superfund Site, and a former used oil re-refining facility. The adjacent properties are the market area, Bruno's Scrap Yard, and Pick-A-Part Auto.

After several site investigations, areas have been identified on-site with soil and groundwater impacted by petroleum hydrocarbons. WRS has worked at the site over the past two years as part of the closure cap project. This project is the investigation of off-site areas. Tetra Tech is the consultant for the EPA, with WRS a subcontractor providing primarily equipment and manpower resources. The primary chemical of concern is that of petroleum hydrocarbons in the soil and groundwater (TPH – gas, diesel, motor oil, and bunker oil, BTEX)

This HASP outlines hazards and their controls associated with the WRS work activities at the Purity Oil site. Section 9 outlines site controls WRS will implement (work zones, site security, etc.).

## **2.2 ACTIVITIES**

The project objective is to satisfy the client's needs, provide a clean site, and eliminate risk to human health and the environment while utilizing safe, appropriate, and expeditious methods. All project tasks are listed in within RFP and the WRS Proposal (Work Plan). Some of the site-specific activities include:

- Health & Safety Plan Preparation & Implementation
- Mobilization: moving WRS personnel and equipment to the site.
- Submittals
- Clearing & Grubbing
- Subgrade Construction
- Install and maintain silt fence
- Install and maintain straw bale check dams
- Foundation layer construction (import of approx. 20,000 cu. yd.)
- Passive Gas Collection system installation (approx. 4,000 ln. ft.)
- Soil Vapor extraction system installation (approx. 1,450 ln. ft.)
- Perimeter sub drain system installation (approx. 2,100 ln. ft.)
- Vegetative layer construction (approx. 20,000 cu. yd.)
- Demobilization: removal of WRS personnel and equipment from the site

## **3.0 PROJECT SAFETY ADMINISTRATION**

### **3.1 KEY PERSONNEL**

The following key health and safety personnel all have the responsibility of implementing and maintaining health and safety procedures during site work activities.



**TABLE 3.1  
KEY PERSONNEL**

<b>JOB FUNCTION</b>	<b>NAME</b>	<b>OFFICE PHONE</b>	<b>OTHER</b>
WRS Operations/Project Manager	Keith Donahue	(510) 569-8661	(510) 772-0525
WRS Site Supervisor/H&S Officer	Tom Moran Scott McMahon	(510) 569-8661 (510) 569-8661	(510) 772-0522 (510) 772-0526
Region Health & Safety Coordinator	Richard Scott	(801) 265-2323	(801) 201-2821
WRS Health & Safety Manager	Doug Nelson	(404) 298-7101	N/A

### 3.2 RESPONSIBILITIES

The key safety personnel are ultimately responsible for enforcing health and safety procedures during the project. They have the authority to temporarily stop activities on the project if a hazard threatens human health or the environment. All project personnel including supervisors, operators, crew leaders, technicians, owner representatives, subcontractors and visitors are individually responsible for:

- Remaining aware of potential job hazards and that health and safety is a project priority
- Thoroughly understanding the contents of this HASP
- Conducting work on the site in strict accordance with the procedures of this HASP

Health and safety responsibilities to be implemented during the project for each of the key personnel are described below.

#### Site Project Manager

The Site Project Manager (PM) has the authority for directing all operations on the project and is ultimately responsible for project health and safety. The PM's primary responsibilities are to manage and maintain project health and safety in accordance with this HASP and allocate all resources necessary to permit each worker to perform the job safely. Other functions of the PM are to:

- Ensure that this HASP properly addresses site specifics, is approved by the Health and Safety Department, and is read by all those involved with the project
- Ensure that the project activities are performed in a manner consistent with WRS H&S policies
- Ensure that all funds, materials, and equipment are allocated to fully implement the HASP
- Receive and act on reports and recommendations
- Review and direct WRS's response to any Site Incident Report

## **Regional Health and Safety Coordinator**

The Regional Health and Safety Coordinator is responsible for preparation of the Health and Safety Plan and ensuring that all site-specific potential hazards are addressed in the plan. The Regional Health and Safety Coordinator will be the Site Health and Safety Officer and coordinate health and safety procedures with the key safety personnel and all other on-site personnel. Additional functions include:

- Managing employee health and safety training programs applicable to site operations
- Coordinating medical surveillance for on-site project personnel
- Conducting site visits and auditing compliance of all project personnel with the HASP
- Establishing and maintaining all employee health and safety training records and documentation
- Providing health and safety support and guidance to the PM
- Review and approve any changes to this HASP

## **Site Health and Safety Officer**

The Site Health and Safety Officer (SHSO) will be on-site full-time and report to the Project Health and Safety Manager. The SHSO has on-site responsibility for ensuring that the provisions of the HASP are implemented in the field. The SHSO will be responsible for the correct and appropriate use of monitoring instruments, proper personal protective equipment (PPE), documentation of monitoring results, and site-specific project training. These items may be modified to accommodate a change in site conditions. The SHSO has final on-site authority for matters affecting worker health and safety or emergency situations that require immediate action. The SHSO responsibilities include:

- Conducting daily site safety meetings, perform additional safety meetings as required and complete health and safety documentation
- Implementing day-to-day work zone monitoring
- Calibrating health and safety monitoring instrumentation (personal sampling pumps, real-time dust monitor, real-time organic vapor monitor) if needed
- Evaluating air monitoring and personal monitoring data in reference to established Action Levels
- Revising work zone boundaries and levels of PPE, as indicated by air monitoring or other sampling data
- Maintaining site health and safety documentation in the project files
- Represent WRS during health and safety inspections
- Reviewing copies of all accident or injury reports and ensures that all documentation is promptly forwarded to the Project Health and Safety Manager as soon as possible
- Providing health and safety support and guidance to field personnel
- Reviewing and approving site-specific modifications to the HASP with the Project Health and Safety Manager
- Maintaining health and safety equipment and supplies (first aid kits, fire extinguisher, PPE, etc.)

## **WRS H&S Manager**

The WRS H&S Manager responsibilities within the WRS Health and Safety Program, include:

- Act as the Project Health and Safety Manager for this project

- Developing and maintaining up-to-date policies and procedures
- Review and approve all HASP developed by the Regional Health and Safety Coordinators
- Providing technical and administrative consultation to Region and site health and safety officers
- Tracking medical monitoring and training compliance
- Assessing the effectiveness of WRS programs, analyzing deficiencies and recommending corrective action to management
- Maintaining uniformity within the WRS Health and Safety Program

### **Project Personnel**

Project personnel (employees or subcontractors) involved in on-site investigations or operations are responsible for:

- Taking all reasonable precautions to prevent injury to themselves and to their fellow employees
- Performing only those tasks that they believe they can do safely, and immediately reporting any accidents and/or unsafe conditions to the SHSO or PM
- Implementing the procedures set forth in this HASP, and reporting any deviations from the procedures described in this program to the SHSO or PM for immediate actions
- Notifying the PM or SHSO of any special medical problems they may have and seeing that other appropriate on-site personnel are aware of any such problems
- Reviewing this and any other project health and safety program and signing the acceptance form

### **Subcontractors**

If subcontractors are used, each subcontractor is required to designate a Subcontractor's Safety Representative (SSR). The SSR is responsible for the safe and healthful performance of his work force and subcontractors. During the subcontractor's activities on site, the SSR will perform continuing work area inspections, and conduct safety meetings and safety orientations for all new on-site employees (of that subcontractor). At a minimum, the SSR will attend the morning WRS daily safety meeting. The SSR will also investigate any accidents or overexposures involving any subcontractor personnel.

## **4.0 HAZARDS ASSESSMENT**

Open excavations, terrain changes, foreign objects, or heavy equipment may cause physical hazards and can be resultant from the site conditions, the type of work conducted at the site and equipment used for the job. The risk of exposure to hazards can be greatly reduced or eliminated with proper health and safety controls (described in detail in Section 9.0 "Site Controls").

### **4.1 CHEMICAL HAZARDS**

After reviewing the RFP submitted to WRS it is assumed that there will be minimal chemical hazards associated with this project in the form of total petroleum hydrocarbons (TPH, benzene).

Information regarding the hazards associated with chemicals on site will be conveyed to workers during the onsite worker safety-training program. Throughout the course of this project, a series of potential chemical and physical hazards may be presented to site personnel. It is essential that these be evaluated

and understood by all parties prior to their participation in onsite activities. The evaluation of hazards is based on the knowledge of site background and of anticipated risks posed by the specific tasks.

Material Safety Data Sheets (MSDS) for all suspected chemicals and other related substances anticipated to be present at the site would be available in the project office trailer. These sheets provide comprehensive information concerning the health and safety hazards presented by the materials projected to be on site. WRS personnel without providing MSDS information, appropriate monitoring and protection will bring no hazardous substances on site.

If contact with the chemicals listed below by WRS personnel is apparent the work will stop until proper air monitoring equipment is delivered to the site and the area is monitored and the proper level of personal protective equipment is addressed and issued for each task at hand. Information regarding the hazards associated with chemicals on site will be conveyed to workers during the onsite worker safety-training program. Throughout the course of this project, a series of potential chemical and physical hazards may be presented to site personnel. It is essential that these be evaluated and understood by all parties prior to their participation in onsite activities. The evaluation of hazards is based on the knowledge of site background and of anticipated risks posed by the specific tasks.

The NIOSH "Pocket Guide to Chemical Hazards" lists the recommended NIOSH and OSHA concentration exposure limits for various chemicals. The CAS number for each chemical is also listed for cross-referencing to the DOT "Emergency Response Guidebook", which describes emergency response procedures required in the event of an exposure to a particular chemical.

The ACGIH defines three categories of TVLs: Time-Weighted Average (TWA); Short-Term Exposure Limit (STEL); and Ceiling (C). These limits define the maximum concentrations to which a worker can be exposed to and not suffer adverse health effects. TWA is for 8 hours per day and 40 hours per week. STEL is for a 15-minute period. The ceiling defines the maximum concentration that should not be exceeded at any point in time. All of these categories were utilized in determining the appropriate level of PPE.

PELs are enforceable standards set by OSHA. The PEL is the 8 hours per day, 40 hours per week time-weighted average (or ceiling concentration) above which a worker cannot be exposed. The REL is a NIOSH recommended limit, but is not enforceable like the OSHA PEL. IDLH limits are primarily used as a guideline to selecting respirators and refer to maximum short-term concentrations from which a worker could escape without permanent harm if his respirator were to fail.

- TLV                    Threshold Limit Value
- PEL                    Permissible Exposure Limit
- REL                    Recommended Exposure Limits
- IDLH                  Immediately Dangerous to Life and Health

### **Exposure Routes**

Chemical hazards exist as solids, liquids, or gases. The chemicals may be visible or not readily apparent to the human eye; highly volatile; capable of migration, as in groundwater; or immobile and bound in soils. Due to the extreme variety of ways chemical hazards can exist, chemicals can easily enter the body through one or more of the following routes and become a potential health hazard:

Inhalation	Absorption	
Ingestion	Contact	Injection

Inhalation of chemicals may occur by breathing airborne vapors or particulates, which can affect the lungs and respiratory system. Chemicals may be absorbed into the bloodstream and transported to vital organs by passing directly through the unaffected skin, mucous membranes, or a punctured eardrum. Although it is unlikely that chemicals may be deliberately swallowed, ingestion can occur during eating, drinking, smoking, or through the use of chewing gum or tobacco. Chemicals may affect the outer skin layers or the eyes by direct contact. Injection is an accelerated form of absorption where a chemical can enter the bloodstream more quickly through a wound or skin puncture.

Entry of chemicals into the body can be prevented through the use of proper PPE. The proper selection of PPE was aided by the documentation submitted to WRS by the client and will be evaluated during ongoing site operations by monitoring data. Wearing respirators with appropriate cartridges can minimize inhalation of vapors or particulates. The Region Health and Safety Coordinator will determine if the selected respirator and cartridges should be continued or upgraded based on monitoring results. Wearing the proper level of PPE can prevent absorption and contact. Avoiding the use of gum or tobacco products can prevent ingestion of chemicals. Personal hygiene, such as thoroughly washing the face and hands with soap and water after leaving the work area and prior to eating, drinking, or using the restroom can minimize absorption and ingestion. Injection can be avoided by immediately treating any skin cuts or abrasions.

This HASP has been written to encompass hazards associated with the tasks to be performed at the project site.

