

7/11/01

SITE-SPECIFIC HEALTH AND SAFETY
PLAN FOR THE OPEN BURN AND
OPEN DETONATION UNITS

FORT MCCLELLAN, PELHAM RANGE, ALABAMA

Prepared for:

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NOTE: Subsequent to preparation of the draft version of this document, it was determined that Unit 1 was included in the permit documentation erroneously. Rather than making substantial revisions to this document, the reader is instructed to disregard all references to "Unit 1".

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ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienist
AOE	Arising Out of Employment
CFR	Code of Federal Regulations
CHSD	Corporate Health and Safety Director
COE	Course of Employment
CPR	Cardiopulmonary Resuscitation
EOD	Explosive Ordnance Disposal
GPS	Global Positioning System
HAZWOPER	Hazardous Waste Operations and Emergency Response
HRA	Human Resource Administrator
HSMS	Health and Safety Program and Management System
HSO	Health and Safety Officer
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
OB	Open Burn
OD	Open Detonation
OSHA	Occupational Safety and Health Administration
PHA	Project Hazard Analysis
PPE	Personal Protective Equipment
ppm	parts per million
QA	Quality Assurance
RCRA	Resource Conservation and Recovery Act
RHSM	Regional Health and Safety Manager
SAP	Sampling and Analysis Plan
SHSO	Site Health and Safety Officer
SSHSP	Site-Specific Health and Safety Plan
USACE	U.S. Army Corps of Engineers
UXO	Unexploded Ordnance

1.0 HEALTH AND SAFETY

1.1 Project Objectives

The objective of this project is to close the open burn (OB) and open detonation (OD) treatment units located on Pelham Range, Fort McClellan, Alabama. In order to determine the extent of the closure activities at the OB and OD units, site characterization tasks will be performed. The site characterization tasks will include:

- Field screening of surface soil samples;
- Collecting surface and subsurface soil samples;
- Surveying monitoring wells;
- Installing and developing groundwater monitoring wells;
- Collecting groundwater samples; and
- Collecting surface water and sediment samples.

To ensure the health and safety of project personnel during this effort, this Site-Specific Health and Safety Plan (SSHSP) was prepared in accordance with Occupational Safety and Health Administration (OSHA) requirements, the U.S. Army Corps of Engineers (USACE) Safety and Health Requirements Manual (EM 385-1-1), and the URS Health and Safety Program and Management System (HSMS).

1.2 SSHSP Objectives

This SSHSP contains health and safety guidelines to be followed by URS Group, Inc. and its subcontractors during field activities performed at the OB and OD unit. Field activities will not be performed until the following has been accomplished.

- The SSHSP has been reviewed and accepted by the USACE Contracting Officer and Technical point of contact and
- All project personnel, to include subcontractor employees, have been trained on all aspects of the SSHSP and understand their roles and responsibilities.

This plan identifies persons responsible for administering the plan and their specific duties, training and medical monitoring, health and safety equipment, and standard operating procedures.

1.3 URS Health, Safety, and Environmental Policy

Figure 1-1 is the URS Health, Safety, and Environmental Policy.

URS HEALTH, SAFETY, AND ENVIRONMENTAL POLICY

URS is committed to business practices, operations, and projects that protect people and the environment.

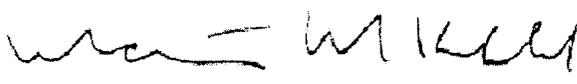
The basis for health, safety, and environmental programs is that accidents causing injuries or illness to personnel or impact on the environment are preventable. It is everyone's obligation to prevent accidents, and all personnel are expected to conduct business in a manner that actively integrates the elements of the URS Health and Safety Program into applicable aspects of URS operations.

The goal of the URS Health and Safety Program is zero accidents; therefore, accident prevention continues to be of paramount importance to the firm. To this end, safety takes precedence over expediency.

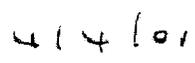
URS is committed to compliance with all client health, safety, and environmental requirements as well as to applicable regulations.

URS has established procedures that provide direction on health and safety matters to all employees. These procedures are periodically evaluated in light of current case law, new regulations, and emerging industry practices.

Each manager/supervisor has the responsibility through personal example to create a climate in which everyone shares a concern for his own safety and the safety of his fellow workers.

 _____

Martin Koffel
Chief Executive Officer

 _____

Date

Figure 1-1. URS Health, Safety, and Environmental Policy

2.0 REVIEW OF POTENTIAL HAZARDS

Two areas containing Resource Conservation and Recovery Act (RCRA) treatment units have been identified on Pelham Range. One site is located east and outside of the Large Impact Area (Unit 1) and the other is centrally located within the Large Impact Area (Unit 2). There is only minimal physical evidence that OB and/or OD occurred at the site located outside of the Large Impact Area (Unit 2). However, this location is referenced in base documentation. The site located inside the Large Impact Area includes an OD unit, an OB and OD unit near an unnamed crossroads, and a third OB and/or OD unit near an old target area. Figure 2-1 is a location map of the treatment units on Pelham Range. Section 2.1 describes these four areas.

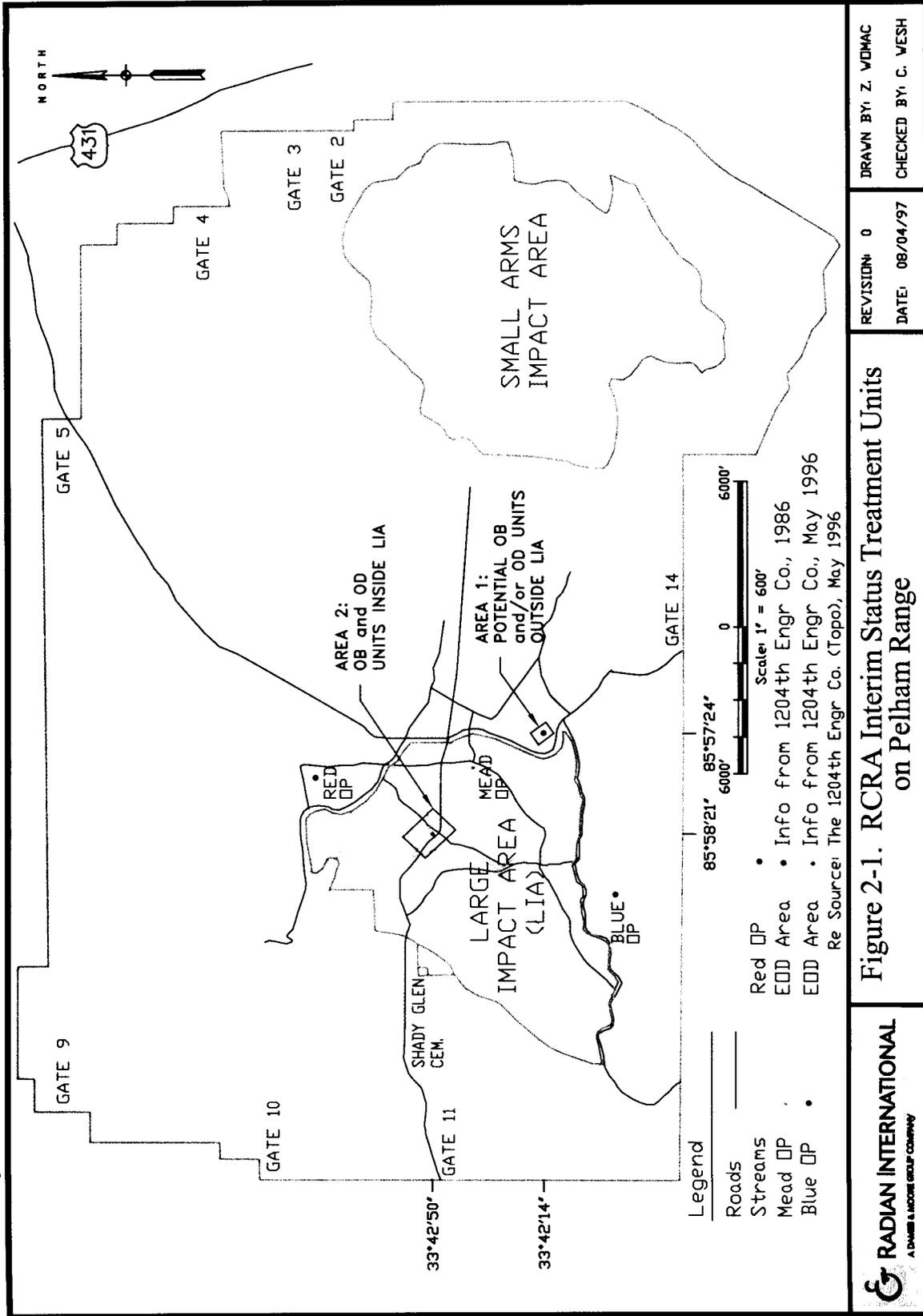
2.1 OB and OD Unit Description

2.1.1 Unit 1: OB and OD Units Outside the Large Impact Area of Pelham Range

Two data sources indicate that EOD activities occurred at Unit 1. A map of Pelham Range entitled *For Training Only Pelham Range* (dated 1986) identifies an EOD area at this location. The latitude/longitude coordinates provided in the RCRA Part B Suppart X permit application dated November 1988 also refer to the area labeled "EOD" on the 1986 map. Personnel interviews indicated that training and/or very minimal OD activities may have been conducted in this area.

Physical inspection of the area on 12 December 1996 revealed no evidence of OD craters. However, several depressions and soil piles were noted at the site, as well as crossties and railroad spikes (possible training bunkers). The perimeter of the unit is defined by the change in vegetation from new growth to more mature pines. Figure 2-2 shows that Unit 1 is 0.1 acre based upon a Global Positioning System (GPS) survey conducted during the 12 December 1996 site visit. The surface and subsurface magnetometer sweeps conducted in April 1997 over Unit 1 indicated no evidence of ordnance or ordnance explosive waste in the area.

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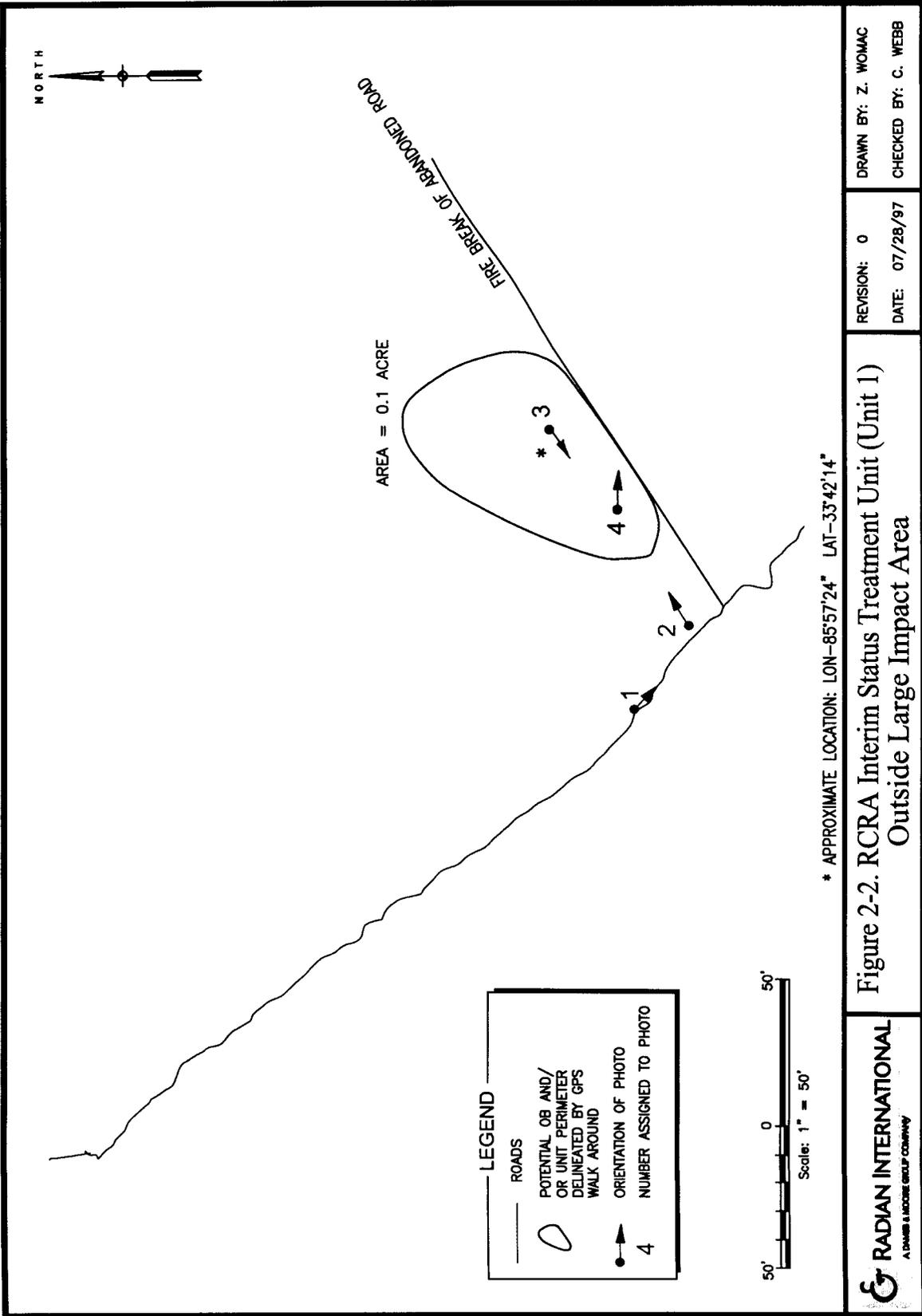
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CHECKED BY: C. WESH

Figure 2-1. RCRA Interim Status Treatment Units on Pelham Range

RADIAN INTERNATIONAL
A DAVIS & WOOD GOLF COMPANY

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RADIAN INTERNATIONAL
A DAVIS & BROCK GROUP COMPANY

Figure 2-2. RCRA Interim Status Treatment Unit (Unit 1)
Outside Large Impact Area

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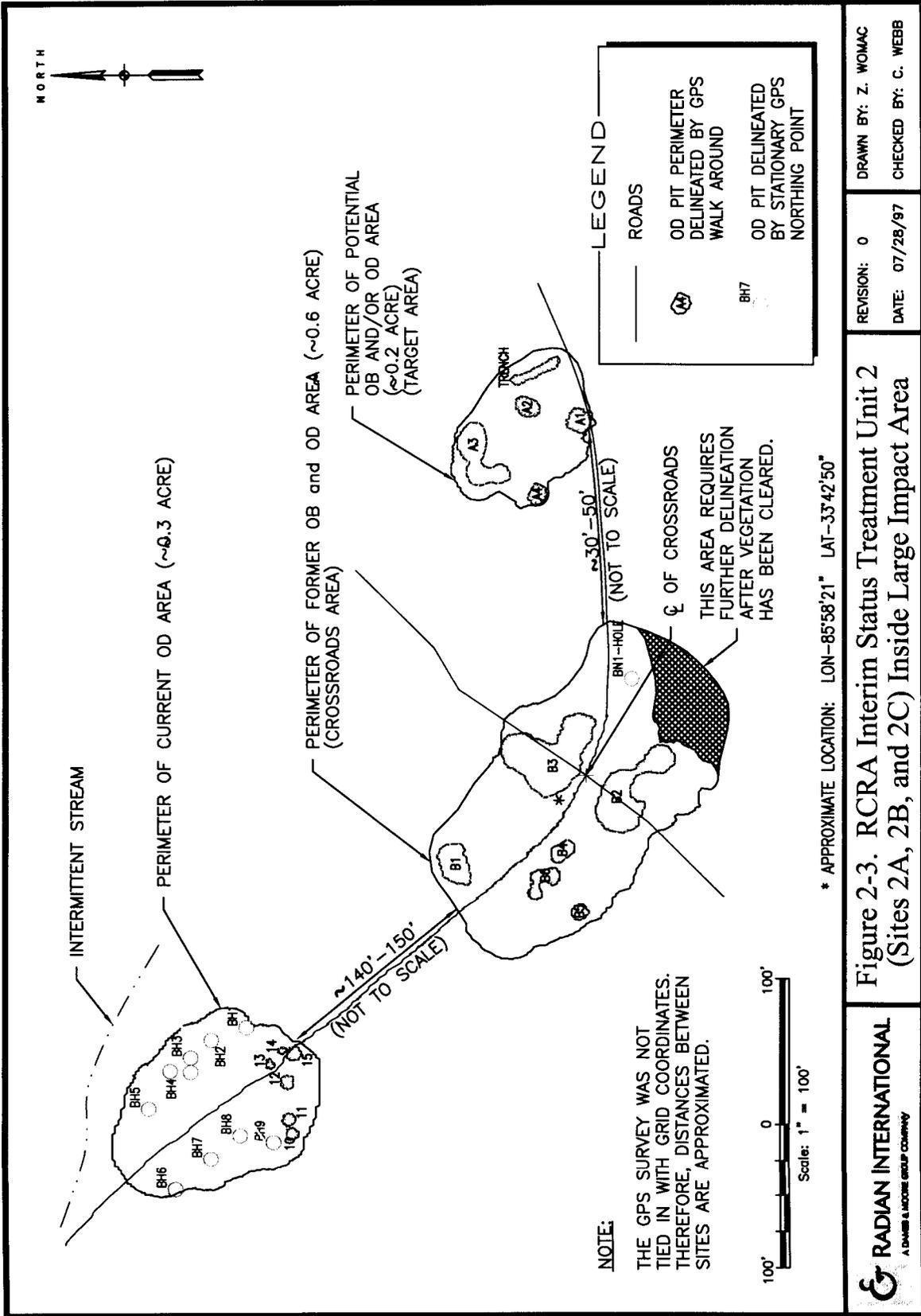
2.1.2 Unit 2: OB and OD Units Inside the Large Impact Area of Pelham Range

Three areas within the Large Impact Area were identified as OB and OD sites during site delineation. The areas from west to east include an OD area (Site 2A), OB and OD area near an unnamed crossroads (Site 2B), and an old target area in the Large Impact Area (Site 2C). Each site is discussed in detail below. Figure 2-1 shows the locations of the OB and/or OD sites within the Large Impact Area.

Site 2A—Extensive interviews with former EOD personnel indicate that Site 2A was used only for OD. The perimeter of the area (0.3 acre) and pit locations were delineated by GPS survey during the 22–23 April 1997 site visit (Figure 2-3). Nine of the pits shown in Figure 2-3 were located by obtaining a GPS point on the northern perimeter of each pit, and six of the pits were delineated by walking around the perimeter and obtaining GPS points at regular intervals. The pits range from 4 to 20 ft in diameter and are 2 to 8 ft deep.

Site 2B—The unit could have been used for OB and/or OD based on the permit application and interviews with EOD personnel. Surface debris, including an old truck bed, 55-gal drums, ammunition boxes, small arms cartridges, pieces of wood crates, spent rocket motors, and miscellaneous metal fragments, were observed in the area during the 22–23 April 1997 site visit. The size of Site 2B is approximately 0.6 acre as determined by a GPS survey conducted during the 22–23 April 1997 site visit (Figure 2-3). Seven pits were also delineated by GPS and range from 10 to 30 ft in diameter and are 3 to 10 ft deep. However, pits visually located in the southwest corner could not be accessed safely due to tall, dense vegetation in this area at the time of the site visit. This area will be cleared and delineated in more detail prior to sampling and closure activities.

Site 2C—Site 2C is a third area located within the Large Impact Area east of site 2B. The size of the area was determined to be approximately 0.2 acre by a GPS survey conducted during the 22–23 April 1997 site visit (Figure 2-3). The site includes four suspected demolition pits and a trench. The pits range from 10 to 15 ft in diameter and are 2 to 6 ft deep. Standing water was present in all the pits during the April 1997 site visit. The trench is approximately 40 ft



long by 6 ft wide by 2 ft deep and did not contain any water. Ammunition cases, spent illumination cartridges, small arms cartridges, and spent mortar shells were also observed in the area. This site appears to be near an old target area. Several old targets and a large number of impact craters are visible around this location.

Ammunition cases, spent illumination cartridges, small arms cartridges, and spent mortar shells were also observed in the area. The four pits shown in Figure 2-3 range from approximately 15 to 30 ft in diameter and are 3 to 8 ft deep. Standing water was present in all the pits during an April 1997 site visit. The trench is approximately 40 ft long by 6 ft wide. No definable surface drainage pathways are associated with this site. General surface drainage is from east to west across the area.

2.2 Site Hazard Assessment/Prevention

The potential hazards associated with this project may include chemical, physical, and biological hazards. The hazards at the site have been evaluated using the URS HSMS Project Hazard Analysis (PHA) form (see Attachment D). This form has been used as a tool to conduct and document the hazard analysis process and to identify the hazards that will be specific to the tasks at the site. The health and safety requirements set forth in this section represent minimum safety precautions based on current knowledge of the site. If contamination is found, more stringent precautions may be warranted. This SSHSP serves as the documentation for the project hazard communication information and is supported by specific health and safety procedures developed by URS. These health and safety procedures are provided as Attachment A.

2.2.1 Chemical Hazards

It is not anticipated that elevated levels of chemicals will be detected while collecting samples. Table 2-1 lists potential explosive and chemical compounds from ordnance detonation.

Table 2-1

Potential Explosive and Chemical Hazards of Concern

Explosive Compounds	Exposure Limit	Route of Exposure	Target Organ
Cyclo 1,3,5-trimethylene 2,4,6-trinitraamine	PEL: N/A TLV: N/A STEL: N/A IDLH: N/A	Inhalation	N/A
2,4,6-Trinitrotoluene	PEL: 1.5 mg/m ³ (skin) TLV: 0.5 mg/m ³ (skin) STEL: N/A IDLH: 500 mg/m ³	Inhalation, skin absorption, ingestion	Blood, liver, eyes, CNS, CVS, kidneys, skin, respiratory system
H6	PEL: N/A TLV: N/A STEL: N/A IDLH: N/A	Inhalation, skin absorption	Blood, liver, eyes, CNS, kidneys, skin
Comp B	PEL: N/A TLV: N/A STEL: N/A IDLH: N/A	Inhalation, skin absorption	Blood, liver, eyes, CNS, kidneys, skin
Tovex	PEL: N/A TLV: N/A STEL: N/A IDLH: N/A	Inhalation	N/A
Pentaerythritoltetranitrate	PEL: N/A TLV: N/A STEL: N/A IDLH: N/A	Inhalation	N/A
Chemical Compounds	Exposure Limit	Route of Exposure	Target Organ
Isopropyl Alcohol (decontamination)	PEL: 400 ppm TLV: 400 ppm STEL: 500 ppm IDLH: 2000 ppm	Inhalation, ingestion, eye/skin contact	Eyes, skin, respiratory system, CNS
Nitric Acid (sample preservation)	PEL: 2 ppm TLV: 2 ppm STEL: 4 ppm IDLH: 25 ppm	Inhalation, skin contact, ingestion	Eyes, skin, respiratory system, teeth
Sodium Hydroxide (sample preservation)	PEL: 2 mg/m ³ TLV: 2 mg/m ³ (ceiling limit) STEL: N/A IDLH: 10 mg/m ³	Inhalation, skin contact, ingestion	Eyes, skin, respiratory system

CNS = central nervous system

IDLH = immediately dangerous to life and health (from the *NIOSH Pocket Guide to Chemical Hazards*)

mg/m³ = milligrams per cubic meter in air

N/A = no specific PEL or TLV has been designated for this compound

PEL = Permissible Exposure Limit [from OSHA 29 Code of Federal Regulations (CFR) 1910, Time-Weighted Average]

ppm = parts per million

STEL = short-term exposure limit [set by American Conference of Governmental Industrial Hygienists (ACGIH)]

TLV = threshold limit value (set by ACGIH)

Small amounts of decontamination solvents (less than 1 gal) and sample preservation chemicals (less than 1 qt.) will be brought to the site by the sampling team (see Table 2-1). The project Health and Safety Officer (HSO) will ensure that all chemicals brought to the site are properly labeled and that Material Safety Data Sheets (MSDSs) and/or hazard data are available for all potential explosive and chemical compounds found or brought on-site for the requirements of URS SMS 2 (Hazard Communication). The MSDS and hazard data will be maintained in a binder on-site and personnel will be briefed daily on the binder location. Personnel will be trained on the chemical hazards associated with this project and the training will be properly documented (see Section 4.0).

2.2.2 Physical Hazards

Physical hazards encountered while sampling at the site are associated with sample collection, site setup, and drilling activities and the potential to encounter unexploded ordnance (UXO) (see Section 2.2.6). Table 2-2 provides a hazard assessment of potential physical hazards associated with this project, as well as recommended controls.

Rotating power equipment, such as augers, catheads, and winches, can catch clothing, hair, or limbs. Heavy tools may fall and cause injury. Only trained subcontractor personnel will be allowed to handle drilling equipment. URS personnel will maintain a distance of 10 ft from any operating drill rig and will not handle drilling equipment. Although primary responsibility for drilling safety will rest with the subcontractor, URS will use URS SMS 6 (Drilling Safety) as a guideline while observing those activities.

Hard hats, safety shoes, safety glasses, and earplugs will be used to minimize hazards during drilling operations. Earplugs will be worn for hearing protection when operating or standing within 15 ft of the operating drill rig. PPE use will follow the requirements of URS SMS 29 (Personal Protective Equipment) and URS SMS 26 (Noise and Hearing Conservation). Additionally, the Project Manager will ensure that a hazard assessment certification form (Attachment 29-1 of URS SMS 29) is completed for each definable work task (see Attachment E).

Table 2-2
Hazard Analysis List

Task	Potential Hazards	Recommended Controls
Site walkover; sample location layout	Trips, slips, and falls from uneven surfaces and heavy vegetation	Be alert and observe terrain while walking to minimize slips and falls. Remove trip hazards from walkways and be aware of wet surfaces
	Allergic reaction to poisonous plants	Wear long-sleeved clothing and pants to minimize contact with irritant plants and protect against insect bites
	Native wildlife such as snakes, ticks, insects, and rodents	Avoid wildlife when possible. In the case of an animal bite, administer first aid. Check for ticks when leaving wooded or vegetated areas. Determine whether staff members are allergic to bee stings and, if so, have medication available
	Back strain from carrying instruments	Use proper lifting techniques; distribute heavy loads between two people
	Accidents from driving vehicles on uneven or unsafe surfaces (overturned vehicles or flat tires)	Ensure maintenance has been performed on vehicles. A site surveillance on foot might be required to choose a clear driving path Wear seat belts
	Electrical hazards from faulty wiring or fallen electric lines	Avoid electrical wires and fallen power lines
	Heat stress from extreme weather conditions	Implement heat stress management techniques such as frequent breaks, monitoring fluid intake, and monitoring employees
	UXO encounter	Conduct fluxgate gradiometer or magnetometer sweep and keep distance from UXO
Field screening, surface and subsurface soil sampling	Skin contact or inhalation of chemical contaminants in soil	Minimize exposure to chemicals by conducting a review of suspected contaminants and implementing the use of Personal Protective Equipment (PPE) such as gloves or, as necessary, respiratory protection Note wind direction and remain upwind when digging to minimize exposure to chemicals Wash hands prior to eating, drinking, etc.
	Back strain and muscle fatigue from lifting, shoveling, or other auguring techniques	Use proper lifting techniques to prevent back strain. These include pre-lift assessment, use of legs, and use of multiple personnel. Use slow, easy motions when shoveling, auguring, and digging to decrease muscle strain
Field screening, surface and subsurface soil sampling	Contact with or inhalation of decontamination solutions	To prevent eye injuries, don eye protection when digging and during decontamination Perform decontamination outside in natural ventilation

Table 2-2
(Continued)

Task	Potential Hazards	Recommended Controls
Field screening, surface and subsurface soil sampling (continued)	UXO encounter	Conduct magnetometer sweep and keep distance from metal objects
Piezometer Setup	Audio hazard and a hindrance to communication from noise levels that exceed the OSHA action level of 85 dBA	Use earmuffs and/or earplugs to effectively reduce noise levels
	Exposure to soil contaminants Exhaust, including carbon monoxide, from the drill rig	Review contaminants suspected in soils. Determine appropriate PPE levels. Also note wind direction and position employees upwind where possible
	Overhead utility wires (i.e., electrical and telephone) hazards when the drill rig boom is in the upright position (if applicable)	Position sample locations at least 20 ft away from overhead utility lines and be sure drill rig boom is lowered prior to moving the rig
	Underground pipelines and utility lines ruptured or damaged during active drilling operations (if applicable)	Contact Civil Engineering to determine the location of underground utilities. Position soil borings at least 5 ft away from the underground utilities.
	Moving parts (i.e., augers) on the drill rig that can catch clothing. Also, free or fallings parts from the drilling may cause head injury	Wear hard hats at all times when working around drill rig. Secure loose clothing Inspect chains, lines, and cables daily for weak spots or frays
	Moving the drill rig over uneven terrain that can cause the vehicle to roll over or get stuck in a rut or mud	Be aware of hazards associated with moving heavy machinery. Check terrain in area when moving drill rig
	High-pressure hydraulic, water, and air lines used on drill rigs	Inspect lines daily for week spots or frays. Check to be sure pressure lines are secure
	UXO encounter	Conduct fluxgate gradiometer or magnetometer sweep and keep distance from UXO
Groundwater monitoring well installation	Audio hazard and a hindrance to communication from noise levels that exceed the OSHA action level of 85 dBA	Use earmuffs and/or earplugs to effectively reduce noise levels
	Exposure to soil contaminants Exhaust, including carbon monoxide, from the drill rig	Review contaminants suspected in soils and groundwater. Determine appropriate PPE levels. Also, note wind direction and position employees upwind where possible
	Overhead utility wires (i.e., electrical and telephone) hazards when the drill rig boom is in the upright position (if applicable)	Position sample locations at least 20 ft away from overhead utility lines and be sure drill rig boom is lowered prior to moving the rig
	Underground pipelines and utility lines ruptured or damaged during active drilling operations (if applicable)	Contact Civil Engineering to determine the location of underground utilities. Position soil borings at least 5 ft away from the underground utilities

Table 2-2
(Continued)

Task	Potential Hazards	Recommended Controls
Groundwater monitoring well installation (continued)	Moving parts (i.e., augers) on the drill rig that can catch clothing. Also, free or falling parts from the cathead may cause head injury	Wear hard hats at all times when working around drill rig. Secure loose clothing Inspect chains, lines, and cables daily for weak spots or frays
	Moving the drill rig over uneven terrain that can cause the vehicle to roll over or get stuck in a rut or mud	Be aware of hazards associated with moving heavy machinery. Check terrain in area when moving drill rig
	High-pressure hydraulic lines, water, and air lines used on drill rigs	Inspect lines daily for weak spots or frays. Secure high-pressure lines
	Injuries from handling/setting pipe and handling bags of concrete or bentonite	Avoid contact with wet concrete. Use eye and hand protection when pouring concrete
	Skin irritation from contact with wet concrete	Avoid contact with wet concrete. Use eye and hand protection when pouring concrete
	Injuries from cutting excess piping	Use proper tools and procedures when cutting pipe
	UXO encounter	Conduct fluxgate gradiometer or magnetometer sweep and keep distance from UXO
Groundwater sampling	Exposure to volatile organics when the wellhead is initially opened Water splashing in eyes during sampling	To minimize exposure to volatiles when the wellhead is initially open, do not stand directly over the well. If warranted, monitor near the opening for organic vapor levels with an OVA. If readings exceed 5 ppm in workers' breathing zone for 15 minutes or more, work will be stopped and a reassessment of PPE will be conducted by the HSO. Safety glasses will be worn at all times. Gloves (latex or nitrile) will be worn if necessary
	Back strain from lifting bailers or pumps from down-well depths and moving equipment (generators) to well locations	Use proper lifting and bailing techniques to prevent back strain. Lift heavy objects using legs and use multiple personnel
	Slips on muddy surfaces created by spilled water	Ensure that all purge water is placed in drums for removal to avoid slipping on wet surfaces. Be alert of wet areas to decrease slipping hazards
	Electrical hazards associated with the use of electrical equipment around water or wet surfaces	Protect electrical extension cords from damage; inspect them prior to use and secure them in areas where traffic passes Use ground fault circuit interrupters

URS will use subcontractors on this project and will require that the subcontractor read, approve, and adhere to the requirements of this plan. Although URS takes responsibility for health and safety at the site and issues in the health and safety plan, this does not relieve the subcontractor of the responsibility for the health and safety of its employees. The subcontractor has the responsibility for ensuring that this plan adequately addresses the hazards its employees will encounter, adequately protect its employees from such hazards, and provide proper amendments to this SSHSP, in the form of appendices or a separate health and safety plan, to protect employees. Subcontractors will follow, at a minimum, standard operating procedures for equipment to be used in accordance with their own established protocol. The subcontractors may develop their own health and safety plan; however, their plan will be as stringent as this SSHSP and be reviewed and approved by URS prior to implementation.

2.2.3 Electric and Utility Hazards

URS's procedures for preventing the unexpected release of, and/or contact with, hazardous energy is described in URS SMS 39 (see Attachment A). This procedure applies to electrical, chemical, thermal, mechanical, pneumatic, radiological, or other energy, such as UXO.

The location of each proposed soil boring and monitoring well is provided in the Sampling and Analysis Plan (SAP). Based on the initial site visits, neither aboveground nor underground utilities are expected on Pelham Range. However, this will be verified before field activities begin as required by URS SMS 34 (Utility Clearances and Isolation). If aboveground utilities are present, sample locations will be moved at least 20 ft away from aboveground electrical lines. If underground utilities are present, sampling locations will be moved a minimum of 5 ft away to avoid drilling into the underground electrical lines. In any case, care will be taken during drilling activities in the event unidentified utilities are encountered.

2.2.4 Biological Hazards

On-site workers will be aware of several potential natural hazards. Poisonous plants such as poison ivy, poison oak, and sumac may cause skin rash. In extreme cases, these plants can cause severe allergic reactions. If poisonous plants are contacted, the exposed skin will

be thoroughly washed with soap and water. Rashes can be treated with several over-the-counter remedies available in local pharmacies.

Insect stings from bees, wasps, and hornets can cause mild irritation to severe allergic reactions, depending on the kind of insect, number of stings, and reaction of the victim. Stings will immediately be treated with the first aid kit maintained in the URS vehicle. First aid kits will meet the requirements of Attachment 24-9 of URS SMS 24. Medication will be available for workers that are allergic to bee stings. If the victim shows signs of allergic reaction, transport the victim to the nearest hospital emergency room for treatment (Stringfellow Memorial Hospital, see Section 8.5). Workers who have known allergies to insect stings will be identified before work starts.

Poisonous snakes in Alabama include eastern diamondback rattlesnakes, timber rattlesnakes, pigmy rattlesnakes, copperheads, cottonmouths, and coral snakes. Five of these six poisonous snakes are classed as pit vipers and inject neurotoxins by biting: eastern diamondback rattlesnakes, timber rattlesnakes, pigmy rattlesnakes, copperheads, and cottonmouths. Pit vipers get their name from the presence of pits on both sides of the face between the eye and nostril. Pit vipers have vertical or “cat-like” pupils, thin necks, and heavy bodies. Adults in good health can die from the bites of these snakes but usually suffer illness, severe pain, and tissue necrosis. The coral snake, unlike the pit viper, has a small head, round pupils, and a slender body. Coral snakes spend much time underground in loose soils. They will bite readily when restrained, and they have a habit of “balling the tail” and waving it about. The coral snake’s venom is conducted through a pair of short, erect, grooved fangs near the front of the upper jaw. Like the pit vipers, the bite can be deadly.

If someone is bitten by a poisonous snake, keep the victim calm and immobilize the affected limb. Administer first aid and transport the victim immediately to a hospital emergency room (Stringfellow Memorial Hospital, see Section 8.5) for treatment. It is important to identify the kind of snake, if this can be done without danger, so that proper treatment can be administered.

2.2.5 Weather Conditions and Heat Stress

Weather conditions will be monitored by the URS field team leader. Any thunderstorms and/or high winds in proximity of the site will warrant the shutdown of all drilling activities. Other work activities may be shut down on a case-by-case basis, as determined by the field team leader.

Heat stress is the aggregate of environmental and physical work factors that constitute the total heat load imposed on the body. The environmental factors of heat stress are air temperature, radiant heat exchange, air movement, and humidity. Physical work and PPE worn by employees will add to the total heat load imposed on the body. URS SMS 18 (Heat Stress) provides detailed information about symptoms, monitoring procedures, prevention, and first aid procedures for heat-related illness. Heat stress controls will be implemented at 70°F for workers in chemical protective clothing and 90°F for workers wearing normal work clothes. The HSO will determine and adjust work-break schedules using URS SMS 18. Liquids will be provided outside of the immediate work area to hydrate the body.

2.2.6 UXO Hazards

An EOD subcontractor under the direction of the URS field team leader will surface sweep the OB and OD units immediately before drilling or sampling operations begin, as well as ingress and egress routes from the OB and OD units. Written verification of each clearance activity performed will be provided by the EOD subcontractor prior to any personnel entering or working in UXO suspected areas. Any discovered UXO will be flagged or otherwise marked and identified to the local EOD unit. Additionally, the location of proposed soil borings and monitoring wells will be carefully selected by the URS field team leader and EOD subcontractor prior to any drilling activities. There is a distinct possibility UXO may be encountered; therefore, team members will not touch or pick up any metal or plastic items found on the ground. The URS field team leader will be responsible for on-site UXO avoidance during sampling activities.

Prior to moving drilling equipment to the proposed well location, the URS field team leader and the EOD subcontractor will locate a magnetic anomaly-free site using a fluxgate gradiometer or magnetometer. The borehole can be started with a power auger once a location is found to be free of magnetic anomalies. At not more than a 1 ft depth, the auger will be withdrawn and the magnetometer will be lowered into the borehole and checked for anomalies. This procedure will be used to identify UXO that might be undetectable from the surface measurement. If UXO is detected, work will cease until local EOD unit or the EOD subcontractor determines it is safe to proceed.

2.2.7 General Health and Safety Hazards

Other general health and safety hazards, as outlined in the PHA and the hazard analysis table (Table 2-2), exist on this project. Specific URS procedures are included as Attachment A and will be followed as part of this project. The local EOD unit will notify URS personnel of the emergency signal that is used by Anniston Army Depot before field activities begin.

2.3 Field Tasks to be Performed and Hazard Prevention

Upon final approval of the SSHSP and SAP, field crews will be mobilized to the OB and OD units to begin collecting necessary environmental characterization samples. Samples will be collected as outlined in the SAP. The results from field screening, surface and subsurface soils, and groundwater sampling will be used to determine whether explosive compounds, heavy metals, and/or semivolatiles are leaching to soil and groundwater as a result of OB and OD operations.

Table 2-2 describes specific field tasks and associated hazards and preventative measures that will be followed for this project.

3.0 KEY PERSONNEL AND RESPONSIBILITIES

3.1 Contract Manager

The Contract Manager for this task will be Mr. Tony Babb, P.E. He is responsible for the health and safety of all members of the project team. To carry out that responsibility, the Contract Manager will ensure that team members follow the health and safety guidelines provided in the URS HSMS. He will ensure that project members, including subcontractors, are familiar with appropriate plans required to execute the field efforts and that these plans are in place and understood by all participants. He will ensure that required levels of training are provided to members of the team and that this training is up-to-date.

Mr. Babb will also ensure that health and safety is a high priority in planning field work, that appropriately trained project staff are selected, and that adequate resources are available to develop and implement this SSHSP. He will ensure that the plan is reviewed/approved by a Regional Health and Safety Manager (RHSM). It is the responsibility of the Project Manager to respond to an unsafe condition reported by the project staff and to work with the staff to mitigate unsafe conditions.

3.2 Project Manager

Mr. Chad Webb is the Project Manager for the project and, as such, will have responsibility for day-to-day management of the project, to include health and safety oversight of URS employees and all subcontractor employees. He will be responsible for performing a detailed hazard analysis of the work to be performed and ensuring that site-specific and procedural health and safety training as outlined in this plan is provided to team members and contractors prior to mobilization to the site. Mr. Webb will ensure that a meeting of URS field personnel is held prior to beginning field activities to ensure that each member is thoroughly familiar with and has signed this SSHSP (see Section 10.0). Mr. Webb will be responsible for monitoring compliance of this SSHSP during project execution and reporting up through the Contract Manager, who has overall accountability. Mr. Webb will ensure that all UXO clearance activities are properly documented and written verification of site clearance is provided prior to

field work. Mr. Webb will also ensure that all incidents, accidents, and near misses are properly documented and reported per URS policy requirements and this SSHSP.

3.3 Regional Health and Safety Manager

The RHSM is Mr. Millard Griffin, CIH, CSP. The RHSM is responsible for ensuring that this plan is reviewed and approved prior to its implementation. In addition, the RHSM serves in a consultation capacity to project management on health and safety-related issues and has authority to conduct health and safety audits.

3.4 Chemical Quality Control

Mr. Chris Wieland will serve as the Chemical Quality Control (CQC) representative. In his role as the CQC, he will be responsible for ensuring all QC procedures are followed during the field activities and sample collection. His responsibilities will include:

- Implementation of the three-phase Contractor Chemical Quality Control (CCQC) process for all field work and
- Complete daily quality control reports to be submitted to USACE on a daily basis.

3.5 Field Team Leader

The field team leader is Mr. Chris Wesh, P.G. (Chris Wieland as alternate). The field team leader will coordinate all on-site activities, including health and safety training and oversight. The field team leader is responsible for ensuring that any corrective measures have been implemented, appropriate authorities have been notified, and follow-up reports have been completed.

The field team leader is responsible for managing the execution of each specific field task. The responsibilities of the field team leader are to:

- Ensure that activities are executed in accordance with this plan;
- Ensure that technical personnel are qualified by experience or training to perform assigned work and comply with the technical and quality assurance (QA) requirements applicable to the work being performed; and
- Ensure that proper PPE is available and used.

The field team leader will be responsible for on-site coordination of field activities and initiation of field change notices. The field team leader will also be responsible for the coordination of activities for subcontractors involved in the investigation—the drilling contractors, the surveying contractor, the EOD subcontractor, and the analytical laboratory. Field data collected will be reviewed by the field team leader.

3.6 Site Health and Safety Officer

Mr. Chris Wesh (Chris Wieland as alternate) will act as the Site Health and Safety Officer (SHSO). Mr. Wesh will be responsible for implementing field surveillance activities necessary to ensure that worker health and safety concerns are fully addressed, including adhering to the SSHSP requirements. He will provide site-specific training to employees assigned to work at the site and enforce the requirements stated in the URS HSMS and this SSHSP. Mr. Wesh will be responsible for each field employee reviewing and signing this SSHSP. He will provide hazard communication training pertaining to the hazards associated with each task and review MSDS information on chemicals being used during this survey. Mr. Wesh will review and confirm with the RHSM any proposed changes to these plans and stop work when the health or safety of project personnel is jeopardized.

As the SHSO, Mr. Wesh has the authority to order the immediate evacuation of personnel from any area of the site that may be determined unsafe, require personnel to obtain immediate medical attention if warranted, and provide health and safety briefings to visitors; however, any member of the project team that identifies an unsafe act or situation has the authority to stop work.

3.7

Subcontractors

Subcontractors will be on-site to provide drilling, surveying, and EOD technical support. Subcontractors will be responsible for complying with this SSHSP and will report health and safety problems to the SHSO. Subcontractors will be responsible for:

- Ensuring that protection of their employees follows, at a minimum, the requirements of this SSHSP;
- Providing written statements certifying that project personnel have been trained in accordance with OSHA 29 CFR 1910.120;
- Ensuring their employees receive proper health and safety training as required by this plan prior to the start of work.
- Providing a physician's written opinion regarding the team members' abilities to perform at the site and provide qualified and competent individuals on-site during field activities; and
- Providing documentation required for the job, such as the subcontractor's corporate health and safety plan, vehicle inspection records (to properly document the USACE safety checklist for Mobile Construction Equipment), etc., which will be available for review and approval by URS's SHSO prior to any field work.

4.0 **TRAINING REQUIREMENTS**

Personnel working at any hazardous waste site will recognize and understand the potential safety and health risks associated with work at that site. Workers that will be involved in site activities at Fort McClellan will be thoroughly familiar with programs contained or referenced in this SSHSP. Training requirements for personnel involved in hazardous waste operations will comply with 29 CFR 1910.120 (OSHA) regulations for Hazardous Waste Operations and Emergency Response (HAZWOPER). Attachment C will contain employee training and medical certification dates for the URS field crew and all subcontractor employees.

4.1 **General Site Workers Training**

Site workers who are engaged in characterization activities or hazardous substance removal or other activities that expose or potentially expose them to hazardous substances will have 40 hours of hazardous waste site training and 3 days of on-the-job training as described in the OSHA 29 CFR 1910.120 (HAZWOPER) standard.

4.2 **Supervisors Training**

On-site supervisors, such as field team leaders, will have the same 40-hour HAZWOPER training as the general site workers they supervise. Additionally, they will have received 8 hours of specialized training as described in the HAZWOPER standard.

4.3 **Refresher Training**

General site workers and supervisors will receive 8 hours of refresher training annually. The refresher training will include topics similar to those presented during the 40-hour course.

4.4 EOD Training

All EOD subcontractor team members will be graduates of the U.S. Naval EOD School, Indian Head, Maryland, or Eglin Air Force Base, Florida.

4.5 Site and Hazard-Specific Training

Attachment A contains specific health and safety procedures that require personnel to be properly trained prior to the performance of any work. The Project Manager, field team leader, and SHSO will review these procedures, develop training materials, provide training to employees, and document training prior to any employees performing any field work. Prior to the field sampling effort, a kickoff meeting will be conducted by the field team leader/SHSO to review the specifics of this plan and schedule and provide the required training. Each field employee will be responsible for reading and signing the plan to document their review. However, the Project Manager and SHSO will be responsible for ensuring all employees receive the required level of training and certification prior to performing any field work. This SSHSP constitutes the written hazard communication documentation for this project. During the kickoff meeting, the project tasks, hazards associated with those tasks, any potential chemical exposures, and controls to be used will be reviewed by the sampling team. (These items are in Section 2.0 of this document.) The plan will remain with the sampling crew at the site. MSDSs for the decontamination and sample preservation chemicals brought on-site are in Attachment B. If any additional chemicals will be brought on-site, MSDSs will be available and employees will be briefed on the hazards associated with using those chemicals. This plan has also been submitted to the Contracting Officer's Representative.

4.5.1 Morning Briefings

In addition to the 40-hour HAZWOPER training and site/hazard-specific training requirements presented above, the field team leader will provide daily training prior to beginning work for the day. Typical topics covered in a site-specific briefing will include:

- The tasks for the day;
- Review of previous days' activities to include observations and lessons learned, if appropriate;
- The nature of site-specific hazards;
- Control measures used to minimize exposures;
- Assignment and discussion of safety-related duties;
- A discussion of site work zones;
- The handling of site-specific emergencies;
- A discussion of emergency contacts (e.g., medical, police);
- Rules and regulations for vehicle use, both on- and off-site;
- A discussion and/or practice of site-specific procedures (e.g., use of PPE or decontamination of sampling equipment);
- Dealing with third parties (e.g., Alabama Department of Environmental Management personnel); and
- Additional topics specific to the site.

The lead UXO/EOD representative will also conduct daily UXO safety briefings. Briefings will be documented with a sign-up sheet signed by workers (including subcontractors). The documentation will briefly outline topics discussed.

4.5.2 Pre-/Post-Investigation Health and Safety Briefings

Prior to mobilization to the site, URS and its subcontractors will hold a pre-investigation conference call to discuss the health and safety aspects of the project. These discussions will be consistent with this SSHSP.

For the duration of the field activities, the URS team and its subcontractors will review current conditions at the site to determine whether additional safety procedures and/or equipment are warranted. To modify or update safety protocol, the URS SHSO is required to contact the RHSM to request an evaluation of the conditions. Once reviewed, the proposed protocol change will be authorized by the RHSM. Any accidents or near misses as well as lessons learned from the field activities will be reviewed during post-investigation conference calls.

4.6

Documentation of Training

All training activities will be documented and incorporated in the project files. Accepted documentation for formal courses will include a course certificate or a letter/memorandum signed by the trainer and subject to approval by the RHSM. Site-specific training will be documented using Attachment 55-2 of URS SMS 55 (Health and Safety Training). Site-specific training records will be maintained in the project files. Formal training records will be maintained by the Corporate Health and Safety Director (CHSD) for all company employees. Site-specific training records will be maintained by the SHSO, who will forward copies to the RHSM, CHSD, subcontractors, or other appropriate officials as required by the project.

5.0 MEDICAL SURVEILLANCE AND EXPOSURE MONITORING

Prior to mobilization to the site, personnel performing surveys and/or investigations are required to participate in the medical surveillance program as required by 29 CFR 1910.120 and URS SMS 24 (Medical Screening/Surveillance).

5.1 Applicability and Scope

Medical monitoring is conducted on those employees whose work has the potential to expose them to chemicals or agents at work sites. Employees involved in work at hazardous waste sites will comply with the medical monitoring requirements of the OSHA 1910.120 standard and Attachment 24-3 to URS SMS 24. Candidates for medical monitoring will be selected based on the potential for chemical exposure, environmental conditions, physical requirements, regulatory requirements, and the potential use of PPE.

5.2 Criteria for Medical Monitoring

In general, there are two criteria that determine whether an employee will be enrolled in the medical monitoring program: potential for exposure to hazards and job profile.

Employees who work with or around hazardous wastes/materials or who are suspected of having been exposed to hazardous wastes/materials in the course of their work will be entered into the medical monitoring program and will receive annual exams.

Employees whose exposure to noise equals or exceeds an 8-hour time-weighted average of 85 dBA for greater than 30 days/year will be included in the medical monitoring program and will receive annual audiometric testing and training as required by OSHA 29 CFR 1910.95.

5.3

Medical Monitoring Requirements, Responsibilities, and Protocols

URS's specific medical monitoring requirements, responsibilities, and protocols are presented in Attachment A (URS SMS 24). All project workers, to include subcontractor employees, will participate in the medical monitoring requirements as outlined in this procedure and as mandated by this SSHSP.

6.0 HEALTH AND SAFETY EQUIPMENT

This section describes the PPE to be used during the site investigation and monitoring well installation. OSHA defines protection levels ranging from A to D; for this project, only Levels D and D-modified are discussed, as these are the site-specific levels that may be used during this effort.

6.1 Site-Specific Levels of Protection

At a minimum, employees will be supplied with and wear Level D protective equipment; however, the level of protection provided by PPE may be upgraded to modified Level D based upon a change in site conditions. The field team leader/SHSO will confer with the RHSM to determine whether a change in PPE level is warranted or additional safety procedure changes are needed.

6.1.1 Level D Protective Equipment

The following constitute Level D protective equipment:

- Work clothes/coveralls;
- Leather, steel-toed safety shoes/boots;
- Hard hat when overhead hazards exist;
- Safety glasses with side shields;
- Hearing protection at the direction of the SHSO; and
- Gloves at the direction of the SHSO, Silvershield or 4H (for added dexterity, wear nitrile as an outer glove).¹

¹Due to a loss of dexterity while wearing Silvershield or 4H gloves, 4-mil nitrile gloves will be worn during water sampling.

6.1.2 Level D-Modified Protective Equipment

The following constitute Level D-Modified protective equipment:

- “Tyvek” suits taped or elastic at gloves and boots;
- Gloves, Silvershield or 4H (for added dexterity, wear nitrile as an outer glove)²;
- Boots/shoes, steel-toed and shank neoprene or disposable neoprene overboots over steel-toed and shank boots;
- Safety glasses with side shields;
- Hard hat when overhead hazards exist; and
- Hearing protection at the direction of the HSO.