WRS has included a list of potential chemical, which might be found in these areas. The chemicals, which may pose a health exposure problem, have been detailed in the following chart. Table 4.1 presents the exposure limits set by NIOSH and OSHA for substances identified on the site.

TABLE 4.1

## SUMMARY OF CONTAMINANT HEALTH HAZARDS

<b>Benzene</b>		CAS 71-43-2	
$C_6H_6$		RTECS CY1400000	
<b>Synonyms &amp; Trade Names</b> Benzol, Phenyl hydride		DOT ID & Guide 1114	
<b>Exposure</b>	NIOSH REL: Ca TWA 0.1 ppm ST 1 ppm		
<b>Limits</b>	OSHA PEL: [1910.1028] TWA 1 ppm ST 5 ppm		
<b>IDLH Ca</b> [500 ppm]	<b>Conversion</b> 1 ppm = 3.19 mg/m <sup>3</sup>		
<b>Physical Description</b> Colorless to light-yellow liquid with an aromatic odor. [Note: A solid below 42°F.]			
MW: 78.1	BP: 176°F	FRZ: 42°F	Sol: 0.07%
VP: 75 mmHg	IP: 9.24 eV		Sp.Gr: 0.88
Fl.P: 12°F	UEL: 7.8%	LEL: 1.2%	
Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.			
<b>Incompatibilities &amp; Reactivities</b> Strong oxidizers, many fluorides & perchlorates, nitric acid			
<b>Measurement Method</b> Charcoal tube; CS <sub>2</sub> ; Gas chromatography/Flame ionization detection; IV [Hydrocarbons]			
<b>Personal Protection &amp; Sanitation</b> Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contaminated Remove: When wet (flammable) Change: N.R. Provide: Eyewash, Quick drench		<b>First Aid</b> Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately	
<b>Respirator Recommendations NIOSH</b> At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus			
<b>Exposure Routes</b> inhalation, skin absorption, ingestion, skin and/or eye contact			
<b>Symptoms</b> irritation eyes, skin, nose, respiratory system; giddiness; headache, nausea, staggered gait; fatigue, anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depressant/depression; [Potential occupational carcinogen]			
<b>Target Organs</b> Eyes, skin, respiratory system, blood, central nervous system, bone marrow			

## **Slip, Trip, Fall**

Slip, trip, and fall hazards will be minimized by good housekeeping practices. Good housekeeping will include designating storage for job site materials and equipment and making certain that materials and/or equipment not currently in use are stored properly in their designated area. Workers will exercise caution when walking through any work area. Walking and working surfaces will be maintained in an even, unbroken, firm, and dry condition to minimize slips, trips, and falls.

Excavation areas (trenches) become hazardous area to walk through due to the open excavation, stockpiles and unlevelled ground, care will be used when it is necessary to be in these areas. Any work involving walking in this area needs to be completed in a slow careful manner. It is recommended that all open excavations be marked with highly visible barriers (fencing, caution tape, etc.).

## **Pinch-Point Hazards**

Pinch-point injuries can occur when materials and equipment are moved around the site during mobilization, demobilization, and project operations. Pinch-point injuries can be avoided by following the correct procedures for moving equipment and materials and by using protective equipment such as heavy gloves and steel-toed boots.

## **Personal Bodily Injury**

Personal bodily injury can result from many different types of physical hazards such as uneven, unstable, or slippery terrain; overhead obstructions; open excavations or ditches; scattered debris; and equipment or tools. Uncontrolled site conditions may cause workers to slip, trip, or fall; become trapped in open excavations; confined in small spaces; and struck or pinched during work operations.

The site safety personnel will clearly designate proper walkways, work areas, and traffic routes to avoid these types of hazards. Overhead obstructions shall be flagged as low-clearance items. Open excavations will be properly shored and barricaded. All miscellaneous debris should be consolidated and barricaded to prevent interference with workers. Miscellaneous tools should be properly placed in safe locations when not in use. Workers should stand clear of operating equipment and remain in sight of the operator when working near machinery. Workers will wear a safety harness and be securely tied off during aboveground activities.

## **Explosion and Fire**

Mixing incompatible hazardous materials may release ignitable vapors or cause spontaneous combustion. Low-lying areas or local depressions may collect hazardous vapors that are heavier than air. Oxygen-rich atmospheres, sparks, friction-sensitive compounds, refueling operations, or materials confined under pressure may also create explosion or fire hazards.

All materials suspected of having any potential for explosion or fire hazards should be approached with extreme caution. Extended-reach tools will be used to initially handle these types of materials. An oxygen level meter, organic vapor meter, or combustible gas indicator may all be used to assess the hazard of the materials. Evacuation will occur if the 10% LEL is met. Personnel should be having complete skin protection and be wearing full-face respirators. The site safety personnel may adjust the

levels of personal protection after assessment of the hazards. Fire extinguishers will be readily available at all site operations at all times. Smoking by personnel on site will only be allowed in designated smoking areas sufficiently remote from explosion or fire hazards.

**\*\* Matches and Flame-producing Devices - Smoking is prohibited; anyone found smoking in the Exclusion Zone will be immediately and permanently barred from the project site.**

### **Confined Space Entry**

No person on this site is permitted to enter a confined space (including trenches) unless a confined space entry permit has been completed. This permit verifies that the confined space is safe for entry and that it has been tested for flammable vapors, oxygen level, and toxic gases. Monitoring of the confined space and completion of the permit is the responsibility of the SHSO. All persons on this site are required to comply with WRS confined space entry procedures and CAL-OSHA GISO 5156 regulation. These procedures are located in the attached appendix.

### **Oxygen Deficiency**

Confined spaces, pits, trenches, or local depressions offer the opportunity for gases that are heavier than air to displace the existing oxygen and accumulate. A chemical reaction, ignition, or flames in confined spaces may use available oxygen that cannot be replenished quickly to the work area. The normal oxygen content of the atmosphere is 20.8%. Worker consciousness and safety is in danger when oxygen levels are reduced to 19.5%. An oxygen level of 16% can be fatal.

In suspect areas, oxygen levels should be monitored continuously with meters that are properly and frequently calibrated by trained personnel. Workers should always wear supplied-air-breathing equipment if oxygen levels drop below 19.5%, or receive supplied-air when approaching or working in a suspect area. Refer to the attached appendices on Confined Space safety.

### **Electrical Hazards**

Overhead power lines, underground electrical cables, stationary electrical items, lightning, water puddles, or cords and connections to electrical equipment may pose electrical hazards.

Carefully identifying, marking, grounding, or disconnecting all electrical items or equipment on site can avoid these hazards. Lockout/tagout procedures will be implemented when working on or around electrical equipment. All electrical cords and connections should always be carefully inspected prior to use. Weather conditions should be monitored and work should cease with lightning activity. Stray puddles should be dispersed and allowed to evaporate or avoided when using electrical equipment. Proper clothing and equipment for protection against electrical hazards is described in OSHA 29 CFR Part 1910.137.



## **Noise**

The use of heavy equipment or other construction activity can create noise hazards. Not only does excessive noise impair the hearing of workers, it also interferes with effective lines of communications on the job site. Sudden or unexpected noises may startle, disrupt, or distract workers and lead to other physical hazards.

Workers should be aware of all potential noise hazards at a site. Hearing protection shall be worn if noise is consistently high or exists for extended periods of time. A hand signal system shall be established and airhorns used if noise is expected to interfere with effective communications.

## **Heat Stress**

Workers are particularly vulnerable to heat stress when wearing multiple layers of PPE. Depending on worker clothing and site conditions, heat stress can occur within as little as a 15-minute period. Heat stress can be accelerated due to sunburn, obesity, age, dehydration, sunburn, infection, or diarrhea; lack of physical fitness or acclimatization; or the use of alcohol or drugs. Symptoms of heat stress can be rashes, cramps, excessive perspiration, and lack of perspiration in hot conditions, discomfort, or drowsiness.

The site safety personnel and Region Health and Safety Coordinator will determine the appropriate minimum required level of PPE to prevent overdressing, which promotes premature heat stress. If site conditions are conducive to heat stress, the worker's heart rate, fluid loss, and temperature should be monitored frequently. During rest periods, the heart rate should be allowed to recover to less than 90 beats per minute before returning to work. For ambient temperatures above 75 degrees, at least 8 ounces of fluids should be replaced every 90 minutes and more frequently as temperatures rise. If oral temperatures exceed 99.6 degrees, work cycles should be shortened. Shade or well-ventilated/air-conditioned rest areas should be provided for worker refuge to prevent heat stress. A variety of fluid-replenishing liquids, splash or wash water, and towels should remain available to workers.

## **Heavy equipment**

Heavy equipment such as large haul trucks, track excavators, drill rigs, backhoes, compactors, and other machines can create several types of physical hazards caused by noise and visual obstructions.

Equipment operators will be continually aware of all surrounding personnel and obstacles. Workers will verify visual contact with an equipment operator while working near the machine. Equipment and outrigger supports must be properly positioned on solid ground to avoid tipping or sliding into an open excavation. All self-contained equipment will have back-up alarms. Work areas for equipment, haul trucks, and other traffic will be clearly marked and adhered to by all drivers, operators, and workers.

## **Excavation Hazards**

The use of heavy equipment to create trenches or excavations poses potential physical hazards to employees. Excavators, backhoes, or other excavation equipment can cause serious trauma injuries. Such equipment can also roll over, or fall into the excavation in unstable soil, or if too close to the

excavation. WRS and any other personnel Onsite are to remain clear of operating heavy equipment to the extent feasible. The swing radius of the backhoe must be barricaded to prevent employee injury.

Trenches and excavations also pose potential cave-in hazards. UNDER NO CIRCUMSTANCES ARE PERSONNEL TO ENTER AN EXCAVATION GREATER THAN 5 FEET IN DEPTH UNLESS THE WALLS OF THE EXCAVATION HAVE BEEN ADEQUATELY SHORED OR SLOPED BACK TO THE ANGLE OF REPOSE (i.e., 1.5:1 FOR AVERAGE SOIL). Such entry is a violation of WRS policy and Occupational Safety Regulations. Soil stability and the adequacy of shoring or sloping must be determined by a qualified engineer prior to entry into excavations deeper than 5 feet. A “Competent Person” shall be used to inspect all excavations prior to any personnel entering. Entry or work around excavations should comply with this health and safety plan and with WRS SOP (see attached appendix) regarding shoring, sloping, escape, and other excavation concerns.

Soils from the excavation must be placed greater than 2 feet from the top of the excavation. Even if no entry is to occur, a cave in could topple equipment and injure personnel. Therefore traffic and other sources of vibrations near by must be controlled to the extent feasible. Excavations should be barricaded to prevent personnel from venturing too close and falling in. Liquid accumulation in the excavation may also contribute to cave ins. Pumping should be used to avoid the accumulation of water or other liquids. Air testing to verify a safe atmosphere is required when personnel will enter an excavation.

### **Containment and Storage**

Contaminated debris will be collected and properly containerized in DOT-approved drums. Drums will have proper DOT labeling and markings (accumulation date, contents, generator, haz class etc.) placed on each drum. Drums will be tightly sealed and placed in a temporary storage location, which will be designated by WRS Project Manager and the Clients representative. Stored drums will be inventoried and inspected daily until disposition of contents is identified.

## **4.3 BIOLOGICAL HAZARDS**

The biological hazards that response personnel may encounter are animal bites, insect stings and contact with local flora.

### **4.3.1 Bites and Stings**

Animal bites and insect stings are usually nuisances (i.e. localized swelling, itching, and minor pain) that can be handled with first-aid treatments. The bites of certain snakes, lizards, spiders, and scorpions contain sufficient poison to warrant medical attention. There are diseases that can be transmitted by insect and animal bites. Examples are Rocky Mountain spotted fever, lyme disease (tick), rabies (mainly dogs, skunks and foxes), malaria, and equine encephalitis (mosquito). The greatest hazard and most common cause of fatalities from animal bites, particularly from bees, wasps, and spiders, is a sensitivity reaction. Anaphylactic shock due to stings can lead to severe reactions in the circulatory, respiratory, and central nervous systems, which can also result in death.