6.2 Site-Specific PPE

Site-specific PPE for this project will be selected, used, and maintained in accordance with the requirements contained in URS SMS 29, as well as 29 CFR 1910.132, 133, 134, 135, 136, and 138. URS SMS 29-1 has been used as part of the PPE decision-making process for each additional task. PPE is designed to provide protection to team members when engineering and administrative controls are not feasible for controlling hazards. PPE will be used in conjunction with appropriate mitigation measures, as necessary, to ensure full protection against identified hazards. Personnel will receive training on the proper selection, use, and care of PPE. All training will be documented in writing and included as part of the project file.

²Due to a loss of dexterity while wearing Silvershield or 4H gloves, 4-mil nitrile gloves will be worn during water sampling.

7.0 STANDARD OPERATING PROCEDURES

7.1 Site-Specific Work Practices

While on-site, URS team members as well as any subcontractors will follow the site-specific practices established in this SSHSP. These practices are described below and will be adhered to at all times for the safety of the project team members.

7.2 General Site Operating Procedures/Safety Guidelines

The following are general guidelines for safe operations in areas that are potentially contaminated.

- Never work alone in an isolated area of the site.
- Maintain line-of-sight contact during activities that could involve potentially hazardous substances.
- Practice contamination avoidance. Never sit, kneel, or lay equipment on potentially contaminated surfaces. Avoid obvious sources of contamination.
- Hard hats will be worn on-site when overhead hazards are present and when directed by the SHSO.
- No eating, drinking, or smoking is permitted in work areas.
- In the event PPE is ripped or torn, stop work and replace immediately.
- Be alert to any unusual changes in your own condition; never ignore warning signs. Notify the field team leader, Project Manager, and RHSM of suspected exposures, safety incidents, near misses, or accidents.
- A vehicle will be readily available for emergency use at all times during field efforts. Personnel working on-site will be familiar with the most direct route to the nearest hospital (Stringfellow Memorial Hospital, see Section 8.5).
- In the event of direct skin contact with contaminants, immediately wash the affected area with soap and water.
- Copies of the SSHSP and MSDSs will be readily accessible at the work site.
- Personnel will remain upwind whenever possible during on-site activities to lower exposure to potential contaminants.
- Never climb over or under obstacles so as to endanger yourself or others.
- Hands and face will be thoroughly washed before eating or drinking.

- Any substantial modifications to this plan that could affect health and safety will be approved by the RHSM.

Below are some techniques to effectively be “proactive” in approaching subcontractor management regarding health and safety issues:

- Do not attempt to discipline or correct subcontractor employees. Make the subcontractor management responsible for such actions.
- Point out violations/discrepancies but avoid providing specific solutions.
- Require the subcontractor to designate a health and safety representative in writing and to provide a written corporate safety program that identifies their organization and safety policies.
- Conduct and document a pre-job safety meeting with the subcontractor. Clearly define the subcontractor’s responsibilities for health and safety. Provide information about the potential hazards and tasks to be conducted. Request task information from the subcontractor.
- Require immediate notification of serious accidents, OSHA inspections, or other emergencies.
- Require copies of accident reports and OSHA citations.
- Keep the USACE informed regarding the subcontractor’s compliance with the established program.

7.3 Site Entry Control Procedures

The purpose of site control is to limit access and movement between areas of the site to prevent cross-contamination and contaminant migration. Potential pathways for dispersion of contaminants include:

- Drilling and sampling tools and equipment;
- Sampler’s gloves;
- Sampler’s and driller’s clothing;
- Blowing dust;
- Erosion and transport by precipitation; and
- Improper containment of wastes.

To minimize the transfer of potentially hazardous substances, work zones will be established and proper decontamination will be performed. Waste materials, such as cuttings, will be placed into containers daily, and the containers will be kept covered except when being used.

Any authorized visitors will be required to comply with the safe work practice requirements of this plan and the PPE requirements. In addition, visitors to the work site will be provided a copy of this SSHSP for review and attend a briefing on the requirements of this plan. All site visitors will be required to submit proof of compliance with OSHA training and the medical surveillance requirements of 29 CFR 1910.120 or will be accompanied by an escort who is properly trained and familiar with site safety requirements.

The following personnel are authorized to enter the site:

<u>For URS:</u>	Mike Blevins Dave Briggs Mark Holley Sharyn Rivest Dave Stoetzel Matt Weakley Chad Webb Chris Wesh Chris Wieland
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For Subcontractors:

EOD/UXO team:	To be determined ³
For drillers:	To be determined ³
For surveyors:	To be determined ⁴

All persons entering the OB and OD units during this investigation will obtain prior authorization from the URS field team leader. Access to the site will be strictly monitored by the field team leader.

³Specific personnel will be determined prior to field mobilization.

⁴The surveyor will only enter the site for the purpose of surveying well locations and elevations. The surveyor will, therefore, not be required to comply with the PPE and OSHA training requirements of this plan.

7.4 Work Zones

The three general work zones typically established at a hazardous waste site are the exclusion zone, contamination reduction zone, and support zone. Since elevated levels of contaminants are not anticipated on this project and Pelham Range is fenced, no specific exclusion zone will be set up.

The HSO will determine the actual area of work zones prior to the commencement of field activities. A map will be provided as necessary to better define the work zones.

7.5 Decontamination Procedures

The following decontamination procedure will be followed whenever exiting the exclusion zone:

Personnel Equipment

1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners.
2. Remove tape from around boots and sleeves and dispose of into a plastic-lined container.
3. Remove Tyvek (if worn) and dispose of into a plastic-lined container.
4. Remove outer over boots (if worn) and dispose of into a plastic-lined container.
5. Remove outer gloves, then inner gloves and dispose of.
6. Wash hands, face, and any other potentially contaminated areas.
7. Shower and launder personal clothing prior to reuse.

Sampling Equipment

1. Wash the equipment thoroughly with phosphate-free laboratory detergent and tap water. Use a brush to remove any particulate matter or surface film.
2. Rinse the equipment thoroughly with tap water.
3. Rinse the equipment thoroughly with deionized water.
4. Rinse the equipment with pesticide-grade isopropanol and allow it to air dry.
5. Wrap the equipment completely with aluminum foil to prevent contamination during storage and/or transport to the field.

7.6 Spill Control

The chemicals being brought on-site include small amounts of decontamination solvents and sample preservatives. Since sample preservatives are placed in individual sampling bottles in drop quantities, there is no concern for spill control. If the decontamination solvent were to drop (< 1 gal isopropanol), containment of the spill and evaporation is the most probable method of control. The survey will be conducted in a remote area and field crews will be kept away from the spill.

8.0 EMERGENCY RESPONSE/CONTINGENCY PLAN

While on-site conducting field activities, personnel will adhere to the emergency response procedures outlined in this SSHSP. Each employee will participate in any briefings related to contingency planning, including notification and reporting procedures.

8.1 Pre-Emergency Planning

Table 8-1 provides a list of the emergency response contacts to be used while on-site. This plan will be with the sampling crew when conducting field activities.

Table 8-1
Emergency Response Contact List

Name	Agency	Telephone Number
Company First Sergeant	722nd EOD	(256) 235-4663
Millard Griffin	RHSM	(770) 345-9760
Chad Webb	URS Project Manager	(865) 220-8153
Stringfellow Memorial Hospital 301 East 18th Street Anniston, AL 36207	Hospital	(256) 235-8900
Range Control, Building 1120	Range Control	(256) 848-3535/3880/6772
Firing Desk	Firing Desk	(256) 848-3344/3012/4966
Anniston Fire Department	Anniston Fire Department	(256) 231-7684
Primary Ambulance	Anniston Rescue Squad	(256) 237-8572
Secondary Ambulance	Caroline Ambulance	(256) 236-4554
Military Police	On-post Security	(256) 820-6110

8.2 Preparedness and Prevention

Personnel will attempt to minimize releases to the environment when working at potential hazardous waste sites. It is the responsibility of the field team leader to ensure that emergency response equipment applicable to the hazard that may be posed on-site is available and in operable condition. Team members will be familiar with hazard recognition based on information provided during daily pre-briefs.

The field team leader will ensure that fire extinguishers are operable and available on-site to respond to small fires prior to initiating work at the site. URS will ensure that first aid kits, eye washes, and a backup fire extinguisher are provided (local EOD unit has fire extinguishers on each of their vehicles). In the event of an uncontrollable fire or explosion, personnel will evacuate the area (see Section 8.4) and the field team leader will contact Range Control or Anniston Fire Department. The HSO will advise Range Control or the Anniston Fire Department of the nature of the incident, along with identification information.

Additionally, the field team leader will ensure that in the event that a spill does occur the negative impact to the environment will be minimized and the migration potential of the spill minimized. Persons discovering the spill or leak will inform the field task leader immediately, contact the fire department, and evacuate the area if deemed necessary. The field team leader will ensure that containers used as a result of cleanup or mitigation efforts are appropriate to meet all federal, state, and local regulations. Containers will be inspected prior to the addition of spilled materials and will be monitored daily while stored on-site.

8.3 Emergency Response Equipment

The following emergency response equipment will be available on-site during investigations:

- Department of Transportation-approved containers;
- URS-approved first aid kits;
- Emergency eye wash;
- Communication devices (cellular phone and two-way radios); and
- Absorbent material.

Each will be inspected to ensure that it is operable and in good condition. Since cellular phone service may be unreliable in the field, the 400-MHz two-way radios provided by Range Control will be the primary source of communication. All emergency services (fire, weather, ambulance, etc.) may be coordinated through the Range Control office.

8.4 Evacuation Plan

Exhibit 8-1 outlines the routes to be followed in the event that evacuation is necessary, as well as a description of the alert and notification system employed at Ft. McClellan and Pelham Range. In the event of an evacuation, the field team leader will notify the emergency contacts provided in Table 8-1 and all personnel will proceed to the nearest exit and assemble in an area that will be designated by the field team leader before field activities begin. The following assembly areas will be confirmed with Range Control throughout the field effort:

- Primary – Assembly Area #1, 600 Motor Pool on Ft. McClellan
- Secondary – Assembly Area #2, Lincoln Athletic Field, intersection of Highways 77 and 78

8.5 Emergency Medical Treatment

Any person who becomes ill or injured will have first aid and/or cardiopulmonary resuscitation (CPR) administered while awaiting an ambulance or paramedics. URS field crew members who are trained in CPR and first aid are listed in Attachment C. Injuries will be reported and follow the accident reporting plan in Section 9.0.

The nearest medical facility is the Stringfellow Memorial Hospital in Anniston, Alabama, located approximately 15 miles from the OB and OD units. Directions to the primary emergency care unit will be posted in a conspicuous area during the project and are provided below:

- Upon exiting the OB and OD units, proceed northeast on Gate 5 Road to Highway 431. Turn south (right) on Highway 431, and proceed approximately 5 miles. Turn left (east) on 22nd Street. The hospital is approximately one block on the right. The address is 301 East 18th Street, Anniston, AL 36207.

- Since neither a medical facility nor a physician are available within 5 minutes of injury, at least two URS on-site employees will be trained in first aid and CPR.

Ambulance service may be obtained at Pelham Range by contacting Range Control. Range Control will provide instruction on where to meet the ambulance. Building 8426 (training map coordinates FN022322) located approximately 0.7 miles west of Gate 3 at the UTES Maintenance Facility is a designated MEDEVAC and CASEVAC point for ambulatory services. **Evacuation to this point will be rehearsed when all field crews have mobilized to the site.**

9.0 ACCIDENT REPORTING PLAN

9.1 Applicability and Scope

The accident reporting requirements apply to incidences involving URS personnel and subcontractors arising out of employment (AOE) or in the course of employment (COE) that result in personal injury, illness, or property damage or incidences that, strictly by chance, did not result in personal injury, illness, or property damage (“near misses”).

9.1.1 Injuries and Illnesses

Injuries and illnesses that require reporting include those injuries and illnesses AOE/COE that result in any of the following: lost work time, restrictions in performing job duties, the need for first aid or outside medical attention, permanent physical bodily damage, or death.

Examples of “non-reportable” injuries and illnesses include small minor cuts such as paper cuts, common colds, and small bruises not resulting in work restriction or requiring first aid or medical attention. Examples of “reportable” injuries and illnesses include heat exhaustion from working outside, strained back muscles from moving objects, acid burns on fingers, chronic bronchitis from chemical exposure, and fingers crushed while conducting field activities.

9.1.2 Accidents

Accidents that require reporting include those accidents AOE/COE that result in any of the following: injury or illness, damage to a URS-operated vehicle (rented, leased, or owned), damage to a personal vehicle AOE/COE, fire/explosion, property damage of more than \$100, or release of substances requiring evacuation of at least the immediate release/spill area. All lost time accidents and property damage accidents over \$2000 will be reported to the Contracting Officer Representative within 24 hours.

9.1.3 Near Misses

Other incidences that, strictly by chance, do not result in actual or observable injury, illness, death, or property damage are also required to be reported. The information obtained from such reporting can be extremely useful in identifying and mitigating problems before they result in actual personal or property damage. Thus, these incidences will be treated as if they did result in personal or property damage and will be properly documented and reported so that they can be reviewed and corrective actions implemented.

9.2 Responsibilities

All employees have the responsibility to report accidents, injuries, illnesses, and near misses in accordance with URS SMS 49 (Incident Reporting). This includes accidents, injuries, and illnesses to subcontractors. Supervising personnel also have a responsibility to ensure that unsafe working practices or conditions that affect personnel under their supervision are promptly corrected.

9.2.1 Corporate Health and Safety Director

The CHSD is responsible for ensuring that URS's health and safety programs effectively minimize accidents and injuries, meet health and safety regulatory requirements, and provide consistency of practices and procedures among URS offices. The CHSD has overall responsibility for implementing the accident reporting program, including review of accident reports, investigation of accidents, and recommendations of changes in practices, procedures, or the program. The CHSD is responsible for completing all regulatory compliance reports.

9.2.2 Regional Health and Safety Manager

The RHSM will review all accident reports and will summarize these reports to the CHSD as needed. Furthermore, the RHSM will investigate the accidents if he deems it necessary and make recommendations for program improvement, if warranted.

9.2.3 Project Manager

The Project Manager shares the responsibility with the affected employee's administrative supervisor for accident reporting. In some instances, when timeliness of reporting is not practicable for an administrative supervisor, such as an injury occurring at a field site or when an administrative supervisor is not available, the Project Manager will complete the necessary accident report forms and submit them to the appropriate HRA. Copies of reportable incident reports will be forwarded to the Mobile COE Technical Manager.

9.2.4 All URS Employees

All URS employees are responsible for initiating the accident reporting sequence by communicating with their supervisors as soon as possible after an incident they observe or to which they fall victim. To effectively accomplish this, employees will be familiar with URS SMS 49 (Incident Reporting), including the criteria defining reportable incidents.

9.3 Reporting Procedures and Practices

This section describes the specific procedures and practices that will be followed by URS personnel to effectively conduct accident reporting.

9.3.1 Injuries and Illnesses

Serious injury or illness posing a life-threatening situation will be reported immediately to the local emergency response medical services (typically, a local fire department or paramedic service).

Injuries and illnesses will be reported by the victim to his or her administrative supervisor in person or by phone as soon as possible after any life-threatening situation has been addressed. If the victim is unable to report, the supervisor of the activity in which the victim was involved will notify the victim's administrative supervisor.

The supervisor will immediately notify the RHSM verbally of the incident and will complete an Incident Report Form (Attachment 49-1 of URS SMS 49) within 24 hours of the reported incident. This form asks for the following information:

- Date and time of incident;
- Location of incident;
- Description of incident;
- Direct cause of incident;
- Nature of injury/illness (be specific);
- Type of medical treatment provided;
- Name of treating hospital and address; and
- Number of lost work days after date of injury (if already returned to work).

The local HRA will notify the RHSM within 24 hours of the incident. Within 5 days of the incident, the local HRA will complete and submit an Employer's First Report of Injury to the local Workmens' Compensation insurance carrier and send copies, along with copies of the Incident Report Form, to the RHSM and URS' Occupational Health Specialist.

Any fatality or incident where three or more employees are hospitalized will be reported to OSHA within 8 hours of any URS employee becoming aware of the incident.

The first URS employee becoming aware of such an incident becomes responsible for reporting the incident to the field task leader, who will contact the RHSM and the CHSD. The following information will be required:

- Location of incident;
- Time of incident;
- Number of fatalities or hospitalized employees;
- Contact person;
- Phone number; and
- Brief description of the incident.

When contact is made, the contacted person assumes responsibility for notifying OSHA and for convening an investigation team.

If contact cannot be made within 7 hours, then the responsible employee will contact OSHA directly either by calling the nearest OSHA office or by calling 1-800-321-6742. The report will be confined to the items listed above with no speculation (cause, blame, etc.). The responsible party will continue to try and contact the CHSD or management until someone has been reached. At this point, the contacted person assumes responsibility for convening an investigation team.

The Occupational Health Specialist will maintain the OSHA log and summary of recordable injuries on OSHA Form 200 (a separate form will be kept for each office) and will forward copies of the updated Form 200 to the applicable office. A supplementary record will also be maintained by filing the Employer's First Report of Injury (equivalent to OSHA Form 101). The Occupational Health Specialist will notify the CHSD for each new entry into the reporting system.

The RHSM will review each reported accident and determine whether further investigation is required and make recommendations to minimize future similar occurrences.

The CHSD is responsible for reviewing each new accident reported. At the beginning of each calendar year, the Occupational Health Specialist will review and sign (certify) the annual summary of OSHA Form 200 for the prior year so that local offices can post the summaries by February 1 following the reporting calendar year.

9.3.2 Accidents

Accidents not involving injury or illness, but resulting in property damage, will be reported to the RHSM on a URS Incident Report Form within 24 hours of the accident.

In cases of fire or explosion that cannot be controlled by one person, vehicular accident resulting in injury or more than \$500 worth of damage, or chemical release requiring a building evacuation, the involved party will immediately report the incident to the outside agency emergency response services in the area.

Accidents involving a URS-operated vehicle will be reported as soon as practicable (i.e., after emergency agency reporting is completed) to the RHSM as well as the office/facilities manager with the following information:

- Employee's name;
- Vehicle identity;
- Date and time of accident;
- Location of accident (street address);
- Name and driver's license number of other driver (if applicable);
- Other driver's insurance carrier and policy number;
- Employee's account of accident; and
- Whether police report was filed.

The RHSM or office/facilities manager will immediately notify the Corporate Fleet Manager and relay the above information. The field task leader will complete an auto claim report as required by URS SMS 57 (Vehicle Safety), which will be forwarded to the Fleet Manager.

9.3.3 Near Misses

All near miss incidences are also required to be reported on the URS Incident Report Form within 48 hours and submitted to the RHSM. In place of indicating the result of the incident (i.e., actual personal or property damage), the reporting person will indicate the avoided injury or damage.

9.3.4 Training

To ensure that URS employees are cognizant of URS SMS 49, and are aware of their own and other's responsibilities, a series of informational and instructional training opportunities exist. The employees who will work at this site will be briefed on URS SMS 49 during the site-specific training.

Attendance at a New Employee Orientation session, for URS organization, resources, and procedures information, is required of all new URS employees. This orientation ensures that new employees are aware of the existence of the URS HSMS and of its contents and who the responsible persons in their organization (office or department) are. Requirements of this training are described in URS SMS 25 (New Employee Occupation)

10.0 RECORDKEEPING REQUIREMENTS

At a minimum, the following records are to be maintained in the project files:

- Copy of the SSHSP and original sign-off sheet (Figure 10-1).
- Documentation of the PPE used during sampling (URS SMS 29-1).
- Accident, injury, and near miss reports (URS SMS 49-1).
- Copy of field results (field logbook or final reports).
- All site-specific health and safety training as required by OSHA and this SSHSP (including Attachment A procedures).
- CPR/First aid training for all employees.
- Medical clearances and qualifications for employees.
- UXO clearance verification records.
- Daily health and safety briefing attendance and training records.
- Conduct of MEDEVAC/CASEVAC rehearsal.

By signing below, I acknowledge that I have read and understand the requirements of this Site-Specific Health and Safety Plan, that I have been briefed on the potential hazards involved with this work, and that I will abide by the provisions of this plan.

Signature

Date

Company

Figure 10-1. Sign-Off Sheet

Attachment A
URS-SPECIFIC HEALTH AND SAFETY PROCEDURES



Health and Safety Program
PROJECT HAZARD ANALYSIS FORM

Attachment PHA-1

Revision: 02/12/01

Will project activities involve any of the following?	Yes	See SMS #
Hazardous waste activities (investigative or remedial)?	✓	017
Heat Stress potential to employees working in: ✓ • Hot environments; or • Impermeable Chemical Protective Clothing?	✓	018
Heavy equipment in use at this project site?		019
Hot Work (welding, cutting, grinding)		020
Industrial site access of any kind?		004
Lead exposures (lead paint removal, lead in dust, etc)?		022
Lockout/tagout to control exposure to hazardous energy?		023
Manbasket (Crane Suspended Personnel Platforms) for working at heights?		037, 038, 041
Marine Safety and Boat Operations		053
Medical Surveillance requirements? Examples would include exposures to: • Noise • Asbestos • Lead • Hazardous Wastes • High Altitude • Carcinogens • Respirator Use		024
Noise exposures?	✓	026
Nuclear Density Gauge Use		044
Portable ladder use?		028
Personal protective equipment?	✓	029
Radiation		052
Respiratory protection use – required and/or voluntary?		042
Scaffolding?		031
Sewer Entry		010
Subcontractors?	✓	046
Traffic control due to work in streets and/or roadways?		032
Travel to remote locations and/or developing countries?		036
Utility Clearances – overhead or underground?		034
Unexploded Ordnance/Chemical Warfare agents present or potential?	✓	039
Underground Storage Tank investigation, removal, etc.		033
Water, work over or around?		027
Work at altitudes greater than 7,000 feet (~ 2,100 meters)		035
Working at heights of greater than 6 feet without protective measures such as guard rails?		040



PROJECT HAZARD ANALYSIS FORM

Completed by: Chad Webb Date: 7/18/01
Project Name: Ft. McClellan OB/OD Closure Project #: 655730

See SMS #

Determine the applicability of these SMSs to your project

Table with 2 columns: SMS Name, See SMS #. Rows include Emergency Action Plan (003), Sanitation (030), Regulatory Inspections (001), Incident reporting (049).

Table with 3 columns: Will project activities involve any of the following?, Yes, See SMS #. Rows list various activities like Abrasive blasting, Accident investigation, Aerial lifts, etc., with checkmarks in the Yes column.

URS SAFETY MANAGEMENT STANDARD

Inspections by Regulatory Agencies

2. Use the opening conference to determine why the inspector is conducting the inspection.
3. Take good notes during the conference.

E. Inspection Activities

1. Escort the inspector at all times, taking him/her directly to the area of interest.
2. Answer all questions honestly, but do not volunteer information.
3. Do not argue with or attempt to mislead the inspector.
4. Resolve violative conditions immediately, while the representative is on site, if possible.
5. Make sure the inspector has appropriate qualifications to enter high hazard areas.
6. Take good notes during the inspection and take pictures where the inspector takes pictures.
7. Inspectors generally have the right to interview employees if they do not interrupt operations.

F. Closing Conference

1. Request a closing conference if one is not initiated by the inspector.
2. Use the closing conference to determine what regulatory violations the representative found, if any.
3. Do not try to negotiate during the closing conference.
4. Take good notes during the conference.

G. Post-Inspection Activities

1. Immediately contact URS Health and Safety Manager and communicate the results of the inspection. The URS Health and Safety Manager will provide additional instructions regarding the inspection.
2. Debrief any employees who were contacted by the representative; all discussions should be reduced to notes.

URS SAFETY MANAGEMENT STANDARD

Inspections by Regulatory Agencies

3. All follow-on activities associated with the inspection will be coordinated by the Group Health and Safety Manager and appropriate legal counsel. Local URS employees are not to conduct any follow-on activities without the express consent of the URS Health and Safety Representative.

5. Documentation Summary

Provide the following documents to the URS Health and Safety Manager:

- A. Inspector's business card.
- B. All materials provided by the inspector.
- C. All notes relating to the inspection, opening conference, closing conference, and debriefings.
- D. All photos from the inspection, with explanatory notes.

6. Resources

U.S. OSHA - Field Inspection Reference Manual

URS SAFETY MANAGEMENT STANDARD

Worker Right-to-Know (Hazard Communication)

1. Applicability

This procedure applies to URS office and field operations.

2. Purpose and Scope

The worker right-to-know program provides URS personnel with information and training about safety and health hazards associated with the chemicals they might encounter in the workplace. This procedure describes how chemical safety hazards are communicated to URS personnel working in offices and at field site locations, and how information is to be provided to employees of other employers working at the location. The requirements include steps to acquire this information, maintain it, and train everyone to use it.

3. Implementation

Office Locations: Implementation of this program is the responsibility of the Office Manager.

Field Activities: Implementation of this program is the responsibility of the Project Manager.

4. Requirements

A. Hazardous Material Inventory

1. Maintain a hazardous material inventory that lists all of the hazardous materials used at this workplace. Use chemical names consistent with the applicable MSDS's.
2. File a copy of the chemical inventory in the Safety Filing System.

B. Material Safety Data Sheets (MSDS's)

1. Obtain a MSDS for each chemical before it is used.
2. Review each MSDS when it is received to evaluate whether the information is complete and to determine if existing protective measures are adequate.
3. Maintain a collection of all MSDS's where they are accessible at all times.

URS SAFETY MANAGEMENT STANDARD

Worker Right-to-Know (Hazard Communication)

4. Replace MSDS sheets when updated sheets are received. Communicate any significant changes to those who work with the chemical.
5. MSDS's are required for all hazardous materials used on site by project personnel.

C. Labels

Label all chemical containers with:

1. Identity of the hazardous chemical(s),
2. Appropriate hazard warnings, and
3. Name and address of the chemical manufacturer, importer, or other responsible party.

D. Hazardous Nonroutine Tasks

Periodically, employees are required to perform hazardous non-routine tasks. Prior to starting work on such projects, provide each employee with information about hazards to which they may be exposed during such an activity.

This information will include:

1. Specific chemical hazards.
2. Protective/safety measures which must be utilized.
3. Measures that have been taken to lessen the hazards including ventilation, respirators, presence of another employee and emergency procedures.

E. Informing Contractors/Subcontractors

Provide contractors/subcontractors the following information on chemicals used by or provided to URS personnel:

1. Names of hazardous chemicals to which they may be exposed while on the jobsite.
2. Precautions the employees may take to lessen the possibility of exposure by usage of appropriate protective measures.

URS SAFETY MANAGEMENT STANDARD
Worker Right-to-Know (Hazard Communication)

3. Location of URS MSDS's and written chemical inventory.

F. Training

1. Conduct training of all employees potentially exposed to hazardous materials on the following schedule:
 - a. Before new employees begin their jobs.
 - b. Whenever new chemicals are introduced into the workplace, or
 - c. Annually thereafter.
2. This training will include:
 - a. Applicable regulatory requirements.
 - b. Names of those responsible for implementing this program.
 - c. Location of the program, inventory and MSDS 's.
 - d. Chemicals used, and their hazards (chemical, physical and health).
 - e. How to detect the presence or release of chemicals.
 - f. Safe work practices.
 - g. How to read an MSDS.
3. Document the training.

5. Documentation Summary

- A. File these records in the Office Safety Filing System
 1. Chemical Inventory.
 2. Location of the MSDS inventory.
 3. Training records.
 4. Contractor/Subcontractor notifications.
- B. File these records in the Project Safety File.

URS SAFETY MANAGEMENT STANDARD
Worker Right-to-Know (Hazard Communication)

1. Chemical Inventory.
2. Location of the MSDS inventory.
3. Training records.
4. Contractor/Subcontractor notifications.

6. Resources

- A. U.S. OSHA Technical Links - Hazard Communication
(<http://www.osha-slc.gov/SLTC/hazardcommunications/index.html>)
- B. U.K. - Control of Substance Hazardous to Health - Regulations

URS SAFETY MANAGEMENT STANDARD

Emergency Action Plans

1. Applicability

This procedure applies to URS office and field operations.

2. Purpose and Scope

This procedure establishes policy, assigns responsibilities, and provides guidance to URS offices/field projects regarding emergency action. It includes general information on actions to be taken by URS management and employees in the event of a fire or other emergency that may endanger life or property.

The objectives of this procedure are to:

- A. Promote a fast, effective reaction in coping with emergencies.
- B. Save lives and avoid injuries and panic.
- C. Restore order and conditions back to normal levels with a minimum of confusion and as promptly as possible.

3. Implementation

Office Locations- Implementation of this program is the responsibility of the Office Manager.

Field Activities- Implementation of this program is the responsibility of the Project Manager.

4. Requirements

A. Emergency Action Plan Development

1. Gather Information

Each URS office/project must develop an emergency Action Plan tailored to its specific situation. Office Managers will check with their building manager or landlord regarding evacuation procedures they may have in place and incorporate these procedures into the emergency Action Plan. Project EAPs must comply with client requirements and specifications. The Plan must contain the following:

- a. Reporting Fires and Other Emergencies

URS SAFETY MANAGEMENT STANDARD

Emergency Action Plans

Describe the procedures that personnel should follow to report emergencies. List emergency telephone numbers for fire, paramedics and police. Include local prefixes on emergency numbers, if required, such as 9-911.

b. Alarm System

Describe the emergency alarm system for the building/site as applicable. Include the description and location of fire alarm pull boxes, and visual and audible alarms. If a public address (PA) system is used to notify occupants of emergencies, include the procedures to activate the PA system, such as calling the receptionist or building manager's office, and a description of the announcements that will be made.

c. Evacuation Routes and Procedures

Develop a map or description of the evacuation routes and emergency exits to be use. A description of the building emergency lighting system and exit signs may also be included. Evacuation route maps may be posted in the offices. There should be a primary and alternate evacuation route and exit from each work area.

Describe procedures regarding the use of elevators, if applicable. In most cases elevator use is prohibited during an emergency. The building manager should be consulted for these procedures.

Include procedures to determine that no employees have been inadvertently left behind.

d. Critical Equipment/Operations Procedures

Designate personnel responsible for shutting down critical equipment and the procedures for doing so, if applicable.

e. Assisting Disabled Personnel

Describe the provisions that have been made for notifying and assisting personnel with disabilities during an emergency. Such provisions are to accommodate personnel in wheelchairs or those who are temporarily disabled, such as personnel on crutches.

URS SAFETY MANAGEMENT STANDARD

Emergency Action Plans

f. Personnel Accounting Procedures

Designate a primary and alternate assembly area for personnel who are evacuating. Require sufficient distance so that personnel will not be exposed to fire or debris hazards, or traffic, nor interfere with emergency responders.

Designate an individual and an alternate with the assigned responsibility for taking a headcount in the assembly area and reporting missing personnel to emergency responders.

Define the procedures on how employees will be informed that it is safe to re-enter the building or to leave for home.

g. Rescue and Medical Duties

Include the statement that "URS does not expect or encourage its employees to engage in firefighting, medical treatment, rescue, or other emergency response. Such activities should only be performed by properly equipped and trained emergency responders. URS recognizes that some of its personnel may have received training in first aid and cardiopulmonary resuscitation (CPR) and may wish to perform these duties on injured personnel."

B. Posting

1. Post the Emergency Action Plan where it is available to all employees.
2. Post evacuation maps at all exits and points of egress.

C. Training

Train all employees regarding the requirements of the Emergency Action Plan.

5. Documentation Summary

A. Office

File these records in the Office Safety Filing System:

1. Emergency Action Plan

URS SAFETY MANAGEMENT STANDARD

Emergency Action Plans

2. Evacuation Maps

3. Training records

B. Field

File these records in the Project Safety File.

1. Emergency Action Plan

2. Evacuation Maps

3. Training records

6. References

A. U.S. OSHA Standard - Emergency Action Plans - 29 CFR 1910.38

B. U.S. OSHA Fact Sheet - Responding to Workplace Emergencies

URS SAFETY MANAGEMENT STANDARD

Hand Tools and Portable Equipment

1. Applicability

This procedure applies to URS operations involving the use of hand tools and/or power equipment, including chain saws, brush cutters, powder-actuated tools, and similar high-hazard implements.

2. Purpose and Scope

The purpose of this standard is to provide guidelines for the safe use and handling of hand tools and power equipment.

3. Implementation

Office/Facility Locations - Implementation of this program is the responsibility of the Office Manager.

Field Locations - Implementation of this program is the responsibility of the Project Manager.

4. Requirements

A. General

1. Keep hand and power tools in good repair and used only for the task for which they were designed.
2. Remove damaged or defective tools from service.
3. Keep surfaces and handles clean and free of excess oil to prevent slipping.
4. Do not carry sharp tools in pockets.
5. Clean tools and return to the toolbox or storage area upon completion of a job.
6. Wrenches must have a good bite before pressure is applied.
 - a. Brace yourself by placing your body in the proper position so that in case the tool slips you will not fall.
 - b. Make sure hands and fingers have sufficient clearance in the event the tool slips.

URS SAFETY MANAGEMENT STANDARD

Hand Tools and Portable Equipment

- c. Always pull on a wrench, never push.
7. When working with tools overhead, place tools in a holding receptacle or secure when not in use.
8. Do not throw tools from place to place, from person to person, or drop from heights.
9. Use non-sparking tools in atmospheres with fire or explosive characteristics.
10. Inspect all tools prior to start-up or use to identify any defects.
11. Powered hand tools should not be capable of being locked in the on position.
12. Require that all power fastening devices be equipped with a safety interlock capable of activation only when in contact with the work surface.
13. Do not allow loose clothing, long hair, loose jewelry, rings and chains to be worn while working with power tools.
14. Do not use cheater pipes.
15. Make provisions to prevent machines from automatically restarting upon restoration of power.

B. Grinding Tools

1. Inspect work rests and tongue guards for grinders.
 - a. Work rest gaps should not exceed 1/8 inch (3 mm).
 - b. Tongue guards gap should not exceed 1/4 inch (6 mm).
2. Do not adjust work or tool rests while the grinding wheel is moving.
3. Inspect the grinding wheel for cracks, chips or defects. Remove from service if any defects are found.
4. Wear goggles when grinding. A clear full face shield may be worn with the goggles.

URS SAFETY MANAGEMENT STANDARD
Hand Tools and Portable Equipment

5. Do not use the side of a grinding wheel unless the wheel is designed for side grinding.
6. Always stand to the side of the blade, never directly behind it.
7. Use grinding wheels only at their rated speed.
8. Grinding aluminum is prohibited.
9. For U.K. operations:
 - a. No grinding wheels exceeding 55mm are to be used.
 - b. All wheels are to be marked with their safe maximum speed.
 - c. Abrasive wheels will only be operated by personnel who have been specifically trained and specified competent by URS.
 - d. Abrasive wheels will only be operated by persons specified as competent, under the 'Abrasive Wheels' Regulations.
 - e. Abrasive wheels must only be operated if the manufacturer's guard is fitted and they are in good working order.

C. Power Saws

1. Require that circular saws are fitted with blade guards.
2. Remove damaged, bent or cracked saw blades from service immediately.
3. Require that table saws are fitted with blade guards and a splitter to prevent the work from squeezing the blade and kicking back on the operator.
4. Require guards that cover the blade to the depth of the teeth on hand held circular saws. The guard should freely return to the fully closed position when withdrawn from the work surface.

URS SAFETY MANAGEMENT STANDARD

Hand Tools and Portable Equipment

D. Wood Working Machinery

1. Do not use compressed air to remove dust, chips and from wood working machinery.
2. Locate the on-off switch to prevent accidental start up. The operator must be able to shut off the machine without leaving the work station.
3. Guard planers and joiners to prevent contact with the blades.
4. Use a push stick when:
 - a. The cutting operation requires the hands of the operator to come close to the blade.
 - b. Small pieces are being machined.
5. Adjust saw blades so they only clear the top of the cut.
6. Automatic feed devices should be used whenever feasible.

E. Pneumatic Tools and Equipment

1. Require that pneumatic tools have:
 - a. Tool retainers to prevent the tool from being ejected from the barrel during use.
 - b. Safety clip or tie wire to secure connections between tool/hose/compressor if they are of the quick connection (Chicago fittings) type.
2. Do not lay hose in walkways, on ladder or in any manner that presents a tripping hazard.
3. Never use compressed air to blow dirt from hands, face or clothing.
4. Compressed air exhausted through a chip guarded nozzle shall be reduced to less than 30 psi. Proper respiratory, hand, eye and ear protection must be worn.
5. Never raise or lower a tool by the air hose.

URS SAFETY MANAGEMENT STANDARD **Hand Tools and Portable Equipment**

F. Powder Actuated Fastener Tools

1. Use powder actuated tools that comply with the requirements of the American National Standards Institute (ANSI) standard A 10.3 - 1970.
2. Use only individuals that have been trained by a manufacturer's representative and possess the proper license to operate, repair, service and handle powder actuated tools.
3. Never use a powder actuated tool in a flammable or explosive atmosphere.
4. Require the use of goggles or a full face shield as well as safety glasses during operation of powder actuated tools.
5. Powder actuated tool must not be able to be fired unless the tool is pressed against the work surface.
6. The tool must not be able to fire if the tool is dropped when loaded.
7. Firing the tool should require two separate operations, with the firing movement being separate from the motion of bringing the tool to the firing position.
8. Never fire into soft substrate where there is potential for the fastener to penetrate and pass through, creating a flying projectile hazard.
9. Do not use powder actuated tools in reinforced concrete if there is the possibility of striking the re-bar.
10. Do not use on cast iron, glazed tile, surface hardened steel, glass block, live rock or face brick.
11. Never load and leave a powder actuated tool unattended. It should only be loaded prior to intended firing.
12. Test tools each day prior to loading by testing safety devices according to manufacturer's recommended procedure.

G. Chain Saws

URS SAFETY MANAGEMENT STANDARD **Hand Tools and Portable Equipment**

1. Inspect the saw prior to each use and periodically during daily use.
2. Operate the chain saw with both hands at all times.
3. Never cut above chest height.
4. Require that the idle is correctly adjusted on the chain saw. The chain should not move when the saw is in the idle mode.
5. Start cutting only after a clear escape path has been made.
6. Shut the saw off when carrying through brush or on slippery surfaces. The saw may be carried no more than 50 feet (15 meters) while idling.
7. Require applicable protective gear. This may include, but is not limited to:
 - a. Loggers safety hat.
 - b. Safety glasses.
 - c. Steel-toed boots.
 - d. Protective leggings.
 - e. Hearing protection.
8. Inspect saws to require that they are fitted with an inertia break and hand guard.
9. Never operate a chain saw when fatigued.
10. Do not allow others in the area when chain saws are operated.
11. Make sure there are no nails, wire or other imbedded material that can cause flying particles.
12. Do not operate a chain saw that is damaged, improperly adjusted, or is not completely and securely assembled. Always keep the teeth sharp and the chain tight. Worn chains should immediately be replaced.

URS SAFETY MANAGEMENT STANDARD

Hand Tools and Portable Equipment

13. Keep all parts of your body away from the saw chain when engine is running.
14. For U.K. operations, only personnel specifically trained and certified as competent by URS can operate chain saws.

H. Hand Operated Pressure Equipment

1. Pressure equipment such as grease guns, paint and garden sprayers shall be directed away from the body and other personnel in the area. The person operating any equipment such as this, which has a potential for eye injury, must wear protective goggles.
2. The noise produced when using certain types of pressure equipment may require the use of hearing protection.
3. Never allow the nozzle of a pressurized tool to come in contact with any body parts while operating. There is potential for injection of a chemical directly into the user's body, resulting in severe injury or death.

I. Gasoline Powered Tools

1. Never pour gasoline on hot surfaces.
2. Never fuel around open flame or while smoking.
3. Shut down the engine before fueling.
4. Provide adequate ventilation when using in enclosed spaces.
5. Use only OSHA approved safety cans to transport flammable liquids.

J. Inspection

Inspect all hand tools on a regular basis. Defective tools shall be immediately removed from service, tagged or destroyed to prevent further use.

5. Documentation Summary

Place in the Project Safety File:

URS SAFETY MANAGEMENT STANDARD **Hand Tools and Portable Equipment**

- A. Site briefings regarding tool use.
- B. Records of tools removed from service.
- C. Copies of powder actuated tool licenses (as applicable).
- D. Tool inspection documentation.

6. Resources

- A. U.S. OSHA Standard - Hand and Portable Power Tools -
29 CFR 1910, Subpart P
- B. U.S. OSHA Standard - Construction Tools - Hand and Power -
29 CFR 1926, Subpart I
- C. ANSI A10.3 – 1970
- D. National Association of Demolition Contractors
(<http://www.demolitionassociation.com/>)
- E. U.K. - 'Abrasive Wheel' Regulations
- F. U.K. - 'Wood-Working Machine' Regulations
- G. U.K. - 'Provision and Use of Work Equipment' Regulations
- H. Australian Standards Collection 26 - Occupational Health & Safety -
Powered Machining and Tools

URS SAFETY MANAGEMENT STANDARD

Hazardous Waste Operations

1. Applicability

This standard applies to URS field operations involving the investigation or remediation of sites impacted with hazardous wastes or hazardous materials including those associated with underground storage tanks.

Investigation projects for real estate transactions conducted to confirm that a site is "clean" are not covered under this standard. Reference related Safety Management Standards for such operations.

2. Purpose and Scope

The purpose of this standard is to provide guidance designed to minimize hazardous chemical exposures to URS personnel while URS is conducting hazardous waste field operations.

Investigation techniques included under this standard include, but are not limited to, hand auger, soil gas evaluation, test pits, and all types of power drilling, including direct push. Remediation techniques included under this standard include, but are not limited to, excavation, groundwater treatment, soil gas treatment, containment, and landfarming and similar insitu methods.

3. Implementation

Field Activities - Implementation of this procedure is the responsibility of the Project Manager or Superintendent.

4. Requirements

A. Project Evaluation

Assess the technical and field aspects of every hazardous waste site project to evaluate:

1. Risk of exposure to hazardous chemicals, with particular attention to suspected or known human carcinogens.
2. Personal protective equipment requirements.
3. Air monitoring requirements.
4. Emergency services requirements.
5. Hazards addressed by other URS Safety Management Standards.

URS SAFETY MANAGEMENT STANDARD **Hazardous Waste Operations**

6. Logistical considerations, such as access, distance from population centers.
7. Other safety and health hazards associated with site operations.

B. Client/Contract Evaluation

1. Review contract documents to determine whether the client has any special internal or regulatory requirements for hazardous waste site operations.
2. Implement client requirements in addition to those of this standard. Those requirements that are the most protective (e.g., most stringent) will be used.

C. Site-specific Health and Safety Plan

1. Prepare a site-specific Health and Safety Plan (HSP) for every project under this standard.
2. HSPs must be written or reviewed by a URS Health and Safety Regional Health and Safety Manager (RHSM) or a safety professional specifically approved by the RHSM.
3. Evaluate client and agency requirements prior to preparing the HSP, particularly if the client or an agency will approve the HSP prior to implementation.

D. Training

Verify that each assigned URS employee has completed required training. In general, the following are required for operations within North America:

1. 40-hours of initial training from an approved training provider.
2. 3-days of on-the-job training.
3. 8-hours of refresher training completed within 12 months of the initial or subsequent refresher training.
4. 8-hours of Site Safety Officer (Supervisor) training for directing the activities of any other URS employee.
5. Additional training for the Site Safety Officer as described below.

URS SAFETY MANAGEMENT STANDARD

Hazardous Waste Operations

E. Site Safety Officer

1. Appoint a Site Safety Officer (SSO) with appropriate qualifications for the specific hazardous waste project.
2. Assure that the SSO for complex projects, such as those with complicated remediation activities, has no duties other than site safety and health.
3. Verify that the SSO has completed basic supervisor training, and has additional required training and experience as applicable:
 - a. Advanced respiratory protection training is required for projects where supplied air respirators may be used.
 - b. Heavy equipment/construction safety.
 - c. Personal air monitoring.

F. Exposure Monitoring

Require that exposure monitoring is conducted in accordance with the HSP on all hazardous waste projects.

G. Project Equipment

1. Provide all health and safety equipment as described by the project Health and Safety Plan.
2. Provide all personal protective equipment as described by the project Health and Safety Plan.

H. Medical Surveillance

Verify that each URS employee assigned to the project meets the minimum requirements of the URS Medical Surveillance Program. This typically includes:

1. Baseline examination.
2. Annual examination.
3. Appropriate clearance for respirator use.

5. Documentation Summary

URS SAFETY MANAGEMENT STANDARD Hazardous Waste Operations

In the Project Safety File:

- A. Completed Health and Safety Plan.
- B. Completed and signed HSP approval form.
- C. Signed HSP acceptance form.
- D. Completed H&S field forms that are included in each HSP.
- E. Training and Medical Surveillance Clearance documentation for project personnel.

6. Resources

- A. U.S. OSHA Technical Links - [Hazardous Waste Operations](#)

The following documents are PDF files which must be read with Adobe Reader:

- B. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities - [NIOSH 85-115](#)
- C. USACE EM 385-1-1 - [Hazardous, Toxic and Radioactive Waste](#)

URS SAFETY MANAGEMENT STANDARD

Heat Stress

1. Applicability

This procedure applies to URS field projects where ambient (not adjusted) temperatures exceed 70°F (21°C) for personnel wearing chemical protective clothing, including Tyvek coveralls, and 90°F (32°C) for personnel wearing normal work clothes.

2. Purpose and Scope

The purpose of this procedure is to protect project personnel from the effects of heat related illnesses.

3. Implementation

Field Activities - Implementation of this procedure is the responsibility of the Project Manager.

4. Requirements

A. Monitor ambient temperatures and conduct Heat Stress Monitoring when threshold temperatures (see Section 1) are reached.

B. Conduct initial monitoring to determine first rest break.

1. Measure the air temperature with a standard thermometer with the bulb shielded from radiant heat; this yields T (actual).
2. Estimate the fraction of sunshine by judging what percent time the sun is not shielded by clouds that are thick enough to produce a shadow. 100 percent sunshine - no cloud cover = 1.0; 50 percent sunshine - 50 percent cloud cover = 0.5; 0 percent sunshine - full cloud cover = 0.0.
3. Plug these variables into the following equation to determine the adjusted temperature:

$$T (\text{adjusted}) = T (\text{actual}) + (13 \times \text{fraction sunshine})$$

C. Body Temperature Monitoring

1. Monitor oral body temperature to determine if employees are adequately dissipating heat buildup. Ear probe thermometers which are adjusted to oral temperature are convenient and the

URS SAFETY MANAGEMENT STANDARD

Heat Stress

preferred method of measurement. Determine work/rest regimen as follows:

- a. Measure (oral adjusted) temperature at the end of the work period.
 - b. If temperature exceeds 99.6 °F (37.5°C), shorten the following work period by 1/3 without changing the rest period.
 - c. If temperature still exceeds 99.6 °F (37.5°C), shorten the following work period by 1/3.
 - d. Do not allow a worker to wear impermeable PPE when his/her oral temperature exceeds 100.6 °F (38.1°C).
2. Oral temperatures are to be obtained prior to the employee drinking water or other fluids.
- D. Record monitoring results on Heat Stress Monitoring Form (Attachment 18-2).
- E. Investigate the use of auxiliary cooling devices in extreme heat conditions.
- F. Conduct briefings for employees regarding health hazards and control measures associated with heat stress whenever conditions require the implementation of heat stress monitoring. Review the information provided in Attachment 18-3.
- G. Provide water and electrolyte replacement drinks fluids as described in Attachment 18-3.
- H. Allow employees who are not accustomed to working in hot environments appropriate time for acclimatization (see Attachment 18-3).
- I. Provide break areas as described in Attachment 18-3.

5. Documentation Summary

File these records in the Project Safety File.

- A. Heat Stress Monitoring Forms.
- B. Employee Safety Briefing Verification Forms.

URS SAFETY MANAGEMENT STANDARD
Heat Stress

6. Resources

- A. NIOSH - "Working in Hot Environments"
- B. AFL-CIO Building Trades Division - "Heat Stress in Construction"

The following documents are PDF Files that must be read with Adobe Reader.

- C. Attachment 18-1 - Initial Work Monitoring Cycles
- D. Attachment 18-2 - Heat Stress Monitoring Record
- E. Attachment 18-3 -Informational Supplement



**INITIAL WORK /
MONITORING CYCLES**

Adjusted Temperature	Normal Work Clothes	Protective Clothing
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°F - 90°F (30.8° - 32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5°F – 87.5°F (28.1°C – 30.8°C)	After each 90 minutes of work	After each 60 minutes of work
77.5°F – 82.5°F (25.3°C – 28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5°F – 77.5°F (22.5°C – 25.3°C)	After each 150 minutes of work	After each 120 minutes of work

URS Corporation

URS Corporation Health & Safety Program EMPLOYEE HEAT STRESS EXPOSURE MONITORING RECORD

DATE: _____ SAFETY REPRESENTATIVE: _____

WORKER'S NAME: _____ SUBCONTRACTOR: _____

WORK ACTIVITY: _____

<i>Time (24 hour)</i>	<i>Oral Temp (°F)</i>	<i>Pulse (BPM)</i>	<i>Comments</i>

DATE: _____ SAFETY REPRESENTATIVE: _____

WORKER'S NAME: _____ SUBCONTRACTOR: _____

WORK ACTIVITY: _____

<i>Time (24 hour)</i>	<i>Oral Temp (°F)</i>	<i>Pulse (BPM)</i>	<i>Comments</i>

DATE: _____ SAFETY REPRESENTATIVE: _____

WORKER'S NAME: _____ SUBCONTRACTOR: _____

WORK ACTIVITY: _____

<i>Time (24 hour)</i>	<i>Oral Temp (°F)</i>	<i>Pulse (BPM)</i>	<i>Comments</i>

HEAT RASH

Heat rash (prickly heat) may result from continuous exposure to heat or humid air. It appears as red papules (elevated skin lesion), usually in areas where the clothing is restrictive, and gives rise to a prickly sensation, particularly as sweating increases. It occurs in skin that is persistently wetted by unevaporated sweat. The papules may become infected unless treated.

First Aid for Heat Rash - to prevent heat rash: shower after work, dry off thoroughly, and put on clean, dry underwear and clothes. Try to stay in a cool place after work. If, in spite of this, you develop heat rash, see your physician.

HEAT CRAMPS

Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:

- Muscle spasms.
- Pain in the hands, feet and abdomen.

First Aid for Heat Cramps - leave the work area, and rest in a cool, shaded place. Drink one or two glasses of electrolyte replacement drink, and try to gently massage the cramped muscle. Once the spasms disappear, you may return to work; taking adequate breaks and drinking electrolyte replacement drink should prevent the cramps from returning.

HEAT EXHAUSTION

Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:

- Pale, cool, moist skin.
- Heavy sweating.
- Dizziness.
- Nausea.
- Fainting.

The key here is that the victim is still sweating, so the cooling system is still working; it's just under severe stress. The body core temperature may be elevated. It is important to

recognize and treat these symptoms as soon as possible, as the transition from heat exhaustion to the very hazardous heat stroke can be quite rapid.

First Aid for Heat Exhaustion - leave the work area immediately, go through decon and remove all chemical protective clothing. Rest in a cool, shaded place and open your clothing to allow air circulation; lay flat except when taking fluids. Drink plenty of cooled electrolyte replacement drinks. Your work is over for the day; do not attempt to return. Medical assistance in severe cases may be warranted.

HEAT STROKE

Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occurs. Competent medical help must be obtained. Signs and symptoms are:

- Red, hot, usually dry skin.
- Lack of or reduced perspiration (lack of perspiration may be masked for those wearing chemical protective clothing since perspiration from earlier in the day will be present).
- Nausea.
- Dizziness and confusion.
- Strong, rapid pulse.
- Coma.

First Aid for Heat Stroke - THIS IS A MEDICAL EMERGENCY! SUMMON MEDICAL ASSISTANCE IMMEDIATELY! Remove the victim from the work area, perform a gross decon, and remove all PPE. Have the victim lie down in a cool, shady area. Attempt to bring the victim's temperature down by increasing air movement (electric fan) or placing wetted sheets or towels on them. Place an ice bag on the victim's head. The victim must not be sent home or left unattended without a physician's specific order.