In addition, the project sites are located in a geographic area where Lyme disease and rabies are possible. Lyme disease is spread primarily by a very small tick -- the deer tick. It can be found near wooded areas,

tall grass and brush. Although the disease is rarely fatal, it can cause flu-like symptoms, arthritis, heart arrhythmia's, facial palsy, severe headaches, and loss of sensation. Protection against the tick consists of wearing clothing that covers the whole body, tucking pant legs into boots or socks and tucking a long-sleeve shirt into pants. A white tyvek is recommended for protection. Use of repellents containing DEET is also effective. It is also important to frequently check for the ticks, which are about the size of a period on this page. Some warning signs include a "bull's-eye" rash that may appear days to weeks after the bite, flu-like symptoms, swelling and pain in joints and, less common, heart arrhythmia, weakness in legs, facial paralysis and numbness. If employees feel they may have contracted the disease, they must notify the WRS SHSO.

If an animal bite occurs, the WRS SHSO must be notified. Steps will then be taken to locate the animal and contact the local animal shelter in order to determine if the animal has rabies.

#### **4.3.2 Contact With Local Flora**

The most dangerous toxic effects from plants are due to ingestion of nuts, fruits, or leaves. Consequently, personnel are prohibited from eating any fruits, nuts, or other plant material, which may grow on the site. Of more concern to response personnel are certain plants including poison ivy, poison oak, and poison sumac, which produce adverse effects from direct contact. The usual effect is dermatitis-inflammation of the skin. The protective clothing and decontamination procedures used for chemicals reduce the exposure risk to the plant toxins. Cleaning the skin thoroughly with soap and warm water immediately after contact will reduce risk.

### **4.4 DECONTAMINATION**

#### **4.4.1 Decontamination Plan**

During all activities involving hazardous material the following steps will take place for decontaminating personnel and equipment.

##### **Set up a Contamination Reduction Zone**

The Contamination Reduction Zone (CRZ) is a zone of reduced contamination surrounding the Exclusion Zone. It is designed and located to reduce the risk of contaminating the clean, Support Zone. Entry and exit of all personnel and equipment working in the Exclusion Zone will be through the designated corridors in the CRZ. The entry corridor will contain PPE required for personnel to don prior to entering the Exclusion Zone. The exit corridor will be where all decontamination occurs and will contain items necessary for proper decontamination of personnel and heavy equipment. The CRZ will be equipped to handle emergency treatment, contain backup PPE supplies, and provide worker rest areas. Communications will be constantly maintained between personnel working in the CRZ and personnel in the Exclusion Zone.

##### **Decontamination**

All personnel and equipment leaving the Exclusion Zone will be decontaminated in the CRZ according to procedures provided below. These steps are an outline of procedures detailed in WRS Health and Safety

Manual and those described by OSHA and the EPA. The WRS Project Manager will verify that all the necessary decontamination procedures are being followed properly in the field.

Personnel assisting in decontamination will be dressed in one level of PPE lower than the level of PPE worn by workers in the Exclusion Zone. For example, if workers in the Exclusion Zone are wearing Level A PPE, personnel assisting in decontamination will wear Level B PPE. As a minimum, all personnel assisting with decontamination must at least wear Level D PPE if no contamination exists in the CRZ.

### **Personnel Decontamination**

Personnel leaving the Exclusion Zone will enter the CRZ through the designated corridor. Decontamination will follow a specified procedure and pathway. After decontamination in the CRZ, personnel hygiene can be performed in the Support Zone. The following are outlines of minimum decontamination procedures required for levels “C” and “D” PPE, level “A” and “B” are not expected to be needed on site therefore they are not listed in this plan:

#### **Level C & Level D+**

1. *Equipment drop:* deposit used tools on plastic while still in the Exclusion Zone
2. *Outer boot and outer glove removal*
3. *Removal of outer garment*
4. *Removal of respirator, inner boots, and inner gloves all respirators will be properly washed and stored.*
5. *Field wash:* personal hygiene performed in the Support Zone

#### **Level D**

1. *Equipment drop:* deposit used tools on plastic while still in the Exclusion Zone
2. *Outer boot and outer glove removal:* if worn with level D
3. *Removal of outer garment, inner boots, and inner gloves*
4. *Field wash:* personal hygiene performed in the Support Zone

All disposable clothing, tools, plastic, spent solvents, and rinse water will be placed into DOT-Approved containers.

Decontamination during Medical Emergencies Basic Considerations:

Part of overall planning for incident response is managing medical emergencies. The plan should provide for:

- Some response team members fully trained in first aid and CPR.
- Arrangements with the nearest medical facility for transportation and treatment of injured, and for treatment of personnel suffering from exposure to chemicals.
- Emergency eye washes, showers, and/or wash stations.
- First aid kits, blankets, stretcher, and resuscitator.

In addition, the plan should establish methods for decontaminating personnel with medical problems and injuries. There is the possibility that the decontamination may aggravate or cause more serious health

effects. If prompt life-saving first aid and medical treatment is required, decontamination procedures should be omitted. Whenever possible, response, response personnel should accompany contaminated victims to the medical facility to advise on matters involving decontamination.

### **Physical Injury:**

Physical injuries can range from a sprained ankle to a compound fracture, from a minor cut to massive bleeding. Depending on the seriousness of the injury, treatment may be given at the site by trained response personnel. For more serious injuries, additional assistance may be required at the site or the victim may have to be treated at a medical facility.

Life-saving care should be instituted immediately without considering decontamination. The outside garments can be removed (depending on the weather) if they do not cause delays, interfere with treatment, or aggravate the problem. Respirators and backpack assemblies must always be removed. Fully encapsulating suits or chemical-resistance clothing can be cut away. If the outer contaminated garments cannot be safely removed, the individual should be wrapped in plastic, rubber, or blanket to help prevent contaminating the inside of ambulances and medical personnel. Outside garments are then removed at the medical facility. No attempt should be made to wash or rinse the victim at the site. One exception would be if it were known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life. For minor medical problems or injuries, the normal decontamination procedure should be followed.

**Chemical Exposure:** Exposure to chemicals can be divided into two categories:

- Injuries from direct contact, such as acid burns or inhalation of toxic chemicals.
- Potential injury due to gross contamination on clothing or equipment.

For inhaled contaminants, treatment by qualified physicians must be obtained. If the contaminant is on the skin or in the eyes, immediate measures must be taken to counteract the substance's effect. First aid treatment usually is flooding the affected area with water; however, for a few chemicals, water may cause more severe problems.

When protective clothing is grossly contaminated, contaminants may be transferred to treatment personnel or the wearer and cause injuries. Unless severe medical problems have occurred simultaneously with splashes, the protective clothing should be washed off as rapidly as possible and carefully removed.

### **Equipment Decontamination**

All heavy equipment and re-usable tools will be removed from the Exclusion Zone through the designated corridor and decontaminated in the CRZ. Decontamination will be performed by initially brushing off soil onto plastic with brooms followed by washing with Alconox (or equivalent) detergent and rinsing. A visual inspection will be performed to verify of each piece of equipment to insure proper decontamination prior to removal of equipment and tools from the CRZ.

The equipment decontamination pad will consist of two layers of six-mil plastic, with the pad berm made from rolling lumber within edges of the plastic. By berming this pad in this manner, this will

contain all decontamination liquids and avoid the collection of any run-on site water. This pad will be large enough to place the excavator bucket and any other tools over it and has plenty of room to decontaminate all equipment.

## 5.0 PERSONAL PROTECTIVE EQUIPMENT

All personnel entering a hazardous (contaminated) work area shall wear PPE selected by a trained individual to protect against the numerous potential chemical and physical hazards. PPE does not provide complete immunity to all hazards, but when worn properly, offers substantial isolation from various hazards and minimizes the risk of exposure. PPE is most effective when all other health and safety procedures described in this plan is also followed.

The Regional Health and Safety Coordinator have selected the proper ensemble of PPE for this job site after reviewing the chemical and physical hazards associated with the work activities listed in the RFP. Levels of PPE can be downgraded upon approval of the Regional Health and Safety Coordinator after evaluation of monitoring results. For this project Level D has been selected, however if dust becomes a problem first engineering controls will be put in to place then personnel will upgrade to level "C" for respiratory protection. PES will conduct any and all air monitoring or sampling. Also note that all confined space entries require air monitoring to determine the need for supplied air respirators.

### 5.1 PROTECTIVE CLOTHING\EQUIPMENT

The components included in each level of PPE and explanations for their use are presented as follow:

#### LEVEL "C":

Level "C" Personal Protection for this site will consist of the following:

- Outer chemical protective coveralls
- Full-face air purifying respirator equipped with chemical cartridge (organic vapor/acid gas cartridges/HEPA combination)
- Outer gloves (taped to suit at the wrists) (Nitrile)
- Inner latex gloves
- Steel-toe work boots
- Neoprene rubber overboots (duct-taped to outer suit)
- Hardhat
- Hearing protection, as needed

Criteria for use:

- > 19.5% Oxygen
- $\geq 25$  ppm and < 200 ppm total organic vapors
- $\geq 0.5$  mg/m<sup>3</sup> and < 2.5 mg/m<sup>3</sup> total dust

Inappropriate applications:

Work in atmospheres containing airborne concentrations of contaminants in excess of the upper limit action levels listed above, oxygen deficient atmospheres, and IDLH conditions. Work with potentially contaminated liquids and/or muddy soils.

#### MODIFIED LEVEL "D" PROTECTION

Level "D+" Personal Protection within exclusion zones for this site will consist of the following:

- Outer chemical protective coveralls
- Outer gloves (taped to suit at the wrists) (Nitrile)
- Inner latex gloves
- Neoprene rubber overboots (duct-taped to outer suit)
- Safety glasses with side shields
- Steel-toe boots
- Hardhat
- Hearing protection, as needed

Criteria for use:

- > 19.5% Oxygen
- <25 ppm total organic vapors
- < 0.5 mg/m<sup>3</sup> total dust

Inappropriate Applications:

Work in atmospheres containing airborne concentrations of contaminants in excess of the action limits listed above. Work with potentially contaminated liquids and/or muddy soils.

#### LEVEL "D" PROTECTION:

Level "D" Personal Protection for this site will consist of the following:

- Outer coveralls or work clothes
- Safety glasses with side shields
- Steel-toe work boots
- Hardhat
- Hearing protection, if needed

Criteria for use:

- > 19.5% Oxygen
- < 25 ppm total organic vapors
- < 0.5 mg/m<sup>3</sup> total dust

Inappropriate Applications:

Work in atmospheres containing airborne concentrations of contaminants in excess of the action limits listed above. Any work with potentially contaminated soils, liquids, PPE and equipment.

Add-ons

When working with potentially contaminated liquids and/or muddy soils the following PPE will be added to the above mentioned Levels of Protection:

- Impermeable outer coverall (Saranex); and
- Splash shield.

Level D is minimal protection used on sites where physical hazards are minimally threatening or absent. Details of level D is as follows:

**5.3 REQUIRED SITE-SPECIFIC PPE**

The initial level of PPE selected by the Region Health and Safety Coordinator for this site is as follows:

TABLE 5-1 Level of Protection Planned for all Activities at Purity Oil Project Site	
Activity/Task	Initial Levels of Protection
Site Mobilization	Level D
Site Preparation	Level D (Including Cotton Gloves)
Excavation and Import fill	Modified Level D with hearing protection when working around heavy equipment. If dust becomes a problem Level C will be worn by all workers in the contaminated area.
Backfill of Excavation	Level D
Site Restoration Work	Level D (Including Cotton Gloves)
Demobilization	Level D
NOTE: Levels of protection may be upgraded or downgraded as directed by the SHSO. A downgrade requires the Regional Health and Safety Coordinator and/or WRS Health and Safety Manager's approval before it can be effective.	

**6.0 AIR MONITORING**

The client will conduct any air monitoring that will take place on the site. It is not in any contract of WRS's to provide air monitoring, however this changes and monitoring is required, WRS will develop an amendment to this HASP to incorporate an air monitoring plan to be approved.

**7.0 TRAINING**

All WRS employee's, regardless of their job function, have received training in accordance with the regulations stated by OSHA 29 CFR 1910.120 and CAL OSHA GISO 5192. Site specific training will be conducted on a daily basis during the morning health and safety meetings. Varying intensities of



training are provided according to job function. Initial training consisted of a formal 40-hour or 24-hour hazardous waste operations training session according to the following requirements, and was taught by a certified instructor. Most subcontractors working on the project will require OSHA 29 CFR 1910.120 training. Although the training is not required for such subcontractors where no potential contamination is expected. All work completed by subcontractors will be supervised by WRS' SHSO.

- 40-Hour Training

All site workers, such as laborers, equipment operators, and supervisory personnel, who have the potential of exposure to hazardous waste, hazardous materials, or physical and chemical hazards have received a minimum of 40 hours of instruction plus three days of actual field experience under the supervision of a certified instructor. If exposure potential to TLV concentrations of a contaminant exists and a respirator may be needed, the 40-hour training is mandatory.

- 24-Hour Training

Workers with limited or occasional job functions who are unlikely to be exposed to TLV concentrations of a contaminant, received 24 hours of instruction plus one day of field experience. The 24-hour training requirement also applies to sites that have been fully characterized and there is no indication of possible exposure to TLV concentrations of a contaminant or the need to wear a respirator.

- Management and Supervisor Training

On-site management and supervisors directly responsible for supervising workers engaged in hazardous waste site operations receive the 40-hour training plus an additional eight hours of specialized training, which at a minimum covers topics in the WRS health and safety program, employee training program, PPE program, spill response program, and hazard monitoring procedures.

- Refresher Training

All hazardous waste site workers receive an annual, 8-hour refresher course to review hazard recognition and methods of reducing exposure risk to hazards.

Documents indicating successful completion of a training course will be issued. The Project Manager will collect a copy of these documents from all workers assigned to the this site, including subcontractors, to verify current compliance with training requirements.

The following topics, at a minimum, were contained in the above training sessions and will be discussed again prior to commencing site activities:

- Names of all site safety personnel
- All identified and suspected potential physical and chemical hazards at the job site
- Proper use of PPE
- Work practices that can minimize exposure to hazards
- Proper use of equipment to minimize exposure to hazards
- Medical surveillance requirements (described in Section 8.0)

- Site controls (described in Section 9.0)
- Decontamination procedures(described in Section 10.0)
- Emergency response procedures (described in Section 11.0)
- Confined entry procedures
- Spill response plan

Other training procedures that will be conducted during site activities include:

- Daily, documented "tailgate" meetings to discuss identified hazards or risk-reducing methods
- Discussion and review of the proper procedure to report an accident
- Daily discussion of air monitoring and associated chemical hazards
- Inclusion of all WRS subcontractors in pre-job and on-the job safety meetings

### **8.0 MEDICAL SURVEILLANCE PROGRAM**

In accordance with OSHA 1910.120 and CAL-OSHA GISO 5192 (f), WRS institutes a medical surveillance program for all of its employees who are hazardous waste site workers, are required to wear a respirator, or have the potential of being exposed to chemical hazards or the TLV concentrations of a contaminant. This program is designed to assess and monitor the health and fitness of workers, provide emergency or other treatment as needed, and maintain accurate records for future reference. A private company oversees all WRS employee medical files and physicals. The comprehensive medical surveillance program addresses the following requirements, with details of each described below:

- Content of the examinations

The medical examination performed on a worker will include: the worker's medical and work history; information containing symptoms of potential exposure to chemical hazards; and the physical fitness and ability of the worker to perform hazardous waste site operations and wear a respirator. It will also be a means of providing baseline monitoring to determine if a worker has been exposed to a particular hazard. A description of the worker's anticipated site activities will be provided to the attending physician. After the examination, the physician will provide his written medical opinion of the ability of the worker to perform the indicated activities.

Physicians who are certified in occupational medicine will perform all medical examinations.

- Frequency of medical examinations

Medical examinations of hazardous waste site workers are required at least: prior to an assignment; once every 12 months; at termination of employment; when baseline monitoring is necessary for a particular suspected toxic; at the conclusion of a project where baseline monitoring was necessary; and as soon as possible if symptoms or illness has developed from a possible overexposure to a hazard. In some cases, the attending physician may require more frequent examinations if medically necessary.

- Record keeping

All written medical records and other medical documentation of a worker will be retained for the duration of employment plus 30 years. Records will contain information on medical examinations, descriptions of exposure to any hazardous substances, and a description of the hazardous substance to which a worker was exposed.

## 9.0 SITE CONTROLS

Site controls are a combination of pre-job site preparations, delineation of control zones, and implementation of safe work practices for the purpose of locating known or suspected hazards and reducing the risk of exposure to these hazards.

### 9.1 SITE PREPARATIONS

Upon arrival on site and prior to commencing actual work activities, the Project Manager and site safety personnel will:

- Locate and identify physical hazards
- Delineate emergency treatment areas, control and escape zones, traffic routes, and staging areas
- Identify debris to consolidate or avoid
- Set up security and site safeguards

If applicable to the project, a site map may be included in the Work Plan and made available to all workers for reference during the job. The map can be used to identify control zones and traffic routes in addition to assisting in project activity organization and task assignments.

### 9.2 CONTROL ZONES

To prevent the spread of contamination into clean areas, the Project Manager and site safety personnel have delineated boundaries to three control zones: the Exclusion Zone, the Contamination Reduction Zone, and the Support Zone. The boundaries to these zones may be adjusted if site conditions change. The proper level of PPE to be worn by personnel in each zone has been determined by the Region Health and Safety Coordinator.

## **Exclusion Zone**

The portion of the site where hazardous waste or hazardous materials are handled directly is designated as the Exclusion Zone, which poses the greatest risk of exposure to hazards on the site. In the Exclusion Zone, hazardous wastes or materials are not yet contained and exist exposed to the environment, thereby presenting a threat to human health. The risk of physical hazards will also be increased in the exclusion zone by the presence of heavy equipment. All personnel authorized to enter the Exclusion Zone shall wear the highest level of PPE designated for the site. Those personnel will be current in all required hazardous waste operations and emergency response training.

## **Contamination Reduction Zone**

The Contamination Reduction Zone (CRZ) is a zone of reduced contamination surrounding the Exclusion Zone. It is designed and located to reduce the risk of contaminating the clean, Support Zone. Entry and exit of all personnel and equipment working in the Exclusion Zone will be through the designated corridors in the CRZ. The entry corridor will contain PPE required for personnel to don prior to entering the Exclusion Zone. The exit corridor will be where all decontamination occurs and will contain items necessary for proper decontamination of personnel and heavy equipment. The CRZ will be equipped to handle emergency treatment, contain backup PPE supplies, and provide worker rest areas. Communications will be constantly maintained between personnel working in the CRZ and personnel in the Exclusion Zone.

## **Support Zone**

The CRZ zone separates the Support Zone from the Exclusion Zone. All personnel and equipment entering the Support Zone from the CRZ will be properly and completely decontaminated. All site administration and other duties not requiring PPE greater than Level D will occur in the Support Zone.

### **9.3 SAFE WORK PRACTICES**

After site preparations and delineation of control zones, safe work practices must be implemented to further reduce the risk of exposure to site hazards. In addition to the methods of reducing risk to physical hazards as described in Section 4.0, the following safe work practices are also required:

- **Communications:** the use of radios, telephones, approved hand signals, and air horns; proper use and location of signs for traffic routes, warnings, or other information promoting job safety
- **MSDS:** for all site chemicals will be available to all site personnel as per Hazard Communications requirements
- **Buddy system:** working in pairs or threes in the exclusion zone; maintaining verbal or visual contact with designated "buddy" in Exclusion Zone
- **Equipment and tools:** installation of proper guards; inspections prior to use
- **Confined spaces:** requires additional specialized training
- **Fire/explosion:** extinguish small fires immediately; if safety is jeopardized, leave the area and notify proper authorities
- **Spill:** contain immediately; follow procedures in WRS "Spill Response Plan"

SIGNAL	INDICATION
Hands around throat	"Out of air/can't breathe"
Thumbs up	"OK/yes"
Thumbs down	"Negative/no"
Hands on top of head	"Need assistance"
Grip partner's hand or waist	"Leave area immediately"

#### 9.4 MEDICAL AWARENESS

Prior to beginning work on site, all personnel will be instructed on how and where to obtain emergency medical attention. The following medical awareness items, among other safety issues, will be discussed in the pre-job meeting:

- Emergency assistance telephone numbers (Table 9.1)
- Map to nearest hospital or medical facility (Figure 9.1)
- Names of personnel with CPR and first aid training
- Location of mobile telephone in the Support Zone location of site telephone
- Location of emergency eyewash station
- Rules and regulations for the Exclusion Zone (Table 9.2)

Copies of all maps and emergency phone lists will be made available to all site workers, posted in conspicuous locations around the job site, and placed in all project vehicles.

**TABLE 9.1**

**EMERGENCY ASSISTANCE TELEPHONE LIST**

Hospital:	<b><u>University Medical Center</u></b>	(559) 459-4000
	445 South Cedar Avenue	
	Fresno, CA 93702	
Ambulance/Rescue Squad	911	
Fire	911	
Local Police	911	
State Police	911	
WRS Infrastructure & Environment, Inc.:		
	San Leandro Office	(510) 569-8661
California EPA		(916) 322-3759
USEPA (24 hour hotline)		(800) 424-8802
EPA (RCRA hotline)		(800) 424-9555
EPA (TSCA Hotline)		(202) 554-1404
Region 9 EPA		(415) 744-1305
California Dept. Toxic Substance Control		(916) 323-9723
CHEMTREC:		
24 Hours		(800) 424-9300
EPA (RCRA - Superfund Hotline)		(800) 424-9555
Poison Control		(800) 424-8802
Center for Disease Control		(404) 639-3311
National Response Center (NRC)		(800) 424-8802
U.S. Coast Guard		(800) 424-8802

**GENERAL EMERGENCY RESPONSE: 911**

**FIGURE 9.1**

**ROUTE TO NEAREST MEDICAL FACILITY**

**DIRECTIONS TO HOSPITAL**

**WRS Project Manager will add route directions to the medical facility after mobilization and prior to any work activities onsite.**

**TABLE 9.2**

**STANDING ORDERS FOR EXCLUSION ZONE  
and  
CONTAMINATION REDUCTION ZONE (CRZ)**

- **No smoking eating, or drinking in this zone. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of any material is prohibited in any area designated as a Decontamination Zone or Exclusion Zone.**
- No horse play.
- No matches or lighters in this zone.
- Check-in on entrance to this zone. Checkout on exit from this zone. Entrance and exit locations will be designated and emergency escape routes delineated. Warning signals for site evacuation have been established.
- Implement the communication system. Communications using radios, hand signals, signs, or other means will be maintained between work crewmembers at all times. Emergency communication will be prearranged in case of radio failure, necessity for evacuation off site, or other reasons.
- Wear the appropriate level of protection as defined in the Safety Plan.
- Work will only be performed during daylight hours unless adequate lighting is available.
- Contact with known or suspected contaminated surfaces should be avoided. Whenever possible, there will be no walking through puddles or discolored surfaces, kneeling on ground; or leaning, sitting or placing equipment on drums, containers, or the ground.
- Personnel should not take prescribed drugs where the potential for adsorption, inhalation, or ingestion of toxic substances exists, unless specifically approved by a qualified physician.
- All respirator wearers must be certified as being capable of wearing respiratory protection (physician's approval, fit-tested) while performing their assigned tasks. All respirator wearers must have been fit-tested within the past 12 months with the make and size respirator to be worn. No facial hair is allowed that would interfere with respirator fit.
- Work areas for all operational activities will clearly be established and clearly delineated on the site Health and Safety Plan.
- Work areas and decontamination procedures will be established based on expected site conditions and clearly delineated in the site Health and Safety Plan.

Personnel and equipment in the Exclusion Zone(s) will be minimized, consistent with effective site operations.



## 10.0 EMERGENCY RESPONSE PROCEDURES

WRS's priority is to perform the job in the safest manner possible to avoid exposure to any physical hazards and chemical spills. The Project Manager will carefully supervise all personnel and operations and strictly enforce the prescribed safety procedures. The Regional Health and Safety Coordinator will audit project operations to determine if the prescribed safety standards and procedures are appropriate for the job. However, emergency situations may arise on site requiring immediate attention by site personnel. Therefore, WRS has specified procedures to handle emergency situations and trained all workers in these methods.

*Emergency Response* is the ability to provide a quick, mitigating response to personnel or the environment in the event of exposure to a hazard. Proper emergency response will utilize the health and safety procedures described in this HASP.