HEAT STRESS PREVENTION

The best approach to avoiding heat-related illnesses is through preventative heat stress management. The site manager and site safety officer are responsible for implementing this program.

Rest areas - a relatively cool, shaded area must be provided for breaks when ambient temperatures exceed 70° F and workers are wearing chemical protective clothing (including uncoated Tyvek), or if temperatures exceed 90° F and workers are wearing "Level D"

coveralls or work clothes. A car or van is an oven, not a rest area. For Hazardous Waste Sites, the rest area should be located in the support zone adjacent to the contamination reduction zone, situated so that part of it is in the decon area so workers can take breaks without going through full decon. If shade is not available, build some: use a plastic "dining canopy", which can be obtained at sporting goods stores. This same type of canopy can be set up to shade personnel performing various types of work in hot weather.

Liquids - encourage employees to drink plenty of cool plain water and electrolyte replacement drinks. Supplementing water with cool electrolyte replacement drinks, such as Gatorade, Squench or Quik-kick (drink) is helpful to employees who tend to sweat a lot. Do not use "community cups"; use paper cups. Have workers drink 16 ounces of drink before beginning work, such as in the morning and after lunch. At each break, workers should take 8-16 ounces of drink. Don't wait until you are thirsty to drink.

Discourage the use of alcohol during non-working hours, and discourage the intake of coffee during work hours, as these make heat stress control more difficult.

Acclimatization - this is the process by which your body "gets used to" hot work environments. This is achieved by slowly increasing workloads. Start at 50 percent capacity on day one, and increase by 10 percent per day; on day six, you'll be at 100 percent. You don't lose acclimatization over a weekend, but it'll start to decrease after three to four days. If you don't do hot work for a week, it is gone. You don't have to do full shift hot work to achieve or retain acclimatization; a minimum of 100 minutes of continuous hot work exposure per day is adequate.

Auxiliary Cooling - auxiliary cooling is usually obtained by providing workers with a specially-designed vest, which is worn under the protective clothing, but over any underclothing. These vests typically provide cooling via one of two methods: the use of ice or other frozen media, or the use of a vortex cooler. Each method has its advantages and disadvantages.

The frozen media vest requires a means for freezing the media, and the media (usually water or "blue ice") will melt, requiring replacement.

The vortex cooler tends to cool more uniformly. Instead of frozen media, this vest uses the expansion of compressed air to cool the wearer. The drawback is the compressed air requirement, but this is negated when the wearer is already using an airline respirator supplied by a compressor. A vortex cooler should not be supplied from air cylinders, as this will draw down the cylinders rapidly.

Auxiliary cooling should be considered when the following conditions exist:

- Ambient temperature over 80° F
- Workers wearing impermeable garments (PE Tyvek, Saranex, Chemrel, etc.)
- It is desirable to have long work shifts with minimum interruption

URS SAFETY MANAGEMENT STANDARD

Housekeeping

1. Applicability

This procedure applies to URS facilities and field operations.

2. Purpose and Scope

Proper housekeeping in office locations, on construction sites, and fixed work facilities is essential to prevent fires as well as injuries resulting from slips, trips and falls.

3. Implementation

Office Locations - Implementation of this program is the responsibility of the Office Manager.

Field Activities - Implementation of this program is the responsibility of the Project Manager.

4. Requirements

A. Maintain the cleanliness of the site.

1. Require tools and equipment to be stowed at the end of the day.
2. Store supplies in locations away from walkways and in a manner that will not trip workers.
3. Keep weeds and vegetation away from stockpiled materials and walkways.
4. Maintain flooring and walkways in a clean, dry, smooth condition.
5. Dispose of construction debris in a timely manner.

B. Regularly inspect the work area for slip and trip hazards.

1. Office locations - inspect work areas at least semi-annually. Utilize the check-sheet provided as Attachment 21-1.
2. Field sites - inspect sites at least monthly. Utilize the check-sheet provided as Attachment 21-1.

C. Thoroughly investigate all injuries resulting from slips, trips and falls on site. Correct conditions contributing to injuries.

URS SAFETY MANAGEMENT STANDARD

Housekeeping

5. Documentation Summary

A. Office/Laboratory

File Completed Housekeeping Inspection Sheets (Attachment 21-1), in the Office Safety Filing System.

B. Field

File Completed Housekeeping Inspection Sheets (Attachment 21-1), in the Project Safety File.

6. Resources

- A. U.S. OSHA Standard - Sanitation - 29 CFR 1910.141
- B. U.S. OSHA Standard - Aisles and Passageways - 29 CFR 1910.22.
- C. U.K. - 'The Workplace' (Health & Safety and Welfare) Regulations
- D. U.K. - 'The Construction' (Health and Welfare) Regulations
- E. Attachment 21-1 - Housekeeping Inspection Sheet



HOUSEKEEPING INSPECTION SHEET

Building or Location: _____

Inspection Conducted by: _____ Date: _____

		Yes	No must be completed	N/A
General Site Housekeeping				
1.	No blocking of exits or emergency equipment.			
2.	Equipment or materials are not left lying on the ground.			
3.	Storage areas are free from the accumulation of materials that constitute trip hazards.			
4.	Scrap materials and other debris is kept free from work area.			
5.	Combustible scrap and debris is removed by safe means at regular intervals.			
6.	Oily rags are stored in metal cans with tight fitting lids. Oily rags are removed at the end of the day.			
Visibility				
7.	Halls, stairways and walkways are well lit.			
8.	Well designed light switches are present in areas where walkways are not always lighted.			
9.	Dust, smoke or steam does not create poor visibility.			
10.	Glare from floodlights or windows does not create poor visibility in work areas.			
Stairs				
11.	Handrails are tight and at the proper level.			
12.	Handrails extend past the top and bottom step.			
13.	White or yellow strips are painted on the first and last step for better visibility. (Not an OSHA requirement – recommendation only).			
14.	Steps are not rough or defective.			
15.	Stair treads are wide enough and risers consistently spaced.			
16.	Stairs are free of obstructions.			
Floor Conditions				
17.	Floors of every workroom are clean, and so far as possible, in a dry condition.			
18.	Floors are not oily or overly waxed or polished.			
19.	Where wet floors or processes are present, proper drainage is provided and false floors, mats, or other dry standing places are provided.			
20.	Floor surfaces are finished with non-slip coatings where spills are likely.			
21.	Floors and passageways are free from protruding nails, splinters, holes, or loose boards.			



HOUSEKEEPING INSPECTION SHEET

		Yes	No must be completed	N/A
22.	Floors are free of holes and depressions.			
23.	Aisles or pathways are wide enough for easy passage and for carrying objects (48 inches is recommended).			
24.	Ramps are covered with non-slip surfaces or matting.			
25.	Carpets or rugs do not have loose or frayed edges that may catch boots or shoes.			
26.	Walkways are free from extension cords, air hoses and cables.			
27.	Boxes, containers, machine parts or other tripping hazards do not lie in pathways.			
Ground Conditions				
28.	Trip hazards are not present.			
29.	Fall hazards are not present.			
30.	Holes or changes in ground elevation are either filled or guarded.			
31.	Muddy walkways are filled with gravel to reduce slipping.			
32.	All employees who work in wet or greasy conditions wear slip resistant footwear.			
Equipment				
33.	Vehicle steps are of adequate size, surface placement for safe dismounting.			
34.	Hand grips or ladders are adequate for getting in and out of equipment.			
35.	Ladders have been checked for damage and removed from service if found unsafe.			

I certify that the above inspection was performed to the best of my knowledge and ability, based on the conditions present on _____

Signature

URS SAFETY MANAGEMENT STANDARD

Noise and Hearing Conservation

1. Applicability

This procedure applies to URS Corporation facilities and field operations where URS Corporation personnel may encounter noise exposures that may exceed 85 dBA as an 8 hour Time Weighted Average.

2. Purpose and Scope

The purpose of this procedure is to protect employees from hazardous noise exposures and to prevent hearing loss.

3. Implementation

Office/Lab locations: High noise is unlikely to be encountered at URS offices, however, if applicable, the implementation of this program is the responsibility of the Office Manager.

Field Activities: Implementation of this program is the responsibility of the Project Manager.

4. Requirements

A. General

The use of hearing protectors in any location where powered or motorized equipment or any other noise source could reasonably be expected to exceed 85 dBA. Use of hearing protectors may only be discontinued when noise levels are verified to be less than 85 dBA through a properly conducted noise survey. Whenever information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the project manager or location manager will be responsible to enforce the proper use of hearing protectors.

B. Hearing Protectors

1. Require that at least two (2) types of hearing protectors are available to employees free of charge, preferably a plug and a muff type.

2. Minimum Noise Reduction Ratings (NRR)

Hearing protectors issued must have the following minimum NRR:

Ear Plug	Muffs
29 dBA	27 dBA

URS SAFETY MANAGEMENT STANDARD

Noise and Hearing Conservation

3. Require that hearing protectors are used and thus effectively protect hearing.

C. Noise Surveys

1. Noise surveys must be conducted in a manner that reasonably reflects the exposure of the affected employees. Surveys must be conducted under the supervision of a URS Safety Program Representative.
2. Sound level meters and audio dosimeters used to determine employee exposure to noise sources must be Type II (accurate to within +/- 2 dBA), operated in "slow" response, on the "A" scale, and be calibrated to factory guidelines (including periodic factory recalibration).

D. Noise Controls

Eliminate noise sources to the extent possible. Examples of controls that must be considered follow:

1. Addition or replacement of mufflers on motorized equipment.
2. Addition of mufflers to air exhausts on pneumatic equipment.
3. Following equipment maintenance procedures to lubricate dry bearings.
4. Isolation of loud equipment with newer and quieter models.

E. Audiometric Exams

1. Tests

Details on the medical surveillance program (including audiometric testing) are included in SMS 24.

Audiometric tests shall be performed by a person meeting OSHA's 1910.95 (g)(3)'s definition. Within 6 months of an employee's first exposure at or above the action level, a valid baseline audiogram shall be established against which subsequent audiograms can be compared. Testing to establish a baseline audiogram shall be preceded by 14 hours without exposure to noise. Hearing protectors may be used as a substitute for the requirement that

URS SAFETY MANAGEMENT STANDARD

Noise and Hearing Conservation

baseline audiogram shall be preceded by 14 hours without exposure to workplace noise. The medical surveillance provider shall notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination. For multi-year projects, an annual audiogram shall be obtained for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.

Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if there is a standard threshold shift (STS). If the annual audiogram shows that an employee has suffered a standard threshold shift, the employer will obtain a retest within 30 days and consider the results in assessing an STS as the annual audiogram. The audiologist, otolaryngologist, or physician shall review problem audiograms and shall determine whether there is a need for further evaluation. If an STS has occurred, the medical surveillance provider will notify the employee within 21 days of the determination.

2. Standard Threshold Shifts

If an employee's test results show a confirmed STS, their hearing protection will be evaluated and refitted, and a medical evaluation may be required.

F. Training

Verify that each employee who must work in a noisy environment is current on the required Hearing Conservation Training. Training must include the following topics:

1. The effects of noise on hearing.
2. The purpose of hearing protectors.
3. The advantages and disadvantages of various types of hearing protectors.
4. The attenuation of various types of hearing protection.
5. The selection, fitting, care, and use of hearing protectors.
6. The purpose of audiometric testing.

URS SAFETY MANAGEMENT STANDARD

Noise and Hearing Conservation

7. An explanation of the audiometric testing procedure.

5. Documentation Summary

A. File these records in the Office Safety Filing System:

1. Noise surveys, when applicable.
2. Training Records.

B. File noise surveys, when applicable, in the Project Safety File:

6. Resources

- A. U.S. OSHA Standard – Occupational noise exposure – 29 CFR 1910.95
- B. U.S. OSHA Construction Standard – Occupational noise exposure – 29 CFR 1926.52
- C. U.S. OSHA Technical Links - Noise and Hearing Conservation
- D. American Industrial Hygiene Association: The Occupational Environment – Its Evaluation and Control, Chapter 20. Fairfax, VA: 1997
- E. National Hearing Conservation Association web site
- F. URS SMS 24 Medical Screening and Surveillance

URS Safety Management Standard **Personal Protective Equipment**

1. Applicability

This program applies to URS Corporation laboratory and field operations where the use of Personal Protective equipment (PPE) is warranted. Refer to SMS 42, "Respiratory Protection", for respiratory hazards. Hearing Protection issues are additionally addressed in SMS 26, "Noise and Hearing Conservation."

2. Purpose and Scope

This procedure provides information on recognizing those conditions that require personal protective equipment as well as selecting personal protective equipment for hazardous activities.

3. Implementation

Shop/Lab Locations - Implementation of this program is the responsibility of the Office Manager.

Field Activities - Implementation of this program is the responsibility of the Project Manager.

4. Requirements

- A. Perform hazard assessments for those work activities that are likely to require the use of PPE.
 - 1. Use Attachment 29-1 to perform the assessment.
 - 2. Reevaluate completed hazard assessments when the job changes.
- B. Eliminate the hazards identified in Attachment 29-1, if possible, through engineering or administrative controls.
- C. Select PPE that will protect employees if hazards cannot be eliminated.
 - 1. See Attachment 29-1 for recommended PPE.
 - 2. Review Material Safety Data Sheets for chemicals used for PPE recommendations.
 - 3. If needed, consult with the URS Health and Safety Representative for assistance in selecting PPE.

URS Safety Management Standard **Personal Protective Equipment**

- D. Provide required PPE to employees free of charge (excluding in some instances components of standard work attire such as steel-toed boots), assuring that it fits properly giving them a choice if more than one type is available.
- E. Whenever a hazard is recognized, and PPE is required, the employees will be provided with the appropriate PPE. However, when a PPE is not required, and the employee selects to wear his or her own PPE, the project manager shall ensure that the employee is properly trained in the fitting, donning, doffing, cleaning, and maintenance of his or her employee owned equipment.
- F. Conduct and document employee training.
 - 1. Train all employees who are required to wear PPE.
 - 2. Require that training includes:
 - a. When PPE is necessary to be worn.
 - b. What PPE is necessary.
 - c. How to properly don, doff, adjust and wear PPE.
 - d. Limitations of PPE
 - e. Proper care, maintenance, useful life and disposal of PPE.
 - 3. Training must be conducted before PPE is assigned.
 - 4. Refresher training is needed when:
 - a. New types of PPE are assigned to the worker.
 - b. Worker cannot demonstrate competency in PPE use.
 - 5. Keep written records of the employees trained and type of training provided, including the date of training.
- G. Maintain Protective Equipment
 - 1. Check personal protective equipment for damage, cracks, and wear prior to each use. Replace or repair equipment not found in good condition.

URS Safety Management Standard **Personal Protective Equipment**

2. Wash off contaminated protective equipment with water and mild soap, if necessary, to prevent degradation of the equipment.
- H. Periodically inspect worksites where employees are using personal protective equipment, using Attachment 29-2.
1. Field activities – inspect work sites at least monthly.
 2. Office locations – inspect work sites semi-annually.

5.0 Documentation Summary

- A. Records required in the Project Safety File:
1. Completed Hazard Assessment Certification Forms (Attachment 29-1)
 2. Completed Personal Protective Equipment Inspection Sheet (Attachment 29-2)
 3. Documentation of employee training.
- B. Records required in the Laboratory Safety Filing System:
1. Completed Hazard Assessment Certification Forms (Attachment 29-1)
 2. Completed Personal Protective Equipment Inspection Sheet (Attachment 29-2)
 3. Documentation of employee training.

6.0 Resources

- A. U.S. OSHA Standards - Personal Protective Equipment -29CFR 1910 Subpart I
(<http://www.osha-slc.gov/SLTC/lead/index.html>)
- B. U.S. OSHA Construction Standard - Personal Protective Equipment –29 CFR 1926 Subpart E
(http://www.osha-slc.gov/OshStd_toc/OSHA_Std_toc_1926_SUBPART_E.html)
- C. U.S. OSHA Technical Links - Personal Protective Equipment
(<http://www.osha-slc.gov/SLTC/personalprotectiveequipment/index.html>)

URS Safety Management Standard
Personal Protective Equipment

- D. Australian Standards SAA HB9-1994 - Occupational Personal Protection
- E. American National Standards Institute, ANSI Z89.1-1986, Protective Headwear
(http://www.ansi.org/cat_top.html)
- F. American National Standards Institute, ANSI Z87.1 - 1989, Eye and Face Protection
(http://www.ansi.org/cat_top.html)
- G. American National Standards Institute, ANSI Z41.1 - 1991, Foot Protection
(http://www.ansi.org/cat_top.html)
- H. SMS 40 - Fall Protection
- I. Attachment 29-1 Hazard Assessment Form
- J. Attachment 29-2 PPE Inspection Form

URS Corporation**URS Corporation Health & Safety Program
HAZARD ASSESSMENT CERTIFICATION FORM**Location: Pelham Range, AlabamaJob No: 655730Date: 7/19/01 Assessment Conducted by: Chad WebbSpecific tasks performed at this location: UXO avoidance, vegetation cutting, soil sampling, and drilling

Are any of the following present during the task?		No	Yes (Hazard Present)	Eliminate Hazard or Use Following PPE
Overhead Hazards				
1.	Suspended loads that could fall		✓	Hard hat, ANSI Class A, B
2.	Overhead beams or load that could strike head	X		Hard hat, ANSI Class A, B
3.	Energized wires or equipment that could strike head	X		Hard hat, ANSI Class B
4.	Employees working above at an elevated site who could drop objects on others below	X		Hard hat, ANSI Class A, B
5.	Sharp objects or corners at head level	X		Hard hat, ANSI Class A, B or C
Eye Hazards				
6.	Chemical splashes or irritating mists	X		Chemical protective goggles See Attachment 29-3
7.	Excessive dust	X		Safety glasses or impact goggles
8.	Smoke & fumes	X		Chemical protective goggles
9.	Welding operations	X		See Attachment 29-3 and 29 T-1
10.	Lasers/optical radiation	X		See Attachment 29-3 and Reference F
11.	Projectiles	X		See Attachment 29-3
12.	Sawing, cutting, chipping, grinding		✓	See Attachment 29-3
Face Hazards				
13.	Chemical splashes or irritating mists	X		Face shield if chemical is irritating to the skin or is corrosive. See Attachment 29-3
14.	Welding operations	X		See Attachment 29-3 and 29-T1
15.	Projectiles		✓	See Attachment 29-3 and face shield
Hand Hazards				
16.	Chemical exposure	X		Use resistant gloves as recommended by manufacturer - See Best Chemrest Guide
17.	Sharp edges, splinters, etc.		✓	Leather gloves

Location : Pelham Range, AL

Job No: 655730

Are any of the following present during the task?		No	Yes (Hazard Present)	Eliminate Hazard or Use Following PPE
18.	Temperature extremes - heat	X		Leather gloves; hot mill gloves; Kevlar gloves, welders' gloves
19.	Temperature extremes - cold	X		Leather gloves; insulated gloves
20.	Blood, fungus	X		Nitrile gloves
21.	Exposure to live electrical current	X		Electrical gloves - See Reference H
22.	Sharp tools, machine parts, etc.		✓	Leather gloves, kevlar gloves
23.	Material handling		✓	Leather gloves
Foot Hazards				
24.	Heavy materials (greater than 50 pounds) handled by employees		✓	Safety shoes or boots
25.	Potential to crush whole foot	X		Safety shoes or boots with metatarsal guard
26.	Sharp edges or points - puncture risk	X		Safety shoes or boots
27.	Exposure to electrical wires	X		Safety shoes or boots with electrical protection
28.	Unusually slippery conditions	X		Rubber soled boots or grips
29.	Chemical contamination	X		Rubber, nitrile boots or boot covers
30.	Wet conditions	X		Rubber boots or boot covers
31.	Construction/demolition	X		Safety shoes or boots with metatarsal guard if who foot crushing hazard exists.
Fall Hazards				
32.	Elevations above 6 feet without guardrails	X		Full body harness, ANSI A-10.14 - 1991 - See Reference G
33.	Suspended scaffolds, boatswain's chairs, float scaffolds, suspended staging.	X		ANSI Type II - full body harness - See Reference G
34.	Working in trees	X		ANSI Type I full body harness - See Reference G
35.	Working in vehicle mounted, elevating work platforms (bucket trucks, pin-on platforms, etc.)	X		ANSI Type II full body harness - see Reference G
Water Hazards				
36.	Working on or above water where drowning hazards exist	X		U.S. Coast Guard approved personal flotation device, Type I, II, or III PFD
Excessive Heat or Flame				
37.	Full body chemical protective clothing in temperatures greater than 80 degrees	X		Cooling vest
38.	Work around molten metal or flame	X		Nomex or kevlar clothing

Location : Pelham Range, AL

Job No: 655730

Are any of the following present during the task?		No	Yes (Hazard Present)	Eliminate Hazard or Use Following PPE
39.	Welding activities	X		Welding leathers for those areas that are exposed to flame, spark or molten metal
Respiratory Hazards				
40.	See SMS for RESPIRATORY PROTECTION for selection guidance	X		
Excessive Noise				
41.	Exposure to noise		✓	Ear plugs or muffs
Body and Leg Protection				
42.	Chemical exposure	X		Have local DMG H&S representative assist you in proper selection
43.	Using chainsaw, cutting brush		✓	Chainsaw chaps

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on Pelham Range 7/19/01.


Signature



**PERSONAL PROTECTIVE EQUIPMENT
INSPECTION SHEET**

Name of Inspector _____ Date Inspected _____

True	False (= Hazard - Needs to be fixed)
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Hard Hats		
1. The brim or shell does not show signs of exposure and excessive wear, loss of surface gloss, chalking or flaking.		
2. Suspension system in hard hat does not show signs of deterioration including cracking, tearing or fraying.		
3. The brim or shell is not cracked, perforated or deformed.		
4. Employees use hard hats in marked areas.		
5. Hard hat areas are marked.		
Safety Shoes		
6. Safety shoes used by employees do not show signs of excessive wear.		
7. Safety shoe required areas are marked.		
Work Gloves		
8. Gloves are worn when needed.		
9. Gloves do not show signs of excessive wear such as cracks, scrapes, or lacerations, thinning or discoloration or break through to the skin.		
Protective Clothing		
10. Protective clothing is worn by employees when required.		
Hearing Protection		
11. Noise hazardous areas are marked.		
12. Employees are using earplugs or muffs when using noise hazardous equipment or working in noise hazardous areas.		
Safety Glasses		
13. Eye hazardous areas are marked or posted.		
14. Employees use safety glasses when working in eye hazardous areas or working with eye hazardous equipment.		

REMARKS

URS SAFETY MANAGEMENT STANDARD

Sanitation

1. Applicability

This procedure applies to URS field operations.

2. Purpose and Scope

The purpose of this program is to provide employees on field assignments with appropriate personal hygiene facilities, including toilets, wash rooms and eating facilities, and to protect employees from unsanitary conditions.

3. Implementation

Field Activities - Implementation of this program is the responsibility of the Project Manager.

4. Requirements

A. Arrange for the installation of adequate toilet and wash facilities during the planning stage of field projects. Note: Mobile crews having transportation readily available to nearby toilet facilities need not be provided with facilities.

1. Provide job sites without sanitary sewer with one of the following:

- a. Privies (where their use will not contaminate ground or surface water).
- b. Chemical toilets.
- c. Combustion toilets.

2. Provide toilets for employees of each sex at field sites according to the following ratio:

Number of Employees	Minimum # of water closets (1)
1 - 15	1
16 - 25	2
36 - 55	3
56 - 80	4
81 - 110	5
111 - 150	6
Over 150	(2)

URS SAFETY MANAGEMENT STANDARD

Sanitation

Footnote (1) where toilet facilities will not be used by women, urinals may be provided instead of the minimum specified.

Footnote (2) 1 additional fixture for each additional 40 employees.

- B. Provide a means for washing hands next to toilet areas.
- C. Arrange for fresh potable water to be available.
 - 1. Fixed Facilities

Require backflow prevention devices, testing and administrative controls to be used for all potable water supply branches.
 - 2. Field Sites
 - a. Require an adequate supply of potable water to be available.
 - b. Water containers must be tightly closed and marked as to the contents. Containers must have a tap and be refilled daily.
- D. Maintain existing toilet and wash facilities.
 - 1. Maintain toilets and toilet area in good repair and in a clean and sanitary condition.
 - 2. Provide paper towels and soap or other suitable sanitizing material for washing hands.
 - 3. Locate hand-washing facilities next to or near toilets.
- E. Maintain availability and cleanliness of drinking water.
 - 1. Maintain backflow devices in a sanitary condition.
 - 2. Water coolers and water dispensers are to be kept in a sanitary condition and filled only with potable water.
 - 3. Provide fountain-type dispensers or one-use cups at each water dispenser.
- F. Maintain lunchrooms in a clean condition.
 - 1. Require microwave ovens to be used for food only.

URS SAFETY MANAGEMENT STANDARD

Sanitation

2. Require refrigerators that are designated for food storage to be used for food only.
3. Do not allow workers to eat or store foods in areas where toxic materials are handled or stored.
4. Periodically clean lunchrooms.

G. Manage waste generated on site.

1. Release sanitary sewage into sanitary sewer lines or to other proper disposal channels.
2. Do not discharge hazardous waste into the sanitary sewer or storm sewer system.
3. Collect garbage and trash daily.
 - a. Garbage containers located outside buildings should have lids and remained closed. Transport garbage offsite at least weekly.
 - b. At remote field sites where bears and similar wild animals are a hazard, remove garbage from the site daily (do not let garbage remain on site overnight).

H. Prevent pests and vermin from multiplying on site. Eliminate unsanitary conditions that propagate insects or vermin.

- I. Inspect work sites using checksheet provided as Attachment 30-1 for compliance at the beginning of the project and mid -project.

5. Documentation Summary

File completed inspection sheets in the Project Safety File.