### 10.1 RESPONSE PREPARATIONS

In order to provide proper emergency response, personnel are thoroughly prepared to handle an emergency situation and aware that one can occur at any time during the job. Site personnel are familiar with the following items so that they can provide the proper emergency response:

- **Site maps:** know the designated escape routes and alternate escape routes
- **Personnel:** know the proper chain-of-command and who to contact immediately in an emergency
- **Communications:** know the hand signals and locations of radios, telephones, and airhorns
- **Mental awareness:** know the potential hazards and have the ability to recognize these hazards
- **Health and Safety:** know the health and safety procedures stated in this HASP
- **Spill Response:** know the procedures in the WRS Spill Response Plan

The following emergency equipment will remain on site and in the Exclusion Zone during site operations:

- First Aid Kit(s)
- Fire extinguisher(s)
- Mobile or public telephones(s)
- Spill response/recovery equipment

### 10.2 RESPONSE ACTIONS

If an emergency situation arises on a project site, personnel will make a quick assessment of the hazard exposure and then implement the following simple procedures to ensure proper mitigation:

1. **Communicate:** notify the Project Manager, who will determine the proper authorities to notify
2. **Evaluate:** determine the degree of personal safety and safety of nearby site personnel
3. **Attend:** if safe to do so, help others who may need it
4. **Evacuate:** if the area is not safe, leave immediately through designated escape routes; if others were helped, remove them from the area as soon as it safe to do so

In the event of a spill or leak, personnel will notify the Project Manager; attempt to stop the source; and contain the material.

In the event of a fire or explosion, personnel will first notify the Project Manager, then contain or control the situation with on-site resources if health and safety are not in danger. If the situation cannot be controlled in this manner, the local fire department should be contacted immediately. The Project Manager will provide details concerning the source, nature of materials involved, and location of contaminated or hazardous materials on site.

If evacuation is necessary, an *evacuation alarm notification* should be made by sounding *one continuous blast on an airhorn*, supplemented by using hand-held site radios to notify personnel. Evacuation should be to a pre-determined location and occur upwind of any activities. Personnel must quickly proceed with their designated "buddy" or team member through the evacuation route to the designated evacuation location and await further instructions from the Project Manager.

If an emergency situation occurs in the Exclusion Zone and proper decontamination is not possible, the personnel should be wrapped in blankets or plastic when being removed from the Exclusion Zone. The Project Manager, site safety personnel, and safety personnel in contact by telephone, will determine the procedures to control or contain the hazard. Site workers will wait to receive further instructions from the Project Manager. Proper emergency response requires common sense and the ability to quickly evaluate the situation without panic.

### 10.3 RESPONSE NOTIFICATION

The Project Manager will report all health and safety incidents to the client. Depending upon the magnitude of a spill Federal, State, and local agencies will also be notified. Incidents with quantities exceeding the following parameters are reportable:

- Known Reportable Quantities (RQs)
- Quantities producing a discoloring sheen or those with the potential to contaminate site waters
- Liquid quantities producing a surface pooling or puddling effect
- Solids misplaced during handling or transportation operations

Proper response may also involve a meeting with client representatives, the EPA, or a notification of the National Response Center (NRC) in Washington, D.C. if a nearby population is threatened. The WRS Project Manager will provide the following information to the proper authorities when required:

- Name, address, and telephone number of person reporting and of party responsible for the incident
- Date, time, and location of the incident
- Details on the incident including: type and quantity of material involved; source or cause
- Current conditions: weather; evacuation procedures; injuries or fatalities; estimated damage
- Description of clean-up action or other mitigation procedures

All WRS internal communications for reporting an incident will be through the Project Manager. Notifications of an incident occurring during off-hours will be to the Project Manager at a pre-determined location or telephone number. The Project Manager will then confirm the identity of the person making the notification; physically view the site if necessary to assess the situation; and begin notifying the proper authorities. The WRS Project Manager will conduct communications for parties outside of WRS.

In summary, the following items are required of personnel in order to successfully respond to an emergency situation:

- Always remain aware of potential hazards and use methods to avoid them
- Use common sense and have the ability to avoid panic
- Thoroughly assess a hazardous incident and be prepared to provide details to authorities
- The Region Health and Safety Coordinator will evaluate site conditions through audits to determine if the specified emergency procedures remain appropriate for the site conditions; revisions will be done, if necessary, with proper approval.





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# **Excavation Safety**

## **Standard Operating Procedures**

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## Excavation Safety

### 1.0 PURPOSE

To establish safe operating procedures for the conduct of excavations

### 2.0 SCOPE

The Excavation Safety SOP applies to all excavations which RSI employees and its subcontractors must enter and all excavations which RSI creates to which the public or other employer's employees may be exposed to.

### 3.0 DEFINITIONS

*Competent Person* - one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees and has the authorization to take prompt corrective measures to eliminate them.

*Cross-brace* - horizontal member of shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

*Excavation* - any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal

*Face* - vertical or inclined earth surfaces formed as a result of excavation work.

*Registered Professional Engineer (PE)* - for the purposes of this SOP, registered engineer means an individual who is registered in any state as a professional engineer. A PE's review and approval is required when approving designs for "manufactured protective systems," and "tabulated data."

*Shoring* - a structure that supports the sides of an excavation and is designed to prevent cave-ins.

*Sheeting* - vertical members of a shoring system that are in contact with and retain the earth in position and in turn are supported by other members of the shoring system.

*Shielding* - a structure that is able to withstand the forces imposed on it by a cave-in and protect employees within the structure. Shields can be designed to be portable and moved along as work progresses or they can be designed as permanent. Trench boxes are common shield devices.

*Upright* - vertical member of a shoring system placed in contact with the earth and usually positioned so that individual members do not touch each other. Uprights placed so that individual members are closely spaced, in contact with each other or are interconnected are often called sheeting.

*Wales* - horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

#### 4.0 RESPONSIBILITIES

In addition to responsibilities outlined in the RSI Health and Safety Manual and Site Specific Health and Safety Plan, excavation work imparts these additional responsibilities.

*Project Management* - is responsible for directing excavation activities in accordance with this SOP, providing necessary people, equipment and materials and obtaining necessary permits, utility clearances and approvals.

*Site Health and Safety Officer* - is the designated *competent person* on a RSI site, responsible for daily inspections of excavation work and having employees removed from excavations which are unsafe. In the absence of a SHSO, the project manager will serve as or will designate a *competent person* having the qualifications listed above.

*Health and Safety Organization* - Segment and District Level members of the H&S department will provide training necessary for the development of *competent persons*, and measure conformance to, and the effectiveness of this SOP by making periodic inspections of excavation work.

#### 5.0 PROCEDURE

5.1 *Hazard Recognition* - accident types which result from improper excavation work include trapped in a cave-in, falls to a different level, struck by objects falling into an excavation, contact with underground utilities, and exposure to hazardous materials and atmospheres.

##### 5.2 Hazard Controls

5.2.1 *Training* - all RSI field employees (project managers, site supervisors, foreman, site health and safety officers, heavy equipment operators and technicians) will receive a course of instruction in excavation safety which will enable them to recognize unsafe excavations and the control measures necessary to make an excavation safe for entry and safe to work around.

5.2.2 *Sloping* - protection of employees in excavations greater than or equal to five feet in depth may be accomplished by sloping the faces of an excavation in accordance with one of the following four options:

Default Slope 1.5:1 (H:V) - Simple excavations (no vertical sided lower portion) twenty feet deep or less may be sloped at an angle of 1.5:1. Excavations 20 feet deep or less with vertical sided lower portions will be shielded to a height at least 18 inches above the top of the vertical sides.

Sloping Based on Soil Type - Excavations may be sloped in accordance with soil classifications. Type A soils - 3/4:1, Type B soils - 1:1 and Type C soils - 1.5:1. Special considerations apply to layered soil deposits Soil classifications must be made using at least one visual and one manual soil classification method. Criteria for each soil type and a description of soil classification methods are described in Appendix A of OSHA's excavation standard and is available from the RSI Health and Safety Department.

Alternative Soil Classification and Sloping Systems - Alternative soil classification and sloping systems may be developed. They must be approved by the RSI Corporate Health and Safety Department and a PE.

Site Specific Sloping and Benching Systems - Site specific benching and sloping designs may be developed in lieu of the alternatives listed above. The design must be approved by the RSI Corporate Health and Safety Department and a PE.

5.2.3 *Shoring/ Shielding* - protection of employees in excavations greater than or equal to five feet in depth may be accomplished by shoring or shielding techniques. Shoring systems are designed to prevent cave-ins and shielding systems are designed to protect people within an excavation should a failure occur. Options for the protection of employees in excavations are:

- systems (timber shoring or aluminum hydraulic shoring) designed in accordance with Appendices A C & D of 29 CFR 1926 Subpart P for excavations less than or equal to 20 feet deep. (no PE approval required);
- aluminum hydraulic shoring used in accordance with the manufacturer's instructions;
- trench boxes used in accordance with the manufacturer's instructions; and,
- other systems approved by the WRS Corporate Health and Safety Department and a PE.



5.2.4 *Utility Surveys* -The location of utilities will be determined prior to the start of an excavation. Utility companies and owners will be advised of excavation activities and asked to locate underground utilities in the vicinity of the excavation.

5.2.5 *Access and Egress* - Stairways, ladders, or ramps will be placed so as to require no more than 25 feet of lateral travel for employees.

5.2.6 *Fall Protection* - Employees will be protected against materials falling into an excavation in which they are working and protected from falling into excavations.

- employees will not be allowed to work underneath loads handled by a lifting or excavating equipment
- employees must maintain safe distances from trucks being loaded with soil to avoid being stuck by spillage
- when equipment is required to approach the edge of an excavation and the operator does not have a clear unobstructed view of the excavation edge, a warning system such as barricades, hand signals or stop logs. When possible the grade of the equipment's approach should be away from the excavation.
- employees will be protected from loose rock and soil rolling into the excavation by scaling, or barricades. Excavated soils and other materials will be staged no closer than 2 feet from the edge of the excavation.

5.2.7 *Stability of Adjacent Structures* - When the stability of a structure adjacent to an excavation is endangered, shoring , bracing, or underpinning will be used to ensure the stability of the structure for the protection of employees. Excavation below the level of the base or footing of a structure which may pose a hazard to employees is permitted only when:

- a support system is provided to ensure the safety of employees;
- a PE has approved the determination that the structure is far enough away from the excavation so as to be unaffected; or,
- a PE approves the determination that the excavation work does not pose a hazard to employees.

5.2.8 *Daily Inspections* - A competent person will conduct daily inspections of all excavations, adjacent areas and protective systems for evidence of a situation that could result in possible cave-ins, failure of a protective system, and hazardous atmospheres. Inspections will be conducted prior to the start of work in and around the excavation and as required throughout a shift. Inspections will be made after every rainstorm and any other incident which potentially decreases the degree of safety with which the excavation may be entered.

When a condition is discovered during an inspection which could result in a possible cave-in, protective system failure or development of a hazardous atmosphere, exposed employees will be removed from the hazardous area until the problem is corrected.

*5.2.9 Application of HAZWOPER SOP's* - Excavations conducted on RSI sites covered under OSHA's Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) are subject to WRS's HAZWOPER SOP's located in the RSI Health and Safety Manual for Hazardous Waste Site Activities.

*5.2.10 Application of Confined Space Entry SOP* - Excavations which may pose hazards associated with confined space entry (e.g. hazardous atmospheres) will be subject to the RSI Standard Operating Procedure for Confined Space Entry.

## 6.0 REFERENCES

29 CFR 1926 Subpart P

## 7.0 ATTACHMENTS

## 8.0 RECORD KEEPING

## 9.0 EQUIPMENT



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## Confined Space Entry

# Standard Operating Procedures

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## CONFINED SPACE ENTRY PROCEDURE

### 1.0 PURPOSE

The Confined Space Entry Procedure defines which areas are to be considered confined spaces at the RSI sites and establishes mandatory practices to be followed by RSI employees and RSI subcontractor personnel when working in confined spaces.

### 2.0 SCOPE

This applies to all RSI personnel involved in:

- the identification of confined space.
- the evaluation of potential hazards in each confined space.
- the issuance of permits for work in confined space.
- the performance of work in confined space.
- the monitoring of confined space work as an attendant.

*Protocol Application.* This protocol provides guidelines to help employees recognize and reduce the risks associated with confined space entry and applies to the following:

- All RSI operations and employees, both permanent and casual.
- Operations conducted by outside organizations and subcontractors under the direction of RSI.
- It does not apply at non-RSI locations where the RSI employee or subcontractor is required to follow site safety rules which provide for a different but equivalent procedure for confined space entry.

### 3.0 DEFINITIONS

OSHA Standard 29 CFR 1910.146 defines a confined space as an enclosed area which:

- Is large enough for a person to bodily enter to do assigned work;
- Has limited or restricted means for entry or exit;
- Is not designed for continuous occupancy; and

- A permit-confined space is a confined space that has one or more of the following characteristics:
  1. A potentially hazardous atmosphere;
  2. Contains material which may engulf an entrant;
  3. Has inward sloping walls (such as in a silo or bunker);
  4. Contains any other serious safety and health hazard stemming from mechanical systems, chemical exposures and so on.

Confined spaces include enclosures having limited means of access and egress such as, but not limited to:

- Storage Tanks, Vessels, Storage Bins, Silos, Hoppers, Vaults, Sewers, Tunnels and Pipelines.
- Open topped spaces of more than five feet in depth such as pits, vaults and vessels not subject to ventilation are considered permit confined spaces.

A non-permit confined space is a confined space which does not contain, or does not have the potential to contain, a hazard capable of causing death or serious physical harm.

Open topped spaces of more than five (5) feet in depth such as pits, vaults and vessels not subject to ventilation are also considered confined spaces. The hazards associated with each confined space must be identified. The confined space checklist, entry permit and entry permit log must be completed for each entry into a permit space. Refer to Attachments 1, 2, and 4.

### CONFINED SPACE HAZARDS

#### 1. Oxygen Deficiency

A minimum oxygen concentration is necessary to sustain life. Excess concentrations of oxygen will cause combustible and flammable materials to burn uncontrollably. Oxygen concentrations should be measured before entry into all confined spaces and be maintained at 19.5 to 22%.

#### 2. Carbon Monoxide

Carbon monoxide is an odorless gas which displaces oxygen in the air and causes asphyxiation in higher concentrations. Carbon monoxide is caused by incomplete combustion of organic material and is a hazard of confined spaces that are part of the combustion process. The OSHA 3 hour PEL and the confined space entry

limit for carbon monoxide is 35 ppm. Spaces should be ventilated if concentrations are above 35 ppm.

3. Hydrogen Sulfide

Hydrogen sulfide paralyzes the respiratory system and causes chemical asphyxiation. It is a gas that smells like rotten eggs at low concentrations but may not be sensed by smell at high concentrations. If an employee enters a dangerous atmosphere of hydrogen sulfide, he will smell it at first but the sense of smell will quickly be disabled. The gas can be generated from the decay of organic materials which contain sulfur. Hydrogen sulfide is a potential hazard in all sumps and manholes. If hydrogen sulfide concentrations exceed 10 ppm, the areas must be ventilated before entry.

4. Hot Work

Hot work is any operation which could provide a source of ignition such as welding, cutting, burning or heating, or open electrical circuits. Hot work is frequently required for repair, installation or demolition projects. All hot work is controlled by a hot work permit as specified in procedure HSSOP 22.0.

5. Chemical Hazards

Chemical hazards include process chemicals which may be present in pipes or vessels. This may include acids and caustics which are used for water or exhaust treatment. If chemical hazards are present, pipes should be blocked off, vessels should be drained or purged and the area ventilated. Direct reading indicator tubes may be used to measure concentrations of acid or mists.

6. Hot Materials

Hot materials may include gases, liquids, or solids. All portions of the combustion process, steam generation and exhaust gases may involve contact with hot materials. If hot process liquids or gases are present, vessels and pipes must be drained and purged and pipes should be blanked. If the confined space involves a hot environment such as the boiler or bag house, the area must be cooled before entry.

7. Engulfment

Engulfment means the surrounding and effective capture of a person by a liquid or finely divided solid substance. Engulfment may occur in an unshored trench, a silo or other storage vessels. The hazard is significant if an employee enters the

vessel or silo to free bridged or caked material. Entrants into silos or vessels should wear a body harness attached to a life line, if such actions pose a risk of engulfment.

#### 8. Entrapment

Entrapment may occur if a person is working inside a silo or hopper and is trapped by the inward sloping walls such as in the interior of a cone or funnel. Body harnesses and lifelines are required for entrants into an entrapment hazard area.

#### 9. Mechanical Hazards

Mechanical hazards include crushing, bumping, lacerations or entanglement in the machinery inside a confined space. All mechanical hazards must be controlled by the lockout-tagout system. The entrant into a space should retain keys to all locked out equipment.

#### 10. Flammable/Explosives

Flammable or explosive hazards may occur where there are flammable liquids or gases such as drums or storage tanks. Potentially flammable atmospheres must be tested prior to entry. The concentration of flammable vapors or gases must be less than 10% the lower flammable limit (LFL). Purge or ventilate the area until this limit is reached.

### 4.0 RESPONSIBILITIES

#### 4.1 Site Health and Safety Officer (SHSO)

- a. Identifies hazards and determine the severity of hazards in each confined space.
- b. Establishes controls to ensure permit spaces can be entered safely.
- c. Establishes a written permit system and checklist to control all entry into permit spaces.
- d. Ensures required training conducted.
- e. Posts signs near permit spaces to prevent unauthorized entry, except manholes which are all considered confined spaces. Protect entrants from external hazards by signs and barriers.

- f. Provides and maintains the use of any equipment necessary for safe entry and rescue.

#### 4.2 Site Manager

- a. Ensures procedures and equipment necessary to rescue entrants are implemented.
- b. Makes arrangements for outside emergency services.
- c. Ensures anyone entering a confined space has a permit.
- d. Ensures attendants are stationed at all confined spaces during authorized entries.
- e. Assigns an entry supervisor with responsibility of ensuring all requirements of the Confined Space Program and Procedures are met for each entry.
- d. Ensures that the Confined Space Permit is posted in the proper location.

#### 4.3 Attendant (Safety Standby Person)

- a. Continuously maintains an accurate count of all persons in the space.
- b. Recognizes potential permit required spaces and monitors hazards inside and outside the permit space to verify that the space remains safe for entry.
- c. Maintains continuous contact with authorized entrants.
- d. Orders evacuation of the permit space when a condition not allowed in the permit occurs, when entrants exhibit behavioral effects of a hazardous exposure, when there is an uncontrolled hazard inside or outside the confined space or when the attendant must leave the area.
- e. Summons rescue and emergency services as necessary.
- f. Prohibits unauthorized individuals from entering a confined space.

### 5.0 PROCEDURES

All operations and maintenance personnel are trained in the significance of the Confined Space Entry Procedure.



- 5.3 All permit confined spaces are to be marked with a sign. "Confined Space -- Entry Permit Required" (Attachment 3). There may be specific exemptions to accommodate unique site conditions.
- 5.4 All permit confined spaces require a standby observer (attendant) who must be in visual or voice contact at all times with entrants inside the confined space.
- 5.5 An entry supervisor must be designated as the responsible person for an entry. If entry supervisors change during an entry, each supervisor must sign the permit. The attendant must be knowledgeable of the hazards associated with the space and must understand his responsibilities and duties.
- 5.6 Permits are valid for one operating shift or for the duration of the operation. Air must be retested and the permit reissued for the next shift. If a second entry supervisor requests an entry into a space for a different operation, a second permit must be requested. If additional personnel are to be added to an existing permit for the same operation the additional personnel can be added with the permission of the Site Manager.
- 5.7 Smoking is not permitted in a confined space.
- 5.8 Entry into confined spaces is restricted. The Site Manager will verify that the entry supervisor, the entrants, and the attendants have been properly trained. Refer to training requirements. This includes RSI and contractor personnel.
- 5.9 If the space to be entered could be pressurized, filled with steam, liquid or contains equipment that has potentially rotating parts, the entry supervisor, along with the Site Manager, ensures the system is rendered safe, tagged and locked out in accordance with the Safety Tagging and Lockout Procedure. Keys will be retained by the appropriate personnel as specified in the Safety Tagging and Lockout Procedure.
- 5.10 If the confined space could be filled with hazardous materials from associated piping or ducting, the space is isolated by removing a valve, spool piece or expansion joint as close as possible to the space and blanking or capping the open end of the pipe leading to the confined space.
- 5.11 The potential hazards appropriate tests and control measures in confined spaces are summarized below.

<u>Hazard</u>	<u>Tests</u>	<u>Control Measures</u>
---------------	--------------	-------------------------

Oxygen deficiency	Oxygen Percentage (O <sub>2</sub> )	Ventilate area with fresh air
Carbon monoxide	(O <sub>2</sub> , CO)	Ventilate area
Hydrogen sulfide	(O <sub>2</sub> , H <sub>2</sub> S)	Ventilate area, provide for rescue of entrants.
Chemicals	Specific for chemical if available.	Lockout/tagout piping process, cap off lines. or neutralize chemical. Ventilate area.
Hot materials or environment	Temperature	Lockout piping, cap coo; space with ventilation to ambient temps.
Engulfment	--	Shoring of trenches, use safety harnesses for rescue.
Entrapment	--	Safety harnesses for rescue.
Mechanical	--	Lockout/tagout process or equipment.
Flammable/Explosive	--	Lockout/tagout, drain systems, ventilate with fresh air.

5.12 The designated entry supervisor must request the entry permit from the Shift Supervisor.

5.13 The Site Manager will evaluate what hazards are present and the testing and controls that are appropriate. All hazards potentially present must be controlled or other appropriate protective measures must be implemented. This includes lockout and de-energizing of mechanical, electrical and chemical system, ventilating enclosed spaces, provision of respiratory protection, etc.

- 5.14 The Site Manager will review the need for respiratory protection (Refer to the Respiratory Protection Procedure), safety harnesses, rescue equipment, etc.
- 5.15 The Site Manager sends a qualified employee to test the confined space for oxygen, carbon monoxide, hydrogen sulfide or accumulation of flammable gases as appropriate.

The acceptable atmospheric conditions for entry are:

- Lower Explosive Limit (LEL) % (combustible gas) must be less than 10%.
  - Oxygen must be greater than 19.5% and not more than 22%.
  - Hydrogen sulfide must be less than 10 ppm.
  - Carbon monoxide must be less than 35 ppm.
- 5.16 If any of the limits in Procedure 5.15 are not met, an Entry Permit is not issued. The confined space is ventilated with fresh air using fans or portable blowers until the specified limits are met. Tanks may be purged following the procedures detailed in HSSOP 18.0.
- 5.17 When the levels of oxygen, flammable gases, carbon monoxide, hydrogen sulfide and/or other chemicals are within the specified limits, the person performing the test completes the "sampling equipment used" and "test conducted" section of the Confined Space Entry Permit (Attachment 1).
- 5.18 When the Site Manager is satisfied that the space is safe to enter, he approves the Confined Space Entry Permit, assigns it a number, and completes the Confined Space Entry Permit Log (Attachment 2). The entry supervisor lists all approved entrants and authorized safety observers on the back of the permit. The entry supervisor verifies that all actions and conditions necessary for safe entry have been performed and signs the permit.
- 5.19 The permit is posted by the access to the confined space. Only those employees assigned to that specific Permit are authorized to enter the space.
- 5.20 Prior to commencing work in a confined space, all personnel review the job to ensure the following safety items are considered.

- Check the ventilation required due to heat, vapors from solvents, welding/cutting or deficiency/excess of oxygen.
  - Make sure that low voltage lighting or drop lights with ground fault interrupters are used for all lighting.
  - Ensure all required safety devices, personal protective equipment and rescue equipment is available and used.
  - Ensure that scaffolding and safety belts are being used by those required to work on scaffolding.
  - If cleaning solvents are used, review the Material Safety Data Sheets (MSDS) with the appropriate supervisor to ensure that the solvents will not pose any toxic or irritant hazards.
  - If hot work is performed, complete a hot work permit and attach it to the confined space entry permit.
- 5.21 Testing and monitoring of the permit space will be performed as necessary to determine if acceptable entry conditions are being maintained during the course of entry operations.
- 5.22 Test sampling results and other aspects of the permit are valid for only one shift duration or the duration of the operation, whichever is less.
- 5.23 When work is completed in the space, the entry supervisor inspects the space to ensure that all personnel, tools, scaffolding, etc. have been removed. If entrants leave the immediate area of the space, he or she must sign the permit. The permit is then canceled. To re-enter a new permit must be issued.

5.24 The entry supervisor brings the permit back to the Project Site Office, reports to the Site Manager and signs the release section of the Confined Space Entry Permit Log. Only the entry supervisor or his immediate supervisor is authorized to release the Confined Space Entry Permit. After all entry supervisors who control entries into a particular space release their respective permits, the Project Supervisor returns the space to service or takes other appropriate action.