6. Resources

- A. U.S. OSHA Construction Standard - Sanitation - 29 CFR 1926.51
(http://www.osha-slc.gov/OshStd_data/1926_0051.html)
- B. U.S. OSHA General Industry Standard - Sanitation - 29 CFR 1910.141
(http://www.osha-slc.gov/OshStd_data/1910_0141.html)

URS SAFETY MANAGEMENT STANDARD
Sanitation

- C. National Interim Primary Drinking Water Regulations 40 CFR 141
(http://www.access.gpo.gov/nara/cfr/waisidx_99/40cfr141_99.html)

- D. Attachment 30-1 - Sanitation Inspection Checksheet

- E. Queensland Workplace Health and Safety -
Code of Practice for Construction Project Amenities



SANITATION INSPECTION SHEET

Location: _____ Job No: _____

Date Inspected: _____ Name of Inspector: _____

Note: All "No" notations must be corrected

		Yes	No
Toilets			
1.	Are there an adequate number of toilets on site? 1 – 15 employees = 1 toilet 16 - 35 employees = 2 toilets 36 – 55 employees = 3 toilets 56 – 80 employees = 4 toilets 81 - 110 employees = 5 toilets		
2.	Toilets are in clean condition.		
3.	Toilet paper is provided.		
4.	Toilet areas are clean and sanitary.		
Hand Washing Facilities			
5.	Hand washing facilities are provided near toilets.		
6.	Paper towels and soap are provided.		
Drinking Water			
7.	Drinking water is provided on site.		
8.	Disposable cups are provided or fountain type dispenser is provided.		
9.	Drinking water containers are kept clean and tightly closed or covered.		
Lunch Rooms			
10.	Lunch rooms or eating areas are kept clean.		
11.	Microwaves are used for food only.		
12.	Microwave ovens are kept clean.		
13.	Refrigerators are kept clean.		
14.	Refrigerators are used to store food only.		
Vermin			
15.	Rats, mice and other vermin are not living within buildings.		
16.	Cockroaches and fleas are not thriving within buildings.		

REMARKS:

URS SAFETY MANAGEMENT STANDARD

Utility Clearances And Isolation

1. Applicability

This procedure applies to URS projects where personnel may encounter subsurface or overhead utilities.

2. Purpose and Scope

Many field activities are conducted near aboveground and underground utilities. The primary purpose of this Standard is to establish operating requirements that will permit employees to work safely in the vicinity of electrical, natural gas, fuel, water, and other utility systems and installations. The secondary purpose is to prevent economic damage to utility systems from operations associated with project-related activities.

The term "utility clearance" includes

- A. The positive locating of utility systems in or near the work area.
- B. A signed statement by an appropriate representative attesting to the location of underground utilities and/or the positive de-energizing (including lockout) and testing of electrical utilities.

Note that in some cases, utility representatives may deem it appropriate or necessary to use insulating blankets to isolate a power line; this is an acceptable alternative to positive de-energizing (only utility representatives can make the determination).

"Contact" with overhead power lines is considered to occur when equipment is closer to power lines than permitted by the criteria in the table in Section 4.0.C.2.b below. (see note for U.K. operations).

3. Implementation

Field Operations - Implementation of this procedure is the responsibility of the Project Manager.

4. Requirements

A. Time for Completion

Complete utility clearances prior to the start of any work in the area of the utility that could feasibly result in contact with or damage to that utility.

B. Local Regulations

URS SAFETY MANAGEMENT STANDARD

Utility Clearances And Isolation

Research local codes and regulations regarding utility locating and isolation requirements. Utility companies and locating services are among the appropriate resources.

C. Overhead Power Lines

1. Proximity to Power Lines

No work is to be conducted within 50 feet (15 meters) of overhead power lines without first contacting the utility company to determine the voltage of the system. No aspect of any piece of equipment is to be operated within 50 feet (15 meters) of overhead power lines without first making this determination.

2. Operations adjacent to overhead power lines are **PROHIBITED** unless one of the following conditions is satisfied:

- a. Power has been shut off, positive means (such as lockout) have been taken to prevent the lines from being energized, lines have been tested to confirm the outage, and the utility company has provided a signed certification of the outage.
- b. The minimum clearance from energized overhead lines is as shown in the table below, or the equipment will be repositioned and blocked so that no part, including cables, can come within the minimum clearances shown in the table.

MINIMUM DISTANCES FROM POWERLINES	
Powerlines Nominal System kV	Minimum Required Distance
0-50	10 feet (3 meters)
51-100	12 feet (3.6 meters)
101-200	15 feet (4.6 meters)
201-300	20 feet (6.1 meters)
301-500	25 feet (7.6 meters)
501-750	35 feet (10.7 meters)
751-1000	45 feet (13.7 meters)

Note: for U.K. operations, the specific safe distance is determined by the utility company.

- c. The power line(s) has been isolated through the use of insulating blankets which have been properly placed by the utility. If insulating blankets are used, the utility will determine

URS SAFETY MANAGEMENT STANDARD

Utility Clearances And Isolation

the minimum safe operating distance; get this determination in writing with the utility representative's signature.

3. All inquiries regarding electric utilities must be made in writing and a written confirmation of the outage/isolation must be received by the Project Manager prior to the start of work.

D. Underground Utilities

1. Do not begin subsurface work (e.g., trenching, excavation, drilling, etc.) until a check for underground utilities and similar obstructions has been conducted. The use of as-built drawings must be confirmed with additional geophysical or other survey.
2. Contact utility companies or the state/regional utility protection service at least two (2) working days prior to excavation activities to advise of the proposed work, and ask them to establish the location of the utility underground installations prior to the start of actual excavation.
3. Obtain utility clearances for subsurface work on both public and private property. Clearances are to be in writing, signed by the party conducting the clearance.
4. Protect and preserve the markings of approximate locations of facilities until the markings are no longer required for safe and proper excavations. If the markings of utility locations are destroyed or removed before excavation commences or is completed, the Project Manager must notify the utility company or utility protection service to inform them that the markings have been destroyed.
5. Do not conduct mechanical-assisted subsurface work (e.g., powered drill rig, mechanical excavator, etc.) within five (5) feet (1.5 meters) of a confirmed or suspected utility or other subsurface structure. Confirm minimum distances for mechanical-assisted subsurface work with the utility owner, as distances beyond this five foot minimum may be required.
6. Subsurface work within five feet (1.5 meters) of a confirmed or suspected utility or other subsurface structure must be done by hand (e.g., hand auger, shovel) to the point where the obstruction is visually located and exposed. Once the obstruction location is confirmed in this manner, mechanical-assisted work may commence.

URS SAFETY MANAGEMENT STANDARD

Utility Clearances And Isolation

7. Reference SMS 13, "Excavation Safety" for additional information regarding subsurface operations.

E. Training

Conduct a site briefing for site employees regarding the hazards associated with working near the utilities and the means by which the operation will maintain a safe working environment. Detail the method used to isolate the utility and the hazards presented by breaching the isolation.

5. Documentation Summary

File these records in the Safety Filing System:

1. Documents requesting utility clearance.
2. Documents confirming utility clearance.
3. Training/briefing documentation of each isolation.

6. Resources

1. Utility Locating Services (typically under "Utility" in the Yellow Pages)
2. NIOSH Alert - Preventing Electrocutions from Contact Between Cranes and Power Lines
(<http://www.cdc.gov/niosh/crane.html>)
3. One Call Utility Locating List
(<http://www.underspace.com/refs/ocdir.htm>)
4. National Utility Locating Contractor's Association
(<http://www.underspace.com/nu/index.htm>)
5. U.K. - Health and Safety Executive GS6

URS SAFETY MANAGEMENT STANDARD

Unexploded Ordnance/Chemical Warfare Materials

1. Applicability

This procedure applies to URS projects where unexploded ordnance (UXO) and/or chemical warfare materials (CWM) are known or reasonably expected to be present.

2. Purpose and Scope

The purpose of this procedure is to protect URS employees from hazards associated with UXO and CWM, and to assure that only appropriately-skilled subcontractor personnel handle UXO and CWM.

Attachment 39-1 contains definitions relative to UXO and CWM to assist a Project Manager in determining whether a project is subject to this procedure.

3. Implementation

Field Activities - Implementation of this standard is the responsibility of the Project Manager

4. Requirements

A. Presence of UXO or CWM

1. Determine whether a site is known to contain or there is a reasonable probability based on client information or knowledge of prior use that a site may contain UXO or CWM.
2. If either of the above are affirmative, then URS must contract with a qualified UXO/CWM contractor to conduct all related field activities.

B. Participation by URS Personnel

Prohibit URS personnel from participating in UXO or CWM field activities unless they are under the direct supervision of a qualified UXO/CWM contractor.

C. Qualified UXO Contractor

Contract only with qualified UXO contractors

1. A qualified UXO Contractor is one who employs personnel who have graduated from US Navy EOD School, Indian Head, MD (U.S. operations).

URS SAFETY MANAGEMENT STANDARD

Unexploded Ordnance/Chemical Warfare Materials

2. Personnel who are Hazardous Devices Technicians who have graduated from the Hazardous Devices School, Redstone Arsenal, AL, are not considered qualified UXO personnel for URS projects (U.S. operations).
3. For non-U.S. operations, contract with UXO contractors who possess qualifications equivalent to those described in (a), above.

D. Operating Standards

Require UXO Contractors to adhere to operating standards equivalent to those found in U.S. Army Corps of Engineers, Huntsville Division "Safety Concepts and Basic Considerations for Unexploded Ordnance (UXO) Operations."

E. Site-Specific Health and Safety Plan (SSHSP)

1. Development of the SSHSP for any UXO project shall be accomplished by the UXO contractor. URS personnel shall operate under the UXO contractor's SSHSP during all activities in which UXO may be present.
2. Reviews of non-UXO sections of UXO SSHSPs are to be accomplished by a URS Health and Safety Program Representative.

5. Documentation Summary

Project Safety File

- A. Documentation of UXO Contractor qualifications
- B. Copy of UXO Contractor's site safety and health plan

6. Resources

- A. USACE ER 385-1-92 "Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities"
- B. Attachment 39-1 - Definitions pertaining to UXO/CWM



**UNEXPLODED ORDNANCE / CHEMICAL
WARFARE MATERIALS
DEFINITIONS**

- **Ordnance and Explosive Waste (OEW).** OEW is anything related to munitions designed to cause damage to personnel or material through explosive force, incendiary action or toxic effects. OEW is: bombs and warheads, missiles; artillery, mortar and rocket ammunition, small arms ammunition; antipersonnel and antitank mines; demolition charges; high explosives and propellants; depleted uranium rounds; military chemical agents; and all similar and related items or components, explosive in nature or otherwise designed to cause damage to personnel or material (e.g., fuze, boosters/propellants or soils with explosive constituents are considered explosive waste if the concentration is sufficient to be reactive and present an imminent safety hazard as determined by the USACE OEW MCX).
- **Unexploded Ordnance (UXO).** An item of explosive ordnance that has failed to function as designed or has been abandoned discarded or improperly disposed of and is still capable of functioning causing to personnel or material.
- **Conventional Ordnance Site.** An OEW site that is not suspected of containing chemical agent.
- **Chemical Warfare Material (CWM).** Abandoned, fired, burned or otherwise disposed of equipment, munitions, devices and containers designed for use directly in connection with the deployment, testing or containerization of chemical agent or other equipment and materials that are above the 3X level of contamination as defined in AR 385-61 and DOD 6055.9 STD. This term includes former production facilities, buried, range recovered or found chemical munitions, chemical agent containers or chemical agent identification sets.
- **Chemical Surety Material.** Chemical agents and their associated weapon systems or storage and shipping containers that are either adopted or being considered for military use. Categories are described in AR 50-6.
- **Chemical Agent.** A chemical compound intended for use (to include experimental compounds) in military operations to kill, seriously injure or incapacitate persons through its chemical properties. Excluded are Research Development Test and Evaluation (RDTE) dilute solutions, riot control agents, chemical defoliants and herbicides, smoke, flame and incendiaries and industrial chemicals.
- **Intrusive Activities (CWM sites).** Intrusive activities on a CWM site means digging with the intent of revealing an anomaly. All intrusive activities on a CWM site require a safety submission.
 - **Chemical Agent Event.** The term chemical agent event applies to:

**UNEXPLODED ORDNANCE / CHEMICAL
WARFARE MATERIALS
DEFINITIONS**

potential hazards to the public from these activities, and the means for identifying and monitoring the potential hazards; description of the protective actions to be taken to protect the public from site hazards, including a copy the Downwind Hazard Assessment; description of any emergency response procedures which may be invoked in response to a site emergency; a list of the agencies involved in site activities and a description of their functions and responsibilities; including names, title, and phone numbers of key personnel; a copy of all Memorandum of Agreements executed between USACE and local emergency responders; and, definitions and acronyms.

- **Maximum Credible Event.** The worst single event that could occur at any time with maximal release of chemical agent from a munitions, bulk container or process as a result of an unintended, unplanned or accidental occurrence. The event must be realistic with reasonable probability of occurrence.
- **Maximum Probable Event.** The worst potential mishap most likely to occur during routine handling, storage, maintenance or surveillance operations, which results in the release of agent and exposure of personnel.
- **D2PC.** Computer modeling program used to determine the prediction of downwind hazard resulting from a release of toxic chemical agent.
- **Downwind Hazard Assessment.** An assessment of the hazards resulting from an accidental release of chemical agent downwind from the location of the release. Describes release scenarios and prescribes precautionary and emergency response procedures.
- **Table Top Exercise.** An activity in which elected or appointed officials and key staff with emergency management responsibilities are gathered together informally to discuss various simulated emergency situations. The purpose is for participants to evaluate plans and procedures and to resolve questions of coordination and assignment of responsibility throughout the exercise.
- **Pre-op Survey.** Required whenever a safety submission is required. Field personnel perform a dry run in the presence of the selected committee to ensure that all provisions of the site plan and safety submission and applicable regulations are complied with and to demonstrate operator proficiency.
- **Qualified UXO Personnel.** Determined by the OEW, MCX.



**UNEXPLODED ORDNANCE / CHEMICAL
WARFARE MATERIALS
DEFINITIONS**

- ◇ Chemical agent leaks of munitions in the chemical agent stockpile.
 - ◇ Requirements for emergency transportation and/or disposal of known or suspected chemical agents.
 - ◇ Any release of chemical agent to the environment outside of closed systems, facilities or devices (for example, lab hood, glove box, munitions, bulk containers which are specifically designed to contain chemical agents) greater than the airborne exposure standards established by DA (per DOD 6055.9 standards promulgated in AR 385- 64 and DA Pam 385-64) or release resulting in personnel exhibiting clinical signs or symptoms of chemical agent exposure.
 - ◇ Any exposure or release of agent that does not exceed airborne exposure standards established by DA, but nonetheless is receiving media attention.
 - ◇ Any deliberate release of chemical agent resulting from a terrorist or criminal act (including employment of an improvised chemical device intended to disperse chemical agent regardless of whether device has functioned or not).
 - ◇ Loss of chemical surety materiel (other than deliberate destruction by approval, authorized laboratory and demilitarization processes, including training expenditures).
 - ◇ Release of or exposure to chemical agents, whether classified as chemical agent or experimental.
- **Safety Submission.** A document which contains numerous plans developed by various participating agencies and is required to be submitted through the appropriate command structure. It is required for intrusive activities on both conventional and CWM sites. For conventional OEW sites, a safety submission is required in accordance with AR 385-64 on all FUDS projects involved in the removal of OEW and OEW removal actions associated with active installation or base closure activities that will support or become a part of a property disposal action. For CWM projects, a safety submission is required whenever the intent of the work activity is to uncover anomaly(s). Further details are provided in Appendix C.
 - **Protective Action Plan.** A plan developed to document and communicate hazards to the public arising from site activities and the specific procedures and actions to be taken to protect public safety and health during site activities and in the event of emergency conditions. The plan includes a description of site activities, any

URS SAFETY MANAGEMENT STANDARD

Injury / Illness / Incident Reporting

1. Applicability

This procedure applies to URS Corporation offices and field operations.

2. Purpose and Scope

The purpose of this procedure is to provide guidance for the timely reporting of work related injuries, illness, and incidents.

3. Implementation

Office Locations - Implementation of this program is the responsibility of the employee's Supervisor.

Field Activities - Implementation of this program is the responsibility of the Project Manager.

4. Requirements

A. Reporting: All employees shall immediately notify their appropriate level of management (line, project, and/or office) of a reportable incident. A reportable incident includes the following:

1. An injury to any URS employee, subcontractor, client representative, or private citizen, even if the injury does not require medical attention;
2. An injury to a member of the public occurring on a URS work site or possibly resulting from a URS or subcontractor activity or involving URS or subcontractor property, equipment, or resource;
3. Illness resulting from suspected chemical exposure;
4. Chronic or re-occurring conditions such as back pain or cumulative trauma disorders (example: carpal tunnel syndrome);
5. Fire, explosion, or flash;
6. Any vehicle accidents occurring on site, while traveling to or from client locations, or with any company-owned or leased vehicle;
7. Property damage resulting from any URS or subcontractor activity;
8. Structural collapse or potential structural hazards;

URS SAFETY MANAGEMENT STANDARD

Injury / Illness / Incident Reporting

report, another company employee, line manager, project manager, or local health and safety representative may complete the report.);

- d. Review and verify that necessary corrective actions are identified and implemented;
- e. Discuss with department or project staff the circumstances surrounding the incident and corrective actions taken.

3. Local Health And Safety Representative

- a. Assist with incident evaluation;
- b. With management, identify cause(s) of incident and identify corrective actions needed to avoid recurrence;
- c. Review injury/incident report for completeness and accuracy;

4. Local Human Resources Representative

- a. Report work-related injuries and illness to worker compensation carrier

AIG Claim Services @ 1-877-366-8423

5. Corporate Health and Safety Management

The Occupational Health Specialist (OHS), Corporate Health and Safety Director, and Construction Services Division Safety and Health Director will review all reported incidents (U.S.-based employees only) to determine OSHA reporting and recording requirements. All decisions will be based strictly on current Federal OSHA guidelines.

- a. Official records (including required reports, logs, for all reported incidents will be maintained at one central location by the OHS.
- b. The OHS will send each establishment any required government report for their establishment following receipt of an incident report.

URS SAFETY MANAGEMENT STANDARD **Injury / Illness / Incident Reporting**

9. Unexpected release or imminent release of a hazardous material;
10. Unexpected chemical exposures to workers or the public;
11. A safety related complaint from the public regarding URS activities.
12. Any other significant occurrence that could impact safety.

B. Actions: The following actions will be taken following a reportable incident:

1. Employees:

- a. If necessary, suspend operations and secure and/or evacuate the area;
- b. Immediately notify your supervisor and/or project manager
- c. Record information pertaining to the incident (e.g., time, date, location, name and company of person(s) involved, description of event, and actions taken);
- d. Assist with incident investigation as directed by management;
- e. Implement corrective actions as directed by management;
- f. *Do not* discuss the incident with members of the news media or legal representatives (except URS legal counsel or your personal legal advisor) unless directed to do so by URS management;
- g. *Do not* make statements pertaining to guilt, fault, or liability.

2. Line/Project Management:

- a. Review circumstances of the incident with applicable employee(s);
- b. Notify local Health and Safety representative. If incident involves and an injury/illness of a URS employee, also notify the local Human Resources Representative;
- c. Complete and distribute injury/incident report within 24 hours. (Note: If the employee is unable to complete the



Health and Safety Program
INCIDENT REPORT FORM

Attachment 49-1

Revised: 5/08/01

ADMINISTRATIVE INFORMATION:

URS Division/Company: _____
Project Office: _____
Project Number: _____
Date/Time of Incident: _____
Location/Client: _____

FOR INJURIES / ILLNESSES:

Name of Injured Employee _____
Job Title _____
Phone Number _____ Age _____
Sex Male Female
See a Doctor? Yes No
If yes, attach a doctor's report.

Describe Injury:

TYPE OF INCIDENT
(Check all applicable items)

- | | | | |
|--|---|---|--|
| <input type="checkbox"/> Illness | <input type="checkbox"/> Injury | <input type="checkbox"/> Fire, Explosion, Flash | <input type="checkbox"/> Unexpected Exposure |
| <input type="checkbox"/> Property Damage | <input type="checkbox"/> Vehicular Accident | <input type="checkbox"/> Other (describe): | |

DESCRIPTION OF INCIDENT: (Describe the facts contributing to the incident. Identify individuals involved, witnesses, and their affiliations. Attach additional sheets, drawings, or photographs as needed.)

URS SAFETY MANAGEMENT STANDARD

Injury / Illness / Incident Reporting

- c. Each January the OHS will prepare and distribute, to each URS establishment, the appropriate government injury/illness reports. These reports will summarize all required government information for incidents that occurred during the preceding calendar year. Each establishment will post these reports in a prominent location for the time specified by current regulations.

5. Documentation Summary

A. File these records in the Office Safety File:

1. Attachment 49-1 - Incident Report Form
2. Maintain OSHA 200 Log.

B. File these records in the Project Health and Safety File

1. Attachment 49-1 - Incident Report Form
2. Maintain OSHA 200 Log if applicable for Project.

6. Resources

A. U. S. OSHA

<http://www.osha.gov/>

URS SAFETY MANAGEMENT STANDARD

Drilling Safety Guidelines

1. Applicability

This program applies to URS projects in which truck-mounted, or other engine powered, drill rigs are used. It is applicable to URS employees and URS owned rigs. For drill rigs operated by contractors, the primary responsibility for drilling safety is with the drilling contractor.

2. Purpose and Scope

The purpose of these guidelines is to provide an overview for working safely around drilling operations with truck-mounted and other engine-powered drill rigs. The procedure addresses off-road movement of drill rigs, overhead and buried utilities, use of augers, rotary and core drilling, and other drilling operations and activities.

3. Implementation

Field Activities Drill rig safety and maintenance is the responsibility of the drill rig operator. URS employees are responsible for their own safety including recognizing and avoiding drill rig hazards. URS employees that observe a drill rig condition believed to be unsafe shall advise the drill rig operator of the unsafe condition.

4. Safety Guidelines

A. General Guidelines

URS technicians, geologists, engineers, or other field staff assigned to observe drilling operations or collect soil samples should observe the following guidelines:

- Require a meeting at project start-up regarding the drill rig operator responsibility for rig safety and any site and equipment specific safety requirements
- Set up any sample tables and general work areas for the URS field staff to the side of the drill rig (preferably 10 meters away) and not directly behind the rig.
- URS engineers, technician, and geologists shall not assist the drillers with the drilling equipment or supplies and shall not at any time operate the drill rig controls.

B. Movement of Drill Rigs

Before moving a rig, the operator must do the following:



Health and Safety Program
INCIDENT REPORT FORM

Attachment 49-1

Revised: 5/08/01

PREPARED BY:

Name: _____

Date: _____

Signature: _____

Reporter must deliver this report to the operating unit health and safety representative within 24 hours of the reported incident for medical treatment cases and within 5 days for other incidents.

REVIEWED BY:

Supervisor Date

Health and Safety Representative Date

DISTRIBUTION:

- Division Health and Safety Manager
- Project File
- Occupational Health Specialist (Fax 512-419-6413)
- Local Human Resources (Injury / Illness cases only)

CORRECTIVE ACTONS (*For Internal Use Only*):

URS SAFETY MANAGEMENT STANDARD

Drilling Safety Guidelines

Manager (PM), the utility and/or power lines may be shielded, shut down, or moved by the appropriate personnel.

For additional information, please refer to SMS #34 "Utility Clearances and Isolation".

D. Clearing the Work Area

Before a drill rig is positioned to drill, the area on which the rig is to be positioned should be cleared of removable obstacles and the rig should be leveled if sloped. The cleared/leveled area should be large enough to accommodate the rig and supplies.

E. Safe Use of Augers

Never place hands or fingers under the bottom of an auger flight or drill rods when hoisting the augers or rods over the top of another auger or rod in the ground or other hard surfaces, such as the drill rig platform.

Never allow feet to get under the auger or drill rod while they are being hoisted.

When the drill is rotating, stay clear of the drill string and other rotating components of the drill rig. Never reach behind or around a rotating auger for any reason.

Move auger cuttings away from the auger with a long-handled shovel or spade; never use hands or feet.

Never clean an auger attached to the drill rig unless the transmission is in neutral or the engine is off, and the auger has stopped rotating.

Do not wear loose clothing or jewelry while working near the drill rig. Long hair must be pulled back to avoid entanglement with moving parts.

Hearing protection is required when working near an operating drill rig.

F. Safe Use of Hand Tools

Regulations regarding hand tools should be observed in addition to the guidelines provided below:

- Each tool should be used only to perform tasks for which it was originally designed.
- Damaged tools should be repaired before use or discarded.
- Safety goggles or glasses should be worn when using a hammer or chisel. Nearby co-workers and by-standers should be required to wear safety goggles or glasses also, or move away.

URS SAFETY MANAGEMENT STANDARD

Drilling Safety Guidelines

- To the extent practical, walk the planned route of travel and inspect it for depressions, gullies, ruts, and other obstacles.
- Check the brakes of the truck/carrier, especially if the terrain along the route of travel is rough or sloped.
- Discharge all passengers before moving on rough or steep terrain.
- Engage the front axle (on 4x4, 6x6, etc. vehicles) before traversing rough or steep terrain.

Driving drill rigs along the sides of hills or embankments should be avoided; however, if side-hill travel becomes necessary, the operator must conservatively evaluate the ability of the rig to remain upright while on the hill or embankment. The possibility must be considered that the presence of drilling tools on the rig may reduce the ability of the rig to remain upright (raises the center of mass of the rig).

Logs, ditches, road curbs, and other long and horizontal obstacles should be normally approached and driven over squarely, not at an angle.

When close lateral or overhead clearance is encountered, the driver of the rig should be guided by another person on the ground.

Loads on the drill rig and truck must be properly stored while the truck is moving, and the mast must be in the fully lowered position.

After the rig has been positioned to begin drilling, all brakes and/or locks must be set before drilling begins. If the rig is positioned on a steep grade and leveling of the ground is impossible or impractical, the wheel of the transport vehicle should be blocked and other means of preventing the rig from moving or tipping over employed.

C. Buried and Overhead Utilities

The location of overhead and buried utility lines must be determined before drilling begins, and the locations should be noted on boring plans and/or assignment sheets.

When overhead power lines are close by, the drill rig mast should not be raised unless the distance between the rig and the nearest power line is at least 20 feet (7 meters) or other distance as required by local ordinances, whichever is greater. The drill rig operator or assistant should walk completely around the rig to make sure that proper distance exists.

When the drill rig is positioned near an overhead line, the rig operator should be aware that hoist lines and power lines can be moved towards each other by wind. When necessary and approved by the Project

URS SAFETY MANAGEMENT STANDARD Drilling Safety Guidelines

2. Other Gear

Items listed below should be worn when conditions warrant their use. Some of the conditions are listed after each item.

- **Safety Harnesses and Lifelines:** Safety harnesses and lifelines shall be worn by all persons working on top of an elevated derrick beam or mast. The lifeline should be secured at a position that will allow a person to fall no more than six feet (2 meters). OSHA Fall Protection (1926 Subpart M) requirements apply.
- **Life Vests:** Use for work over water.

5. Resources

- A. International Association of Drilling Contractors Safety Alerts
<http://iadc.org/alerts.htm>
- B. Fall Protection - SMS 040
- C. Hearing Conservation - SMS 026
- D. Subcontractor Health and Safety Requirements - SMS - 046
- E. Utility Clearances and Isolation - SMS 034

URS SAFETY MANAGEMENT STANDARD

Drilling Safety Guidelines

- Tools should be kept cleaned and stored in an orderly manner when not in use.

G. Safe use of Wire Line Hoists, Wire Rope, and Hoisting Hardware

Safety rules described in Title 29 Code of Federal Regulations (CFR) 1926.552 and guidelines contained in the Wire Rope User's Manual published by the American Iron and Steel Institute shall be used whenever wire line hoists, wire rope, or hoisting hardware are used. The driller should provide written reports (upon request) documenting inspections of equipment.

H. Traffic Safety

Drilling in streets, parking lots or other areas of vehicular traffic requires definition of the work zones with cones, warning tape, etc. and compliance with local police requirements.

I. Fire Safety

- Fire extinguishers (type ABC) shall be kept on or near drill rigs for fighting small fires.
- If methane or other flammable gases or vapors are suspected in the area, a combustible gas indicator (CGI) shall be used to monitor the air near the borehole with all work to stop at 20 percent of the Lower Explosive Limit (LEL).
- Work shall stop during lightning storms.

J. Protective Gear

1. Minimum Protective Gear

Items listed below should be worn by all staff working within 30 feet (10 meters) of drilling activities.

- Hearing Protection;
- Hard Hat;
- Eye Protection (safety glasses, goggles, or face-shield)
- Safety Shoes (shoes or boots with steel toes)

Attachment B
MATERIAL SAFETY DATA SHEETS

DOD Hazardous Materials Information System

DoD 6050.5-LR

AS OF July 1995

Proprietary Version - For U.S. Government Use Only

681D

: 00N006588

Manufacturer's CAGE: 52519

Part No. Indicator: A

Part Number/Trade Name: ISOPROPYL ALCOHOL

General Information

-Item Name:

Company's Name: KEPRO CIRCUIT SYSTEMS, INC (CHEMTECH IND. INC)

Company's Street: 630 AXMINSTER DR

Company's P. O. Box:

Company's City: FENTON

Company's State: MD

Company's Country: US

Company's Zip Code: 63026-2906

Company's Emerg Ph #:

Company's Info Ph #:

Distributor/Vendor # 1:

Distributor/Vendor # 1 Cage:

Distributor/Vendor # 2:

Distributor/Vendor # 2 Cage:

Distributor/Vendor # 3:

Distributor/Vendor # 3 Cage:

Distributor/Vendor # 4:

Distributor/Vendor # 4 Cage:

Safety Data Action Code:

Safety Focal Point: N

Order No. For Safety Entry: 001

Total Safety Entries This Stk#: 001

Status:

Date MSDS Prepared: 01JAN87

Safety Data Review Date: 02DEC85

Supply Item Manager: =

MSDS Preparer's Name:

Preparer's Company:

Preparer's St Or P. O. Box:

Preparer's City:

Preparer's State:

Preparer's Zip Code:

Other MSDS Number:

MSDS Serial Number: BCNDB

Specification Number:

Spec Type, Grade, Class:

Hazard Characteristic Code:

Unit Of Issue:

Unit Of Issue Container Qty:

Type Of Container:

Net Unit Weight:

Reactivity Data

Stability: YES
Cond To Avoid (Stability):
Materials To Avoid: STRONG OXIDIZERS (I.E. PERMANGANATE)
Hazardous Decomp Products: CARBON MONOXIDE FROM BURNING
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NONE

Health Hazard Data

LD50-LC50 Mixture:
Route Of Entry - Inhalation: N/P
Route Of Entry - Skin: N/P
Route Of Entry - Ingestion: N/P
Health Haz Acute And Chronic:
Carcinogenicity - NTP: N/P
Carcinogenicity - IARC: N/P
Carcinogenicity - OSHA: N/P
Explanation Carcinogenicity:
Signs/Symptoms Of Overexp: SKIN & EYE IRRIT. BREATHING OF VAPS MAY IRRIT
NOSE & THROAT. IN HIGH CONC, MAY CAUSE (SEE SUPP DATA)
Med Cond Aggravated By Exp:
Emergency/First Aid Proc: SKIN: WASH W/SOAP & H*2O. EYES: FLUSH W/H*2O FOR
15 MIN. GET MEDICAL ATTENTION. INGESTION: INDUCE VOMITING. GET MEDICAL
ATTENTION IMMEDIATELY. INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICIAL
RESPIRATION IF NECESSARY. CALL A PHYSICIAN.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: ELIMINATE ALL SOURCES OF IGNITION. AVOID
BREATHING VAPORS. VENTILATE AREA. REMOVE W/INERT ABSORBENT & NON-SPARKING
TOOLS.
Neutralizing Agent:
Waste Disposal Method: WASTE DISPOSAL MUST BE IAW FEDERAL, STATE & LOCAL
REGULATIONS.
Precautions-Handling/Storing: DONT STORE ABOVE 120F. STORE LRG AMTS IN
STRUCTURES MADE FOR NFPA CLASS 1B LIQUIDS. CNTNRS SHOULD BE GROUNDED WHEN
POURING. AVOID FREE FALL OF LIQUID.
Other Precautions: FLAMMABLE. DONT FLAME CUT, BRAZE, WELD. USE ONLY W/
ADEQUATE VENT. AVOID PRLNG BREATHING OF VAP/SPRAY MIST. AVOID CONT W/EYES,
SKIN. DONT TAKE INTERNALLY. KEEP CLOSURES TIGHT & UPRIGHT TO PREV LEAK.

Control Measures

Respiratory Protection: FOR EMERGENCY: NIOSH/MSHA APPRVD ORGANIC CANISTER
OR SCBA
Ventilation: LOCAL EXHAUST PREFERABLE
Protective Gloves: RUBBER GLOVES
Eye Protection: CHEMICAL SAFETY GOGGLES
Other Protective Equipment: PROTECTIVE GLOVES SHOULD BE SOLVENT RESISTANT
Work Hygienic Practices:

Report for NIIN: D0N006588

NRC/State License Number: N/A
Net Explosive Weight:
Net Propellant Weight-Ammo: N/A
Coast Guard Ammunition Code:

Ingredients/Identity Information

Proprietary: NO
Ingredient: ISOPROPYL ALCOHOL (SARA III)
Ingredient Sequence Number: 01
Percent: 100
Ingredient Action Code:
Ingredient Focal Point: N
NIOSH (RTECS) Number: NT8050000
CAS Number: 67-63-0
OSHA PEL: 400 PPM/500 STEL
ACGIH TLV: 400 PPM/500STEL;9192
Other Recommended Limit:

Physical/Chemical Characteristics

Appearance And Odor: CLEAR,COLORLESS LIQUID; ODOR CHARACTERISTIC
Boiling Point: 177-182F
Melting Point:
Vapor Pressure (MM Hg/70 F): 33
Vapor Density (Air=1): 2.1
Specific Gravity: 0.7863
Decomposition Temperature:
Evaporation Rate And Ref: 1.7 (BU AC)
Solubility In Water: COMPLETE
Percent Volatiles By Volume: 100
Viscosity:
pH:
Radioactivity:
Form (Radioactive Matl):
Magnetism (Milligauss): N/P
Corrosion Rate (IPY):
Autoignition Temperature:

Fire and Explosion Hazard Data

Flash Point: 53F (TCC)
Flash Point Method: N/P
Lower Explosive Limit: 2.1
Upper Explosive Limit: 12
Extinguishing Media: CO*2, DRY CHEMICAL, ALCOHOL FOAM
Special Fire Fighting Proc: H*2O SPRAY POSS INEFFECTIVE, MAY BE USED TO COOL CLOSED CNTNR
Unusual Fire And Expl Hazrds: KEEP AWAY FROM HEAT, SPARKS & OPEN FLAME

DDO Hazardous Materials Information System

DoD 6050.5-LR

AS OF July 1995

Proprietary Version - For U.S. Government Use Only

: 6810

N: 000002609

Manufacturer's CAGE: 68223

Part No. Indicator: A

Part Number/Trade Name: NITRIC ACID

General Information

Item Name:

Company's Name: I-CHEM RESEARCH

Company's Street: 23787-F EICHLER STREET

Company's P. O. Box:

Company's City: HAYWARD

Company's State: CA

Company's Country: US

Company's Zip Code: 94505-2783

Company's Emerg Ph #: 415-782-3905/800-443-1689(EXC. CA)

Company's Info Ph #: 415-782-3905/800-262-5006(CA)

Distributor/Vendor # 1:

Distributor/Vendor # 1 Cage:

Distributor/Vendor # 2:

Distributor/Vendor # 2 Cage:

Distributor/Vendor # 3:

Distributor/Vendor # 3 Cage:

Distributor/Vendor # 4:

Distributor/Vendor # 4 Cage:

Safety Data Action Code:

Safety Focal Point: D

Word No. For Safety Entry: 001

Total Safety Entries This Stk#: 001

Status: SE

Date MSDS Prepared: 12SEP86

Safety Data Review Date: 29AUG90

Supply Item Manager: CX

MSDS Preparer's Name:

Preparer's Company:

Preparer's St Or P. O. Box:

Preparer's City:

Preparer's State:

Preparer's Zip Code:

Other MSDS Number:

MSDS Serial Number: BXLH

Specification Number:

Spec Type, Grade, Class:

Hazard Characteristic Code: J6

Unit Of Issue: AM

Unit Of Issue Container Qty: 5-5 ML AMPOUL

Type Of Container: CASE

Net Unit Weight:

Report for NIIN: 00ND06588

Suppl. Safety & Health Data: EFFECTS OF OVEREXPOSURE: NAUSEA, DIZZINESS,
HEADACHES, STUPOR. INGESTION IS HARMFUL, CAUSING SIMILAR EFFECTS.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): HIGH TEMPERATURES, LIGHT, MOISTURE.
Materials To Avoid: STRONG BASES, COMBUSTIBLE MATERIALS, STRONG REDUCING AGENTS, ALKALIES, MOST COMMON METALS, ORGANIC MATERIALS, CARBIDE.
Hazardous Decomp Products: NITROGEN OXIDES, HYDROGEN.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT APPLICABLE

Health Hazard Data

LD50-LC50 Mixture: LD50 (ORAL RAT) IS UNKNOWN
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: CORROSIVE TO EYES, SKIN, TEETH. INHALATION MAY CAUSE DELAYED PULMONARY EDEMA, PNEUMONITIS, BRONCHITIS. INGESTION IS HARMFUL AND MAY BE FATAL.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NONE OF THE CHEMICALS IN THIS PRODUCT IS LISTED BY IARC, NTP OR OSHA AS A CARCINOGEN.
Signs/Symptoms Of Overexp: EYES/SKIN:SEVERE IRRITATION OR BURNS. INHALATION:SEVERE IRRITATION OF RESPIRATORY SYSTEM, COUGH, NAUSEA, VOMITING, LIGHTEADEDNESS, HEADACHES, CHEST PAINS, DIFFICULT BREATHING, UNCONSCIOUSNESS. INGESTION:CORROSIVE TO DIGESTIVE SYSTEM.
Cond Aggravated By Exp: NONE NOTED.
Emergency/First Aid Proc: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. IF SWALLOWED, DO NOT INDUCE VOMITING. IF CONSCIOUS, GIVE WATER, MILK OR MILK OF MAGNESIA. FOR ANY CONDITION, SEEK MEDICAL ATTENTION.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: WEAR RESPIRATOR, PROTECTIVE CLOTHING, GLOVES AND GOGGLES. NEUTRALIZE SPILL WITH SODA ASH. PLACE IN DISPOSAL CONTAINER AND COVER. FLUSH SPILLED AREA WITH WATER. KEEP COMBUSTIBLES AWAY FROM SPILLED MATERIAL.
Neutralizing Agent: NEUTRALIZE SPILL WITH SODA ASH OR LIME.
Waste Disposal Method: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS.
Precautions-Handling/Storing: KEEP CONTAINERS TIGHTLY CLOSED. STORE SEPARATELY AND AWAY FROM FLAMMABLE AND COMBUSTIBLE MATERIALS.
Other Precautions: NONE.

Report for NIIN: 000002609

NRC/State License Number:
Net Explosive Weight:
Net Propellant Weight-Ammo:
Coast Guard Ammunition Code:

=====
Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: NITRIC ACID (SARA III)
Ingredient Sequence Number: 01
Percent: 65-75
Ingredient Action Code:
Ingredient Focal Point: D
NIOSH (RTECS) Number: QU5775000
CAS Number: 7697-37-2
OSHA PEL: 2 PPM/4 STEL
ACGIH TLV: 2 PPM/4 STEL; 9192
Other Recommended Limit: NOT ESTABLISHED

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: COLORLESS LIQUID WITH CHOKING ODOR.
Boiling Point: 250F, 121C
Melting Point: N/R
Vapor Pressure (MM Hg/70 F): UNKNOWN
Vapor Density (Air=1): UNKNOWN
Specific Gravity: 1.41
Decomposition Temperature: UNKNOWN
Evaporation Rate And Ref: UNKNOWN
Solubility In Water: COMPLETE
Percent Volatiles By Volume:
Viscosity:
pH:
Radioactivity:
Form (Radioactive Matl):
Magnetism (Milligauss): N/P
Corrosion Rate (IPY): UNKNOWN
Autoignition Temperature:

=====
Fire and Explosion Hazard Data
=====

Flash Point: NONE
Flash Point Method: N/P
Lower Explosive Limit: N/R
Upper Explosive Limit: N/R
Extinguishing Media: USE WATER SPRAY.
Special Fire Fighting Proc: FIRE FIGHTERS SHOULD USE NIOSH APPROVED SCBA &
FULL PROTECTIVE EQUIPMENT WHEN FIGHTING CHEMICAL FIRE. USE WATER SPRAY TO
COOL NEARBY CONTAINERS EXPOSED TO FIRE.
Unusual Fire And Expl Hazrds: STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL
MAY CAUSE FIRE. MAY PRODUCE TOXIC NITROGEN OXIDES AND EXPLOSIVE HYDROGEN.

DDO Hazardous Materials Information System

DoD 6050.5-LR

AS OF July 1995

Proprietary Version - For U.S. Government Use Only

6810

NTIN: 00F031210

Manufacturer's CAGE: COMIN

Part No. Indicator: A

Part Number/Trade Name: SULFURIC ACID

General Information

Item Name:

Company's Name: COMINCO AMERICAN

Company's Street: N/K

Company's P. O. Box: 3087

Company's City: SPOKANE

Company's State: WA

Company's Country: US

Company's Zip Code: 99220

Company's Emerg Ph #: 509-747-6111

Company's Info Ph #: 509-747-6111

Distributor/Vendor # 1:

Distributor/Vendor # 1 Cage:

Distributor/Vendor # 2:

Distributor/Vendor # 2 Cage:

Distributor/Vendor # 3:

Distributor/Vendor # 3 Cage:

Distributor/Vendor # 4:

Distributor/Vendor # 4 Cage:

Safety Data Action Code:

Safety Focal Point: F

Record No. For Safety Entry: 001

Tot Safety Entries This Stk#: 001

Status: SE

Date MSDS Prepared: 01FEB92

Safety Data Review Date: 12NOV93

Supply Item Manager:

MSDS Preparer's Name:

Preparer's Company: COMINCO AMERICAN

Preparer's St Or P. O. Box: N/K

Preparer's City: SPOKANE

Preparer's State: WA

Preparer's Zip Code: 99220

Other MSDS Number:

MSDS Serial Number: BSMWF

Specification Number:

Spec Type, Grade, Class:

Hazard Characteristic Code:

Unit Of Issue:

Unit Of Issue Container Qty:

Type Of Container:

Net Unit Weight:

Control Measures

Respiratory Protection: USE NIOSH/MSHA-APPROVED RESPIRATOR WITH ACID CARTRIDGE OR SCBA AS APPROPRIATE FOR THE EXPOSURE OF CONCERN.

Ventilation: MECHANICAL (GENERAL) VENTILATION IS REQUIRED. LOCAL EXHAUST MAY BE REQUIRED IF WORK AREA IS NOT VENTED.

Protective Gloves: RUBBER.

Eye Protection: GOGGLES OR FACESHIELD.

Other Protective Equipment: SAFETY SHOWER AND EYE BATH. OTHER EQUIPMENT AS REQUIRED TO MINIMIZE EXPOSURE FROM PROLONGED OR REPEATED CONTACT.

Work Hygienic Practices: WASH THOROUGHLY AFTER HANDLING AND BEFORE EATING. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.

Suppl. Safety & Health Data: CONTRACT # DLA 120-90-A-9068???? .

Report for MIIN: 00F031210

Other Recommended Limit: N/K

Proprietary: NO
Ingredient: NITRIC ACID, HYDROGEN NITRATE
Ingredient Sequence Number: 05
Percent: .0002
Ingredient Action Code:
Ingredient Focal Point: F
NIOSH (RTECS) Number: Q05775000
CAS Number: 7697-37-2
OSHA PEL: 5 MG/CUM
ACGIH TLV: 5.2 MG/CUM
Other Recommended Limit: N/K

Physical/Chemical Characteristics

Appearance And Odor: COLORLESS, PURE-TO-DARK BROWN, OILY, DENSE LIQUID.
Boiling Point: 626F
Melting Point: 50F
Vapor Pressure (MM Hg/70 F): 1
Vapor Density (Air=1): 2.8
Specific Gravity: 1.836
Decomposition Temperature: N/K
Evaporation Rate And Ref: N/K
Solubility In Water: COMPLETE
Percent Volatiles By Volume: 100
Viscosity:
pH: N/K
Radioactivity:
 n (Radioactive Matl):
 magnetism (Milligauss):
Corrosion Rate (IPY): N/K
Autoignition Temperature:

Fire and Explosion Hazard Data

Flash Point: N/K
Flash Point Method: N/P
Lower Explosive Limit: N/K
Upper Explosive Limit: N/K
Extinguishing Media: NONFLAMMABLE LIQUID
Special Fire Fighting Proc: NONFLAMMABLE, BUT CAPABLE OF IGNITING FINELY DIVIDED COMBUSTIBLE MATERIALS ON CONTACT. USE AN APPROVED SCBA & FULL PROTECTIVE CLOTHING.
Unusual Fire And Expl Hazrds: USE WATER ON BURNING COMBUSTIBLES, BUT USE CAUTION AS WATER APPLIED DIRECTLY TO THIS ACID RESULTS IN THE EVOLUTION OF HEAT/SPLATTERING.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): HEAT
Materials To Avoid: WATER, BASES, NITRATES, CARBIDES, CHLORATES, FINE

Report for NIIN: OOF031210

NRC/State License Number:
Net Explosive Weight:
Net Propellant Weight-Ammo:
Coast Guard Ammunition Code:

Ingredients/Identity Information

Proprietary: NO
Ingredient: SULFURIC ACID IC=INTENDED CHANGES
Ingredient Sequence Number: 01
Percent: 93
Ingredient Action Code:
Ingredient Focal Point: F
NIOSH (RTECS) Number: WS5600000
CAS Number: 7664-93-9
OSHA PEL: 1 MG/CUM
ACGIH TLV: 1 MG/CUM=IC
- Other Recommended Limit: N/K

Proprietary: NO
Ingredient: SULFUR TRIOXIDE, SULFUR OXIDE, SULFUR ANHYDRIDE
Ingredient Sequence Number: 02
Percent: .014
Ingredient Action Code:
Ingredient Focal Point: F
NIOSH (RTECS) Number: WT4830000
CAS Number: 7446-11-9
OSHA PEL: N/K
- ACGIH TLV: N/K
Other Recommended Limit: N/K

Proprietary: NO
Ingredient: IRON
Ingredient Sequence Number: 03
Percent: .007
Ingredient Action Code:
Ingredient Focal Point: F
NIOSH (RTECS) Number: NO4565500
CAS Number: 7439-89-6
OSHA PEL: N/K
ACGIH TLV: N/K
Other Recommended Limit: N/K

Proprietary: NO
Ingredient: HEAVY METALS (TYPE NOT SPECIFIED)
Ingredient Sequence Number: 04
Percent: .0005
Ingredient Action Code:
Ingredient Focal Point: F
NIOSH (RTECS) Number: 1000104HM
CAS Number:
OSHA PEL: N/K
ACGIH TLV: N/K

Report for NIIN: 00F031210

Eye Protection: SAFETY GOGGLES & FULL FACE SHIELD

Protective Equipment: ACID HOOD, RUBBER BOOTS, APRON & LONG SLEEVED
HAT/TROUSERS MADE OF WOOL OR OTHER ACID-RESISTANT FIBER, FULL ACID SUIT.

Work Hygienic-Practices: N/K

Suppl. Safety & Health Data: NOTE TO PHYSICIAN: TREAT FOR ACID BURN.

Report for NIIN: 00F031210

METALLICS, ARSENIC COMPOUNDS, SALTS, METALS
Hazardous Decomp Products: HYDROGEN GAS
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): N/K

Health Hazard Data

LD50-LC50 Mixture: N/K
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: INHALE: RESPIRATORY TRACT/LUNG TISSUE
DAMAGE. EYE: SEVERE DAMAGE/LOSS OF SIGHT. SKIN: DESTRUCTIVE TO TISSUE/
DERMATITIS. INGEST: RAPIDLY DESTRUCTIVE TO TISSUES. EXPOSURE TO MIST CAUSES
ETCHING OF DENTAL ENAMEL/POSSIBLE TOOTHLOSS OF SUBSTANCE/CONJUNCTIVITIS/
FREQUENT RESPIRATORY INFECTION/EMPHYSEMA/DIGESTIVE DISTURBANCES.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NONE
Signs/Symptoms Of Overexp: DEHYDRATION, BURNS OF BODY TISSUE.
Med Cond Aggravated By Exp: N/K
Emergency/First Aid Proc: EYES: FLUSH W/WATER FOR 15 MINUTES. CONTINUE
WASHING UNTIL MEDICAL ATTENTION IS OBTAINED. SKIN: FLUSH W/PLENTY OF WATER
FOR 15 MINUTES. CONTINUE WASHING UNTIL MEDICAL ATTENTION IS OBTAINED.
REMOVE CONTAMINATED CLOTHING. INGEST: DRINK LARGE AMOUNTS OF WATER. DON'T
INDUCE VOMITING. INHALE: REMOVE TO FRESH AIR. APPLY ARTIFICIAL RESPIRATION/
OXYGEN IF NECESSARY. OBTAIN MEDICAL ATTENTION IN ALL CASES.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: ISOLATE AREA. SHUT OFF LEAK W/OUT RISK. WEAR
PROTECTIVE EQUIPMENT & SCBA. KEEP AWAY FROM ACID STORAGE TANKS. NEUTRALIZE.
LEAVE NEUTRALIZED FOR AT LEAST 8 HOURS.
Neutralizing Agent: LIMESTONE OR SODA ASH
Waste Disposal Method: DISPOSE OF LIMESTONE APPROVED LANDFILL. DISPOSE OF
IN ACCORDANCE W/FEDERAL, STATE & LOCAL REGULATIONS. PRODUCT IS TOXIC TO
AQUATIC ORGANISMS, VEGETATION & ANIMALS. CARE MUST BE TAKEN TO KEEP SPILLS
OUT OF SEWERS, STREAMS, LAKES/OTHER BODIES OF WATER.
Precautions-Handling/Storing: STORE ONLY IN CLOSED CONTAINERS. WHEN
DILUTING, POUR ACID INTO WATER. DON'T ADD WATER TO ACID. KEEP CHEMICAL
COMPOUNDS AWAY FROM SULFURIC ACID.
Other Precautions: KEEP SCBA CLOSE WHEN HANDLING OR TRANSFERRING SULFURIC
ACID. HIGHLY CORROSIVE TO MOST METALS. PARTICULARLY AT CONCENTRATIONS
77.85%. NORMALLY STORED IN MILD STEEL AT CONCENTRATIONS.