## 6.0 REFERENCES

6.1 OSHA 29 CFR 1910.146 Permit Required Confined Spaces

## 7.0 ATTACHMENTS

7.1 Confined Space Entry Permit

7.2 Confined Space Entry Permit Log

7.3 Confined Space Entry Sign

7.4 Confined Space Entry Permit (pre-Entry/Entry Check List)

## 8.0 RECORD KEEPING

The Site Manager will complete the Confined Space Entry Permit (Attachment 7.1) and the Confined Space Permit Log (Attachment 7.2). The records are maintained in the Site Project Office for at least one year.

## 9.0 EQUIPMENT

Equipment will be provided to assure the following functions:

- Testing and Monitoring
- Ventilation
- Personal Protection
- Communications
- Lighting
- Barriers and shields

- Equipment such as ladders of safe ingress and egress
- Rescue and emergency equipment

**ATTACHMENT 1  
 CONFINED SPACE ENTRY PERMIT (PRE-ENTRY/ENTRY CHECKLIST)**

Date and Time: \_\_\_\_\_  
 Issued: \_\_\_\_\_  
 Job site: \_\_\_\_\_  
 Equipment to be worked on: \_\_\_\_\_

Date and Time Expires: \_\_\_\_\_  
 Job Supervisor: \_\_\_\_\_  
 Work to be performed: \_\_\_\_\_

**Pre-Entry (See Safety Procedure)**

- |   |                           |          |     |  |
|---|---------------------------|----------|-----|--|
| 1. Atmospheric Checks:                                | Time                      | _____    |     |  |
|   | Oxygen                    | _____%   |     |  |
|   | Explosive                 | _____%   |     |  |
|   | Toxic                     | _____PPM |     |  |
| 2. Source Isolation (No Entry):                       | N/A                       | Yes      | No  |  |
| Pumps of lines blinded.                               | ( )                       | ( )      | ( ) |  |
| disconnected, or blocked                              | ( )                       | ( )      | ( ) |  |
| 3. Ventilation Modification                           | N/A                       | Yes      | No  |  |
| Mechanical  | ( )                       | ( )      | ( ) |  |
| Natural Ventilation only                              | ( )                       | ( )      | ( ) |  |
| 4. Atmospheric check after isolation and ventilation. |                           |          |     |  |
| Oxygen _____%   | > 19.5%                   |          |     |  |
| Explosive _____% L.F.L.                               | < 10%                     |          |     |  |
| Toxic _____ PPM                                       | < 10 PPM H <sub>2</sub> S |          |     |  |
| Time _____  |                           |          |     |  |

- |  |     |     |     |
|--|-----|-----|-----|
| 1. Entry, Standby, and backup persons:   | Yes | No  |     |
| Successfully completed required training?  | ( ) | ( ) |     |
| Is it current?   | ( ) | ( ) |     |
| 2. Equipment   | N/A | Yes | No  |
| Direct reading gas monitor - tested?   | ( ) | ( ) | ( ) |
| Safety harnesses and life-lines for entry and stand-by persons?                    | ( ) | ( ) | ( ) |
| Hoisting equipment?  | ( ) | ( ) | ( ) |
| Powered communications?  | ( ) | ( ) | ( ) |
| SCBAs for entry and standby persons  | ( ) | ( ) | ( ) |
| Protective Clothing?   | ( ) | ( ) | ( ) |
| All electric equipment listed Class I, Division I, Group D and Non-sparking tools? | ( ) | ( ) | ( ) |
| 3. Rescue Procedure:   |     |     |     |

If conditions are in compliance with the above requirements and there is no reason to believe conditions may change adversely, then proceed to the Permit Space Pre-Entry Check List. Complete and post this permit. If conditions are not in compliance with the above requirements or there is reason to believe that conditions may change adversely, proceed to the Entry Check List portion of this permit.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

We have reviewed the work authorized by this permit and the information contained here-in. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.

Permit and Check List Prepared By: (Supervisor) \_\_\_\_\_

Approved By: (Project Manager/District Safety Officer) \_\_\_\_\_

Reviewed By: (Confined Space Operations Personnel) \_\_\_\_\_

(Signature)

(Printed Name)

This permit is to be kept at job site. Return job site copy to Safety Office following job completion.





**ATTACHMENT 3**

**SIGN**

**"CONFINED SPACE ENTRY  
PERMIT REQUIRED"**

ATTACHMENT 4

CONFINED SPACE PRE-ENTRY CHECK LIST

A confined space either is entered through an opening other than a door (such as manhole or side port) or requires the use of a ladder or rungs to reach the working level and test results are satisfactory. This checklist must be filled out whenever the job site meets this criteria.

- |  | Yes | No  |
|--|-----|-----|
| 1. Did your survey of the surrounding area show it to be free of such as drifting vapors from tanks, piping or sewers?                       | ( ) | ( ) |
| 2. Does your knowledge of industrial or other discharges indicate this area is likely to remain free of dangerous air contaminants occupied? | ( ) | ( ) |
| 3. Are you certified in operation of the gas monitor to be used?   | ( ) | ( ) |
| 4. Has a gas monitor functional test (Bump Test) been performed this shift on the gas monitor to be used?                                    | ( ) | ( ) |
| 5. Did you test the atmosphere of the confined space prior to entry.   | ( ) | ( ) |
| 6. Did the atmosphere check as acceptable (no alarms given)?   | ( ) | ( ) |
| 7. Will the atmosphere be continuously monitored while the space is occupied?  | ( ) | ( ) |

Contact local Emergency County personnel rescue by local fire department in the event of an emergency. If on-site at the Regional Treatment Plant, contact the Plant Control Center (PCC).

\_\_\_\_\_

Notice: If any of the above questions are answered "no" do not enter. Contact your supervisor.

\_\_\_\_\_

Project Location \_\_\_\_\_

Site Manager Signature \_\_\_\_\_ Date \_\_\_\_\_

**WRS HEALTH & SAFETY**

**FORMS**



## ON-SITE DAILY SAFETY MEETING RECORD

Report # \_\_\_\_\_

PROJECT NAME/LOCATION: \_\_\_\_\_

JOB NUMBER: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

CONDUCTED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_

TOPICS OF DISCUSSION (DAILY ACTIVITIES & ON-SITE HAZARDS)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PERSONAL PROTECTION FOR THE DAY: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

ACCIDENTS ON LAST DAY WORKED: YES \_\_\_\_\_ NO \_\_\_\_\_

IF YES, DESCRIBE: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

ATTENDEES SIGNATURES:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

PROJECT NAME		PROJECT NO.
ACTIVITY SUBJECT:		
DESCRIPTION ON DAILY ACTIVITIES AND EVENTS:		
VISITORS ON SITE:		CHANGES FROM PLANS AND SPECIFICATIONS AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:
WEATHER CONDITIONS:		IMPORTANT TELEPHONE CALLS:

# WRS Infrastructure & Environment, Inc.

## TRAINING ATTENDANCE RECORD

Class Title: \_\_\_\_\_

Class Content: \_\_\_\_\_

Class Instructor(s): \_\_\_\_\_

Date: \_\_\_\_\_

### ATTENDED BY

NAMES (PRINTED)	SIGNATURES
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Instructor(s) Signature: \_\_\_\_\_  
\_\_\_\_\_

Date(s): \_\_\_\_\_

cc: Corporate File Branch File

**WRS Infrastructure & Environment, Inc.**  
**Respirator Fit Testing & Inspection**

NAME \_\_\_\_\_ S.S.# \_\_\_\_\_ DATE \_\_\_\_\_

TITLE \_\_\_\_\_ BRANCH \_\_\_\_\_ DEPT. \_\_\_\_\_

TEST/HOOD ENCLOSURE USED: \_\_\_\_\_ YES \_\_\_\_\_ NO

**IRRITANT SMOKE FIT TESTING:**

<u>No. of Squeezes</u>	<u>Activity</u>	<u>Reaction</u>	
_____	Initial	___ Yes	___ No
_____	Head/Neck Motion	___ Yes	___ No
_____	Motion/Talking	___ Yes	___ No
_____	Motion/Deep Breathing	___ Yes	___ No
_____	Total Squeezes		

Seal Obtained \_\_\_\_\_ Type of Cartridge used \_\_\_\_\_

Type of respirator \_\_\_\_\_

Size of respirator \_\_\_\_\_

**RESPIRATOR INSPECTION:**

Head Straps ok / not ok Inhalation valves/stems/bodies ok / not ok

Face to Mask Sealing Surface ok / not ok Canister holder gasket/ threads ok / not ok

Exhalation valves/cover/stems/bodies ok / not ok Lens ok / not ok

Action Taken to Correct Deficiencies: \_\_\_\_\_

Fit Test/ Inspection performed by: \_\_\_\_\_ Date \_\_\_\_\_

Employee signature: \_\_\_\_\_ Date \_\_\_\_\_

WRS Infrastructure & Environment, Inc.  
Health Status Report

Name \_\_\_\_\_ SS# \_\_\_\_\_ Date \_\_\_\_\_ Title \_\_\_\_\_ Branch \_\_\_\_\_  
Dept. \_\_\_\_\_

The following medical classification is based on health information, minus laboratory test results, and the requirements of the position occupied.

PLEASE DO NOT INCLUDE MEDICAL DIAGNOSES ON THIS FORM

Class I  No significant medical impairment. may be assigned work consistent with skills and training.

Class II  Medical impairment present. May be assigned work consistent with skills and training with the following restrictions:

- Not to work around heavy equipment.
- Not to lift over \_\_\_\_\_ pounds \_\_\_\_\_ times.
- Not to work on ladders or unprotected heights.
- Not to be exposed to the following chemicals: \_\_\_\_\_
- Special Instructions: \_\_\_\_\_

Class III  Deferred, additional information required. Until received, the examinee has been instructed to:

\_\_\_\_\_

Class IV  Unacceptable for work on a hazardous waste site.

Respirator Certification:

- Certified for negative pressure respirator usage
- Certified for self-contained breathing apparatus usage
- Certified for supplied air respirator usage
- Requires further testing before certification may be granted
- May not be respirator certified

Date: \_\_\_\_\_ M.D.

RETURN THIS FORM WITH EMPLOYEE UPON COMPLETION OF YOUR EXAM

cc: Clinic Record  
Corporate File (Atlanta)



**WRS INFRASTRUCTURE & ENVIRONMENT, INC.  
EMERGENCY MEDICAL DATA SHEET**

Name: \_\_\_\_\_ Home/Work Telephone: \_\_\_\_\_

Address: \_\_\_\_\_

Age: \_\_\_\_\_ Height: \_\_\_\_\_ Weight: \_\_\_\_\_

In case of emergency:

Contact: \_\_\_\_\_ Phone: \_\_\_\_\_

Drug or Other Allergies: \_\_\_\_\_  
Particular Sensitivities: \_\_\_\_\_

Do you wear contact lenses? \_\_\_\_\_ Corrective lenses? \_\_\_\_\_

Previous Serious Illnesses: \_\_\_\_\_

Previous Exposures to Hazardous -

Chemicals: \_\_\_\_\_

What medications are you presently using? \_\_\_\_\_

Do you have any medical restrictions? \_\_\_\_\_

Name, address and phone number of your personal physician: \_\_\_\_\_

**FIELD PROCEDURES CHANGE AUTHORIZATION**

Instruction Number to be changed:		Duration of Authorization Requested:	Date:	
		Today only		
		Duration of task		

\_\_\_\_\_  
Description of Procedures Modification:

\_\_\_\_\_  
Justification:

\_\_\_\_\_  
Person Requesting Change:

\_\_\_\_\_  
Verbal Authorization Received From:

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Time

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title: (WRS Health and Safety Manager)

\_\_\_\_\_  
Approved by:

\_\_\_\_\_  
Signature (WRS Health and Safety Coordinator)  
(Signature of person named above to be obtained within 48 hours of verbal authorization.)



Form 10.1

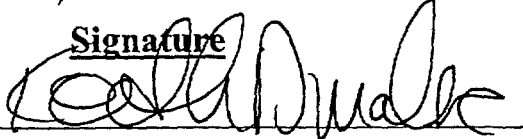

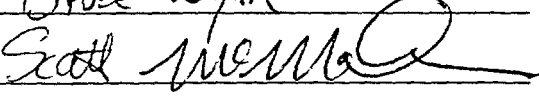
**ACKNOWLEDGMENT FORM - WRS Job #602-926**

**Pre-Job Meeting**

I have read, understand, and agree to the provisions set forth by this Site Specific Health and Safety Plan, which was developed for the Purity Oil Project.