Control Measures

Respiratory Protection: INDUSTRIAL CANISTER MASK MAY BE ADEQUATE FOR VAPOR
CONCENTRATIONS OF 2% OF LESS. A SCBA IS NEEDED FOR HIGHER VAPOR
CONCENTRATIONS & EXTENDED EXPOSURE.
Ventilation: N/K
Protective Gloves: ACID RESISTANT

Report for NIIN: ODF034367

NRC/State License Number:
Explosive Weight:
Propellant Weight-Ammo:
Coast Guard Ammunition Code:

=====
Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: SODIUM HYDROXIDE, CAUSTIC SODA, LYE
Ingredient Sequence Number: 01
Percent: 98-100
Ingredient Action Code:
Ingredient Focal Point: F
NIOSH (RTECS) Number: WB4900000
CAS Number: 1310-73-2
OSHA PEL: 2 MG/CUM
ACGIH TLV: 2 MG/CUM CEILING
Other Recommended Limit: 2MG/M3 CEILING NIOSH

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: WHITE SOLID PELLETS/FLAKES. OORLESS.
Boiling Point: 2534F
Melting Point: 604F
Vapor Pressure (MM Hg/70 F): <1
Vapor Density (Air=1): N/R
Specific Gravity: 2.13
Decomposition Temperature: N/K
Evaporation Rate And Ref: N/R
Solubility In Water: APPRECIABLE
Percent Volatiles By Volume: 0
Viscosity:
pH: 14
Radioactivity:
Form (Radioactive Matl):
Magnetism (Milligauss):
Corrosion Rate (IPY): N/K
Autoignition Temperature:

=====
Fire and Explosion Hazard Data
=====

Flash Point: N/R
Flash Point Method: CC
Lower Explosive Limit: N/R
Upper Explosive Limit: N/R
Extinguishing Media: APPROPRIATE FOR SURROUNDING FIRE.
Special Fire Fighting Proc: WEAR PROTECTIVE EQUIPMENT & SCBA W/FULL FACE
PIECE OPERATED IN POSITIVE PRESSURE MODE. FLOOD W/WATER SPRAY TO PREVENT
SPLASHING OF MATERIAL.
Unusual Fire And Expl Hazrds: CONTACT W/MOISTURE/WATER MAY GENERATE
SUFFICIENT HEAT & IGNITE COMBUSTIBLE MATERIALS. REACTS W/MOST METALS TO
PRODUCE HYDROGEN GAS/FORM EXPLOSIVE MIXTURES W/AIR

DOD Hazardous Materials Information System

DoD 6050.5-LR

AS OF July 1995

Proprietary Version - For U.S. Government Use Only

FSC: 6850

NIIN: 00F034367

Manufacturer's CAGE: 70829

Part No. Indicator: A

Part Number/Trade Name: SODIUM HYDROXIDE

General Information

Item Name:

Company's Name: J T BAKER INC

Company's Street: 222 RED SCHOOL LANE

Company's P. O. Box: N/K

Company's City: PHILLIPSBURG

Company's State: NJ

Company's Country: US

Company's Zip Code: 08865-2219

Company's Emerg Ph #: 908-859-2151

Company's Info Ph #: 908-859-2151

Distributor/Vendor # 1:

Distributor/Vendor # 1 Cage:

Distributor/Vendor # 2:

Distributor/Vendor # 2 Cage:

Distributor/Vendor # 3:

Distributor/Vendor # 3 Cage:

Distributor/Vendor # 4:

Distributor/Vendor # 4 Cage:

Safety Data Action Code:

Safety Focal Point: F

Record No. For Safety Entry: 001

Tot Safety Entries This Stk#: 001

Status: SE

Date MSDS Prepared: 09MAR92

Safety Data Review Date: 05MAY94

Supply Item Manager:

MSDS Preparer's Name:

Preparer's Company: J T BAKER INC

Preparer's St Or P. O. Box: 222 RED SCHOOL LANE

Preparer's City: PHILLIPSBURG

Preparer's State: NJ

Preparer's Zip Code: 08865-2219

Other MSDS Number:

MSDS Serial Number: BTNLD

Specification Number:

Spec Type, Grade, Class:

Hazard Characteristic Code:

Unit Of Issue:

Unit Of Issue Container Qty:

Type Of Container:

Net Unit Weight:

Report for NIIN: 00F034367

BREATHING APPARATUS IS ADVISED.

Exhaustion: GENERAL, LOCAL EXHAUST, VENT HOOD

Protective Gloves: NEOPRENE

Eye Protection: SAFETY GOGGLES

Other Protective Equipment: UNIFORM, APRON, LAB COAT

Work Hygienic Practices: REMOVE/LAUNDER CONTAMINATED CLOTHING BEFORE REUSE. WASH THOROUGHLY AFTER HANDLING.

Suppl. Safety & Health Data: NOTE TO PHYSICIAN: IN CASES OF SEVERE ESOPHAGEAL CORROSION, THE USE OF THERAPEUTIC DOSES OF STEROIDS SHOULD BE CONSIDERED. GENERAL SUPPORTIVE MEASURES W/CONTINUAL MONITORING OF GAS EXCHANGE, ACID-BASE BALANCE, ELECTROLYTES & FLUID INTAKE ARE ALSO REQUIRED.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): MOISTURE
Materials To Avoid: WATER/STRONG ACIDS/MOST METALS/COMBUSTIBLE MATERIALS/
ORGANIC MATERIALS/ZINC/ALUMINUM/PEROXIDES/HALOGENATED HYDROCARBONS
Hazardous Decomp Products: N/K
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): HYDROGEN GAS

Health Hazard Data

LD50-LC50 Mixture: N/K
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: INHALATION: SEVERE IRRITATION/BURNS TO
RESPIRATORY SYSTEM/PULMONARY EDEMA/LUNG INFLAMATION/MAY CAUSE RESPIRATORY
SYSTEM DAMAGE. SKIN: SEVERE IRRITATION/BURNS. EYES: SEVERE IRRITATION/
BURNS/PERMANENT DAMAGE. INGESTION: HARMFUL & MAY BE FATAL. SEVERE BURNS TO
MOUTH/THROAT/STOMACH.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NONE
Signs/Symptoms Of Overexp: IRRITATION/BURNS/NAUSEA/VOMITING
Med Cond Aggravated By Exp: DAMAGED SKIN
Emergency/First Aid Proc: INGESTION: DON'T INDUCE VOMITING. IF
CONSCIOUS/GIVE LARGE AMOUNTS OF WATER, FOLLOW W/DILUTED VINEGAR/FRUIT
JUICE/WHITES OF EGGS BEATEN W/WATER. INHALATION: REMOVE TO FRESH AIR. GIVE
OXYGEN/CPR IF NECESSARY. SKIN/EYES: IMMEDIATELY FLUSH W/PLENTY OF WATER FOR
15 MINS. OBTAIN MEDICAL ATTENTION IN ALL CASES. NOTE TO PHYSICIAN (SEE
SUPPLEMENTAL DATA)

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: WEAR SCBA & FULL PROTECTIVE CLOTHING. W/
CLEAN SHOVEL CAREFULLY PLACE INTO CLEAN, DRY CONTAINER & COVER. FLUSH AREA
W/WATER.
Neutralizing Agent: JT BAKER NEUTRACIT-2/BUCAIM ARE RECOMMENDED.
Waste Disposal Method: DISPOSE OF IN ACCORDANCE W/LOCAL/STATE & FEDERAL
REGULATIONS. CORROSIVE D002, D003. UN1823.
Precautions-Handling/Storing: KEEP CONTAINER TIGHTLY CLOSED. STORE IN
CORROSION-PROOF/DRY AREA. ISOLATE FROM INCOMPATIBLE MATERIALS. STORE
SEPARATELY.
Other Precautions: AVOID CONTACT W/SKIN/EYES/CLOTHING & BREATHING DUST.
USE W/ADEQUATE VENTILATION.

Control Measures

Respiratory Protection: AT CONCENTRATIONS UP TO 100 PPM, A HIGH-EFFICIENCY
PARTICULATE RESPIRATOR IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED

Attachment C
MEDICAL TRAINING CERTIFICATION

Training and Medical Monitoring Requirements

Name	40-hour OSHA	Supervisor Training	Annual Refresher	Respirator Fit Test	First Aid	CPR	Site Safety Orientation

Attachment D
ACCIDENT REPORT FORMS



Health and Safety Program
INCIDENT REPORT FORM

Attachment 49-1

Revised: 5/08/01

ADMINISTRATIVE INFORMATION:

URS Division/Company: _____

Project Office: _____

Project Number: _____

Date/Time of Incident: _____

Location/Client: _____

FOR INJURIES / ILLNESSES:

Name of Injured Employee _____

Job Title _____

Phone Number _____ Age _____

Sex Male Female

See a Doctor? Yes No
If yes, attach a doctor's report.

Describe Injury:

TYPE OF INCIDENT (Check all applicable items)			
<input type="checkbox"/> Illness	<input type="checkbox"/> Injury	<input type="checkbox"/> Fire, Explosion, Flash	<input type="checkbox"/> Unexpected Exposure
<input type="checkbox"/> Property Damage	<input type="checkbox"/> Vehicular Accident	<input type="checkbox"/> Other (describe):	

DESCRIPTION OF INCIDENT: (Describe the facts contributing to the incident. Identify individuals involved, witnesses, and their affiliations. Attach additional sheets, drawings, or photographs as needed.)



Health and Safety Program
INCIDENT REPORT FORM

Attachment 49-1

Revised: 5/08/01

PREPARED BY:

Name: _____

Date: _____

Signature: _____

Reporter must deliver this report to the operating unit health and safety representative within 24 hours of the reported incident for medical treatment cases and within 5 days for other incidents.

REVIEWED BY:

Supervisor Date

Health and Safety Representative Date

DISTRIBUTION:

- Division Health and Safety Manager
- Project File
- Occupational Health Specialist (Fax 512-419-6413)
- Local Human Resources (Injury / Illness cases only)

CORRECTIVE ACTONS *(For Internal Use Only):*

Attachment E
HAZARD ASSESSMENT CERTIFICATION FORMS

URS Corporation**URS Corporation Health & Safety Program
HAZARD ASSESSMENT CERTIFICATION FORM**Location: Pelham Range, AlabamaJob No: 655730Date: 7/19/01Assessment Conducted by: Chad WebbSpecific tasks performed at this location: UXO avoidance, vegetation cutting, soil sampling, and drilling

Are any of the following present during the task?		No	Yes (Hazard Present)	Eliminate Hazard or Use Following PPE
Overhead Hazards				
1.	Suspended loads that could fall		✓	Hard hat, ANSI Class A, B
2.	Overhead beams or load that could strike head	X		Hard hat, ANSI Class A, B
3.	Energized wires or equipment that could strike head	X		Hard hat, ANSI Class B
4.	Employees working above at an elevated site who could drop objects on others below	X		Hard hat, ANSI Class A, B
5.	Sharp objects or corners at head level	X		Hard hat, ANSI Class A, B or C
Eye Hazards				
6.	Chemical splashes or irritating mists	X		Chemical protective goggles See Attachment 29-3
7.	Excessive dust	X		Safety glasses or impact goggles
8.	Smoke & fumes	X		Chemical protective goggles
9.	Welding operations	X		See Attachment 29-3 and 29 T-1
10.	Lasers/optical radiation	X		See Attachment 29-3 and Reference F
11.	Projectiles	X		See Attachment 29-3
12.	Sawing, cutting, chipping, grinding		✓	See Attachment 29-3
Face Hazards				
13.	Chemical splashes or irritating mists	X		Face shield if chemical is irritating to the skin or is corrosive. See Attachment 29-3
14.	Welding operations	X		See Attachment 29-3 and 29-T1
15.	Projectiles		✓	See Attachment 29-3 and face shield
Hand Hazards				
16.	Chemical exposure	X		Use resistant gloves as recommended by manufacturer - See Best Chemrest Guide
17.	Sharp edges, splinters, etc.		✓	Leather gloves

Location : Pelham Range, AL

Job No: 655730

Are any of the following present during the task?		No	Yes (Hazard Present)	Eliminate Hazard or Use Following PPE
39.	Welding activities	X		Welding leathers for those areas that are exposed to flame, spark or molten metal
Respiratory Hazards				
40.	See SMS for RESPIRATORY PROTECTION for selection guidance	X		
Excessive Noise				
41.	Exposure to noise		✓	Ear plugs or muffs
Body and Leg Protection				
42.	Chemical exposure	X		Have local DMG H&S representative assist you in proper selection
43.	Using chainsaw, cutting brush		✓	Chainsaw chaps

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on Pelham Range 7/19/01.


Signature

Attachment F
ACTIVITY HAZARD ANALYSIS FORM

ACTIVITY HAZARD ANALYSIS

<p>1. Contract No. DACA01-95-D-0015</p>	<p>2. Contract Name Delivery Order No. 30</p>	<p>3. Office Mobile Corps</p>
<p>4. Date 7/19/01</p>	<p>5. Location Pelham Range</p>	<p>6. Estimated Start Date July 2001</p>
<p>7. Activity Manual Vegetation Removal</p>	<p>8. Analyzed By Webb</p>	<p>9. Initial/Update Hazard Analysis</p>
<p>10. Principal Steps of Operation UXO qualified personnel will use hand and power tools to cut vegetation. Vegetation will then be removed from the site to a common area.</p>	<p>11. Potential Hazards UXO encounter Slips, trips, and falls Handling heavy objects Sharp objects High noise levels Biological hazards Heat stress Cutting equipment</p>	<p>12. Precautionary Actions or Controls to be Implemented Mark and report all UXO located. Only necessary personnel will be in the survey area. Do not move any UXO or fuzed ordnance Conduct fluxgate gradiometer and/or magnetometer sweep and keep distance from metal objects Be alert and observe terrain while walking to minimize slips and falls Remove trip hazards from walkways and be aware of wet surfaces Observe proper lifting techniques Obey sensible lifting limits Wear curt resistant gloves when necessary Maintain tools in safe conditions Keep guards in place during use Wear protective leggings Use hearing protection when exposed to noise greater than 85 dBA over an 8-hour time weighted average Review injury potential with personnel Mark of bee, yellow jacket, and wasp nests Use PPE Identify and review plant hazards, avoidance, and first aid procedures Implement heat stress management techniques such as frequent breaks, monitoring fluid intake, and monitoring employees Wear appropriate PPE (face shields, ear muffs, leggings/chaps, etc.) Maintain firm footing Kick-back and/or guards in place Maintain sharp cutting surfaces Work/rest regime</p>

ACTIVITY HAZARD ANALYSIS		
1. Contract No. DACA01-95-D-0015	2. Contract Name Delivery Order No. 30	3. Office Mobile Corps
4. Date 2/3/97	5. Location Pelham Range	6. Estimated Start Date July 2001
7. Activity Site walkover; sample location layout	8. Analyzed By Sullivan/Wesh	9. Initial/Update Hazard Analysis
10. Principal Steps of Operation Conduct EOD surface sweep to ensure work area is free of UXO (e.g., Mark 26 Ferrous Ordnance Locator) Swept area will be marked with banner tape Site walkover Sample location layout Mark sample locations with flags	11. Potential Hazards UXO encounter Trips, slips, and falls from uneven surfaces and heavy vegetation Allergic reaction to poisonous plants Native wildlife such as snakes, ticks, insects, and rodents Back strain from carrying instruments Accidents from driving vehicles on uneven or unsafe surfaces (overturned vehicles or flat tires) Electrical hazards from faulty wiring or fallen electric lines Heat stress from extreme weather conditions	12. Precautionary Actions or Controls to be Implemented Conduct fluxgate gradiometer or magnetometer sweep and keep distance from metal objects. Be alert and observe terrain while walking to minimize slips and falls. Remove trip hazards from walkways and be aware of wet surfaces. Wear long-sleeved clothing and pants to minimize contact with irritant plants and protect against insect bites. Avoid wildlife when possible. In the case of an animal bite, administer first aid. Check for ticks when leaving wooded or vegetated areas. Determine whether staff members are allergic to bee stings and, if so, have medication available. Use proper lifting techniques; distribute heavy loads between two people Ensure maintenance has been performed on vehicles. A site surveillance on foot might be required to choose a clear driving path Wear seat belts Avoid electrical wires and fallen power lines Implement heat stress management techniques such as frequent breaks, monitoring fluid intake, and monitoring employees
13. Superintendent (Signature & Date)		14. Contractor/Project Manager (Signature & Date)

ACTIVITY HAZARD ANALYSIS

<p>1. Contract No. DACA01-95-D-0015</p>	<p>2. Contract Name Delivery Order No. 30</p>	<p>3. Office Mobile Corps</p>
<p>4. Date 2/3/97</p>	<p>5. Location Pelham Range</p>	<p>6. Estimated Start Date July 2001</p>
<p>7. Activity Surface, sediment, and subsurface soil sampling</p>	<p>8. Analyzed By Sullivan/Wesh</p>	<p>9. Initial Update Hazard Analysis</p>
<p>10. Principal Steps of Operation Conduct EOD subsurface sweep to ensure work area is free of UXO (e.g., Mark 26 Ferrous Ordnance Locator) Swept area will be marked with banner tape Collect surface samples with trowel</p>	<p>11. Potential Hazards UXO encounter Skin contact or inhalation of chemical contaminants in soil Back strain and muscle fatigue from lifting, shoveling, and augering techniques Eye and skin injuries Solvents splashing into eyes or on hands</p>	<p>12. Precautionary Actions or Controls to be Implemented Conduct magnetometer sweep and keep distance from metal objects. Minimize exposure to chemicals by conducting a review of suspected contaminants and implementing the use of PPE such as gloves or, as necessary, respiratory protection. Note wind direction and remain upwind when digging to minimize exposure to chemicals Wash hands prior to eating, drinking, etc. Use proper lifting techniques to prevent back strain. These include pre-life assessment, use of legs, and use of multiple personnel. Use slow, easy motions when shoveling, augering, and digging to decrease muscle strain. To prevent eye injuries, don eye protection when digging. Wear protective gloves when handling samples. Perform decontamination outside in natural ventilation. Use safety glasses and gloves when conducting decontamination.</p>
<p>13. Superintendent (Signature & Date)</p>		
<p>14. Contractor/Project Manager (Signature & Date)</p>		

ACTIVITY HAZARD ANALYSIS

<p>1. Contract No. DACA01-95-D-0015</p>	<p>2. Contract Name Delivery Order No. 30</p>	<p>3. Office Mobile Corps</p>
<p>4. Date 2/3/97</p>	<p>5. Location Pelham Range</p>	<p>6. Estimated Start Date July 2001</p>
<p>7. Activity Piezometer</p>	<p>8. Analyzed By Sullivan/Wesh</p>	<p>9. Initial/Update Hazard Analysis</p>
<p>10. Principal Steps of Operation Conduct EOD subsurface sweep to ensure work area is free of UXO (e.g., Mark 26 Ferrous Ordnance Locator) Swept area will be marked with banner tape Using drill rig, bore ground with hollow stem auger</p>	<p>11. Potential Hazards UXO encounter High-pressure hydraulic, water, and air lines used on drill rigs Moving the drill rig over uneven terrain that can cause vehicle to roll over or get stuck in a rut or mud Moving parts (i.e., augers) on the drill rig that can catch clothing. Also, free or falling parts from the drilling may cause head injury Underground pipelines and utility lines ruptured or damaged during active drilling operations (if applicable) Overhead utility wires (i.e., electrical and telephone) hazards when the drill rig boom is in the upright position (if applicable) Exposure to soil contaminants Exhaust, including carbon monoxide, from the drill rig</p>	<p>12. Precautionary Actions or Controls to be Implemented Conduct fluxgate gradiometer or magnetometer sweep and keep distance from metal objects. Inspect lines daily for weak spots or frays. Check to be sure pressure lines are secure. Be aware of hazards associated with moving heavy machinery. Check terrain in area when moving drill rig. Wear hard hats at all times when working around drill rig. Secure loose clothing. Inspect chains, lines, and cables daily for weak spots or frays. Contact Civil Engineering to determine the location of underground utilities. Position soil borings at least 5 ft away from the underground utilities. Position sample locations at least 20 ft away from overhead utility lines and be sure drill rig boom is lowered prior to moving the rig. Review contaminants suspected in soils and assess PPE. Also note wind direction and position employees upwind where possible.</p>

Piezometer (Continued)

<p>10. Principal Steps of Operation</p> <p>Using drill rig, bore ground with hollow stem auger (<i>continued</i>)</p> <p>Install temporary piezometer per field sampling plan</p> <p>Perform slug test</p> <p>Place soil cuttings back into borehole</p> <p>Prepare samples and collect samples for laboratory analysis</p> <p>Decontaminate equipment</p>	<p>11. Potential Hazards</p> <p>Audio hazard and a hindrance to communication from noise levels that exceed the OSHA action level of 85 dBA</p> <p>Moving the drill rig over uneven terrain that can cause the vehicle to roll over or get stuck in a rut or mud</p> <p>Injuries from cutting excess piping</p> <p>Injuries from handling setting pipe</p> <p>Electric hazards associated with the use of electrical equipment around water and wet surfaces</p> <p>Exposure to soil contaminants</p> <p>Solvents splashing into eyes or on hands</p>	<p>12. Precautionary Actions or Controls to be Implemented</p> <p>Use earmuffs and/or earplugs to effectively reduce noise levels.</p> <p>Be aware of hazards associated with moving heavy machinery. Check terrain in area when moving drill rig.</p> <p>Use proper tools and procedures when cutting pipe. Use eye and hand protection.</p> <p>Protect electrical extension cords from damage; inspect them prior to use and secure them in areas of high traffic.</p> <p>Review contaminants suspected in soils and assess PPE. Also note wind direction and position employees upwind where possible.</p> <p>Use safety glasses and gloves when conducting decontamination.</p>
<p>13. Superintendent (Signature & Date)</p>		<p>14. Contractor/Project Manager (Signature & Date)</p>

ACTIVITY HAZARD ANALYSIS		
1. Contract No.	2. Contract Name	3. Office
DACA01-95-D-0015	Delivery Order No. 30	Mobile Corps
4. Date 2/3/97	5. Location Pelham Range	6. Estimated Start Date July 2001
7. Activity Groundwater monitoring well installation	8. Analyzed By Sullivan/Wesh	9. Initial/Update Hazard Analysis
10. Principal Steps of Operation Conduct EOD surface sweep to ensure work area is free of UXO (e.g., Mark 26 Ferrous Ordnance Locator) Swept area will be marked with banner tape Using drill rig, bore ground with split spoon	11. Potential Hazards UXO encounter High-pressure hydraulic lines, water, and air lines used on drill rigs Moving the drill rig over uneven terrain that can cause the vehicle to roll over or get stuck in a rut or mud Moving parts (i.e., augers) on the drill rig that can catch clothing. Also, free or falling parts from the drilling may cause head injury Underground pipelines and utility lines ruptured or damaged during active drilling operations (if applicable) Overhead utility wires (i.e., electrical and telephone) hazards when the drill rig boom is in the upright position (if applicable) Exposure to soil contaminants. Exhaust, including carbon monoxide, from the drill rig	12. Precautionary Actions or Controls to be Implemented Conduct fluxgate gradiometer or magnetometer sweep and keep distance from metal objects. Inspect lines daily for weak spots or frays. Secure high-pressure lines. Be aware of hazards associated with moving heavy machinery. Check terrain in area when moving drill rig. Wear hard hats at all times when working around drill rig. Secure loose clothing. Inspect chains, lines, and cables daily for weak spots or frays. Contact Civil Engineering to determine the location of underground utilities. Position soil borings at least 5 ft away from the underground utilities. Position sample locations at least 20 ft away from overhead utility lines and be sure drill rig boom is lowered prior to moving the rig. Review contaminants suspected in soils and assess PPE. Also note wind direction and position employees upwind where possible.

Groundwater Monitoring Well Installation (Continued)

10. Principal Steps of Operation	11. Potential Hazards	12. Precautionary Actions or Controls to be Implemented
<p>Using drill rig, bore ground with split spoon (continued)</p> <p>Install well as per specifications</p>	<p>Audio hazard and a hindrance to communication from noise levels that exceed the OSHA action level of 85 dBA</p> <p>Injuries from cutting excess piping</p> <p>Skin irritation from contact with wet concrete</p> <p>Injuries from handling/setting pipe and handling bags of concrete or bentonite</p> <p>Electrical hazards associated with the use of electrical equipment around water and wet surfaces</p> <p>Exposure to soil contaminants</p> <p>Lifting hazards</p>	<p>Use earmuffs and/or earplugs to effectively reduce noise levels.</p> <p>Use proper tools and procedures when cutting pipe. Avoid contact with wet concrete. Use eye and hand protection when pouring concrete.</p> <p>Avoid contact with wet concrete. Use eye and hand protection when pouring concrete.</p> <p>Protect electrical extension cords for damage; inspect them prior to use and secure them in areas where traffic passes.</p>
<p>Develop well with electric submersible pump using power generator</p> <p>Place investigative-derived waste into drums</p> <p>Determine water quality using instrument to check pH, water turbidity, conductivity, and temperature</p> <p>Decontaminate equipment</p>	<p>Review contaminants suspected in soils and assess PPE. Also note wind direction and position employees upwind where possible.</p> <p>Use proper lifting techniques to prevent back strains. Lift heavy objects using legs and use multiple personnel.</p>	<p>Use safety glasses and gloves when conducting decontamination.</p>
13. Superintendent (Signature & Date)	14. Contractor/Project Manager (Signature & Date)	

ACTIVITY HAZARD ANALYSIS		
1. Contract No. DACA01-95-D-0015	2. Contract Name Delivery Order No. 30	3. Office Mobile Corps
4. Date 2/3/97	5. Location Pelham Range	6. Estimated Start Date July 2001
7. Activity Groundwater sampling using disposable equipment	8. Analyzed By Sullivan/Wesh	9. Initial/Update Hazard Analysis
10. Principal Steps of Operation Measure water level Set up well installing pump Collect water quality data Remove pump Collect sample with bailer	11. Potential Hazards Electrical hazards associated with the use of electrical equipment around water or wet surfaces Slips on muddy surfaces created by spilled water Back strain from lifting bailers or pumps from down-well depths and moving equipment (generators) to well locations Exposure to volatile organics when the wellhead is initially opened Water splashing in eyes during sampling Eye and skin injuries	12. Precautionary Actions or Controls to be Implemented Protect electrical extension cords from damage; inspect them prior to use and secure them in areas where traffic passes. Use ground fault circuit interrupters. Ensure that all purge water is placed in drums for removal to avoid slipping on wet surfaces. Be alert of wet areas to decrease slipping hazards. Use proper lifting and bailing techniques to prevent back strain. Lift heavy objects using legs and use multiple personnel. To minimize exposure to volatiles when the wellhead is initially open, do not stand directly over the well. Safety glasses will be worn at all times. Gloves (latex or nitrile) will be worn if necessary. To prevent eye and skin injuries, don eye protection and gloves when handling sampling materials.
13. Superintendent (Signature & Date)	14. Contractor/Project Manager (Signature & Date)	