I realize that failure to comply with all rules and SOPs set forth by this plan can and will result in immediate removal from the site.

The following personnel were also in attendance at the pre-job briefing, which was conducted at \_\_\_\_\_ [time], on 7/29/02 [date] at Purity Oil [location].

Name	Signature
Keith Dinkel	
Tom Colcom	
Bruce Wynn	Bruce Wynn
Scott McMahon	

\_\_\_\_\_ print name/title of person holding meeting

\_\_\_\_\_ signature

\_\_\_\_\_ date

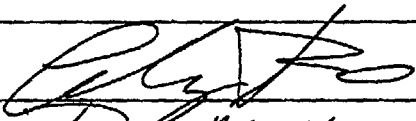
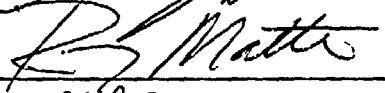

**ATTACHMENT A**

**Health and Safety Orientation/Compliance Agreement Register**

Site/Facility Name \_\_\_\_\_ Site Location \_\_\_\_\_  
 Field Team Leader \_\_\_\_\_ On-site Health and Safety Officer \_\_\_\_\_ Orientation Type: \_\_\_\_\_  
 Project \_\_\_\_\_ Site-specific \_\_\_\_\_ Special \_\_\_\_\_ Orientation Location \_\_\_\_\_ Length \_\_\_\_\_ Instructor \_\_\_\_\_

By signing below, I acknowledge that I have attended a site-specific health and safety briefing for the aforementioned task and have had the opportunity to ask questions and receive satisfactory responses.

By signing below, I acknowledge that I am familiar with the requirements of the site-specific health and safety plan as they pertain to my work, and I agree to follow these requirements while working at this site.

Print Name	Signature	Employer	Date	First Aid Qualified
Randy Fox		Tetra Tech	Apr 18, 2002	
Ronny Matte		Tetra Tech	4/18/02	
HAL DAWSON		Tetra Tech	5/2/02	

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**PURITY OIL SALES SUPERFUND SITE  
OFF-SITE TEST PIT AND TRENCH EXCAVATION  
SAFETY MEETING SIGN-OFF**

<b>Meeting Held By:</b> Jerry Fawcett	<b>Date:</b> 5/03/02	<b>Site/Facility:</b> Purity / Fresno, CA
<b>Hazard Evaluation</b>	<b>Circle</b>	<b>Circle</b>
Tetra Tech HASP	Yes	No
Contractor HASP	Yes	No
Hospital Route Map	Yes	No
Constituents of Concern	Yes	No
Access Agreements	Yes	No
Exclusion Zones	Yes	No
Heavy Equipment	Yes	No
Tarry Waste - Low pH	Yes	No
Green/Gray Waste	Yes	No
Physical Hazards/Confined Space	Yes	No
Trenching Safety	Yes	No
PPE	Yes	No
Decontamination - Personal/Equipment	Yes	No
Electrical Safety-Ground Faults/Generator	Yes	No
Shoring	Yes	No
Heat Stress / Fluids	Yes	No
Sunscreen	Yes	No
Odor Suppression / Dust Control	Yes	No
<b>Personal Protective Equipment</b>	Yes	No
<b>Decontamination Procedures</b>	Yes	No
<b>Signatures:</b>	<b>Company:</b>	<b>Date:</b>
Mark [Signature]	Tetra Tech EMI	5/3/02
Tom Collier [Signature]	WRS	5/3/02
Scott McMillan [Signature]	WRS	5-3-02
Bruce [Signature]	WRS	5-3-02
Jerry Fawcett [Signature]	Tetra Tech EMI	5/3/02
[Signature]	Tetra Tech EMI	5/3/02
Hal Dawson [Signature]	Tetra Tech EMI	5/3/02

**PURITY OIL SALES SUPERFUND SITE  
OFF-SITE TEST PIT AND TRENCH EXCAVATION  
SAFETY MEETING SIGN-OFF**

<b>Meeting Held By:</b> Jerry Favelent	<b>Date:</b> May 04/2002	<b>Site/Facility:</b> Purity / Fresno, CA
<b>Hazard Evaluation</b>	<b>Circle</b>	<b>Circle</b>
Tetra Tech HASP	Yes	No
Contractor HASP	Yes	No
Hospital Route Map	Yes	No
Constituents of Concern	Yes	No
Access Agreements	Yes	No
Exclusion Zones	Yes	No
Heavy Equipment	Yes	No
Tarry Waste - Low pH	Yes	No
Green/Gray Waste	Yes	No
Physical Hazards/Confined Space	Yes	No
Trenching Safety	Yes	No
PPE	Yes	No
Decontamination - Personal/equipment	Yes	No
Electrical Safety-Ground Faults/Generator	Yes	No
Shoring	Yes	No
Hand stress/fluids	Yes	No
Odor suppression/dust control	Yes	No
Sunscreen	Yes	No
<b>Personal Protective Equipment</b>	<b>Yes</b>	<b>No</b>
<b>Decontamination Procedures</b>	<b>Yes</b>	<b>No</b>
<b>Signatures:</b>	<b>Company:</b>	<b>Date:</b>
Jerry Favelent	Tetra Tech	5/04/02
K. Matter	Tetra Tech EM1	5/4/02
S. M. Ward	WRS	"
Bruce Wynn	WRS	5/4/02
Tom Carcano	WRS	5/4/02
Hal Dawson	TTEMI	5/4/02
Whit Linn	TTEMI	5/4/02





**PURITY OIL SALES SUPERFUND SITE  
OFF-SITE TEST PIT AND TRENCH EXCAVATION  
SAFETY MEETING SIGN-OFF**

Meeting Held By:	Date:	Site/Facility:
Jerry Fauchaux	May 6, 2002	Purity / Fresno, CA
<b>Hazard Evaluation</b>	Circle	Circle
Tetra Tech HASP	<input checked="" type="radio"/>	No
Contractor HASP	<input checked="" type="radio"/>	No
Hospital Route Map	<input checked="" type="radio"/>	No
Constituents of Concern	<input checked="" type="radio"/>	No
Access Agreements	<input checked="" type="radio"/>	No
Exclusion Zones	<input checked="" type="radio"/>	No
Heavy Equipment	<input checked="" type="radio"/>	No
Tarry Waste - Low pH	<input checked="" type="radio"/>	No
Green/Gray Waste	<input checked="" type="radio"/>	No
Physical Hazards/Confined Space	<input checked="" type="radio"/>	No
Trenching Safety	<input checked="" type="radio"/>	No
PPE	<input checked="" type="radio"/>	No
Decontamination - Personal/equipment	<input checked="" type="radio"/>	No
Electrical Safety-Ground Faults/Generator	<input checked="" type="radio"/>	No
Shoring	<input checked="" type="radio"/>	No
Heat stress / fluids	<input checked="" type="radio"/>	No
Odor Suppression / Dust Control	<input checked="" type="radio"/>	No
Sun Screen	<input checked="" type="radio"/>	No
First Aid Kit (Cont)	<input checked="" type="radio"/>	No
<b>Personal Protective Equipment</b>	<input checked="" type="radio"/>	No
<b>Decontamination Procedures</b>	<input checked="" type="radio"/>	No
<b>Signatures:</b>	<b>Company:</b>	<b>Date:</b>
Jerry Fauchaux	Tetra Tech EMI	5/06/02
Tom Corcoran	WRS	5/6/02
Tom Corcoran	WRS	
Tom Corcoran	WRS	5/6/02
R. Matte	TTEMI	5/6/02
G. M. M. M.	WRS	5.6.02
W. Dawson	TTEMI	5/6/02
W. Dawson	TTEMI	5/6/02





**WRS INFRASTRUCTURE & ENVIRONMENT, INC.**  
**AIR SAMPLE DATA FORM**

Date Collected \_\_\_\_\_

Job Name \_\_\_\_\_ Job No. \_\_\_\_\_

Sample Location \_\_\_\_\_

Analyte \_\_\_\_\_ Sample Media \_\_\_\_\_

Sample No. \_\_\_\_\_

Pump No. \_\_\_\_\_ Time On \_\_\_\_\_ Time Off \_\_\_\_\_

Pump Pre-Calibration \_\_\_\_\_ LPM

Pump Post-Calibration \_\_\_\_\_ LPM

Average Flow Rate \_\_\_\_\_ LPM

Sampling Time \_\_\_\_\_ Minutes

\_\_\_\_\_ Liters of air sampled

Temperature \_\_\_\_\_ °F      Relative Humidity \_\_\_\_\_ %

Barometric Pressure \_\_\_\_\_

Corrected Sample Volume (STP) \_\_\_\_\_

Collected by \_\_\_\_\_

Results \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Lab Sample No. \_\_\_\_\_

## Review of Site Specific Health and Safety Plan for Purity Oil Superfund Site

Strikethroughs show comments that were resolved with a phone call to Keith Donahue of WRS

*Italics show the answers from WRS or actions taken by TtEMI*

Page #	Comment
5	Chemical Hazards: The plan states that minimal chemical hazards (benzene and TPH) are anticipated. What is the expected maximum concentration in soil? <i>TtEMI sent FAX of soil data and will provide electronic copy</i>
10	<del>Confined Space: Are personnel anticipated to enter the trenches or test pits?</del> <i>No one will enter trenches or pits</i>
10	<del>Electrical Hazards: Are overhead power lines present? If yes, please add minimum distances allowed from equipment to power lines.</del> <i>No electrical overhead lines are present</i>
11	Noise: Add more specific information concerning when personnel should wear hearing protection; e.g. specify type of equipment or provide a guideline to judge "high" noise.
12	<del>Excavation Hazards: Will WRS have a "competent person" on site to inspect the excavation prior to anyone entering?</del> <i>No one will enter trenches or pits</i>
12	<del>Excavation Hazards: Who will conduct air monitoring in trench (confined space) prior to personnel entering trench?</del> <i>No one will enter trenches or pits</i>
16	<del>Personal Protective Equipment: Who is PES (specified to conduct air monitoring in second paragraph of Section 5.0)?</del> <i>PES is a leftover from a previous HAPS</i>
* 16, 17	Personal Protective Equipment: The plan specifies upgrading from Level D to Level C based air monitoring results (> 25 ppm total organic vapors or > 0.5 mg/m <sup>3</sup> total dust) but the plan also states that WRS will not conduct any air monitoring. What criteria will be used to upgrade PPE?
* 18	Table 5-1: Table specifies upgrading from Level D to Level C "if dust becomes a problem". Please clarify.
SOP	<del>Confined Space SOP - Who is RSI?</del> <i>RSI is the former name for WRS</i>

\* High Importance

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From : "Fouk, Glynis" <Glynis.Fouk@ttemi.com>

To : "ttemiwest@hotmail.com" <ttemiwest@hotmail.com>, "Sickles, James" <James.Sickles@ttemi.com>

Subject : FW: Purity Oil HASP

Date : Wed, 1 May 2002 08:58:15 -0700

Attachment : ReviewofWRSSSHSPforPurityOilSuperfundSite.doc (32k)

Reply | Reply All | Forward | Delete | Put in Folder...

Printer Friendly Version

Jim and Jerry - Here is a copy of the comments I sent to Keith Donahue of WRS for the HASP for Purity Oil. Keith was going to talk about some of the comments with his H&S person. WRS will need the soil data before they can properly respond to my question on criteria to upgrade PPE.

Jim - Can you please e-mail an electronic copy of the data table to Keith Donahue - this the the data table Jerry FAXed yesterday with the concentrations of the various COCs in soil from the Tech Memo "Boundary Area Soil Sampling Analytical Results - Test Pit Samples March 9, 2001."

Keith's e-mail is [kdonahue@wrsie.com](mailto:kdonahue@wrsie.com).

Thanks

Glynis Fouk  
TtEMI Sacramento office  
(916) 853-4561

-----Original Message-----

From: Fouk, Glynis  
Sent: Tuesday, April 30, 2002 1:11 PM  
To: 'keith donahue'  
Cc: 'ttemiwest@hotmail.com'  
Subject: RE: Purity Oil HASP

Keith - I have a couple of questions on the Health and Safety Plan for Purity Oil. Please see the attached Word document. Call me after you have looked at my comments and let's talk about them.

Thanks

Glynis Fouk, CIH  
TtEMI Sacramento office  
(916) 853-4561

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