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NWS EARLE  
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INSTALLATION RESTORATION PROGRAM

PHASE III -- REMEDIAL INVESTIGATION/FEASIBILITY STUDY

Naval Weapons Station Earle,  
Colts Neck, New Jersey

FINAL  
HEALTH AND SAFETY PLAN

June 1990

Prepared by:

Roy F. Weston, Inc.  
West Chester, Pennsylvania



**TO:** Members of the Technical Review Committee

**FROM:** R.C. Johnson,  
J.A. Williams, ROY F. WESTON, INC.

**DATE:** 7 June 1990

**PROJECT:** Naval Weapons Station, Earle, Colts Neck

**Work Order Number:** 1771-15-01

**SUBJECT:** Submission of Final Health and Safety Plan (HASP)

At the request of NAVFAC, we are enclosing a copy of the Final Health and Safety Plan (HASP). Responses to the Agencies Evaluation comments have been addressed and are incorporated in the revised HASP.

Should you have any questions, please call Rich Johnson at (215) 430-7315 or John Williams at (215) 430-7256.



### PRIMARY EMERGENCY CONTACTS

The following primary emergency contacts are available in the event of an emergency:

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Contact/Location/Name	Telephone Number
Fire	Base Fire Department 201-577-2000 (ext. 260)
Police	Base Security Police 201-577-2000 (ext. 457)
	Colts Neck 201-462-4343
	Leonardo 201-615-2100
Medical Facility	Base 201-577-2000 (ext. 311/300)
	Riverview Medical Ctr. 201-741-2700
24-hour ambulance	Base 201-577-2000 (ext. 311/300)
	External(Colts Neck Area) 201-462-4343
	External (Leonardo Area) 201-615-2121
WESTON Health and Safety	George Crawford 215-430-7406 Ted Blackburn 215-430-7419 Bob Schoenfelder 505-255-1445 (Radiation)
WESTON 24-hour Toxicological Service	800-424-8802
NIOSH Health Hazard Evaluation	513-684-4382
OSHA Technical Data Center	202-523-9700
Centers for Disease Control	404-452-4100
WESTON Equipment Stores	Bradford Linney 24-hour number 215-430-7440 800-841-3341 pager # 990-7418

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## LOCATION OF MEDICAL FACILITIES

A station site map will be available at each work location, clearly indicating the location of the closest station medical facility as well as the closest medical facilities off site.

### Directions to Riverview Medical Center (Red Bank, NJ)

#### From Colts Neck:

Proceed to the Main Gate, exit the station, and turn right onto Route 34 North (see Figure 1). Turn right on Route 537 (Country Road). Follow Route 537 until it terminates at Tinton Avenue. Turn right on Tinton Avenue, and turn left at the second street, Sycamore Avenue (Route 13A). Follow Sycamore Avenue to Broad Street (Route 35). Turn left (north) onto Broad Street. Follow Broad Street until it terminates at Front Street in downtown Red Bank. Turn right on Front Street; Riverview Medical Center will be on the left.

#### From Leonardo:

Exit the station, and turn left onto Route 36 East. Proceed about 2 miles, and bear right onto Locust Avenue just before Burger King. Upon coming to a five-road intersection after 1 mile on Locust Avenue, bear right, staying on Locust and travelling over a steel bridge that spans a small waterway. After crossing the bridge, turn left at the stop sign. Turn left at the first blinking yellow light, and go over the Oceanic Bridge spanning the Navesink River. After crossing the bridge onto River Road, turn right at the light. Follow River Road into Red Bank, about 5 miles, and look for Riverview Medical Center on the right.

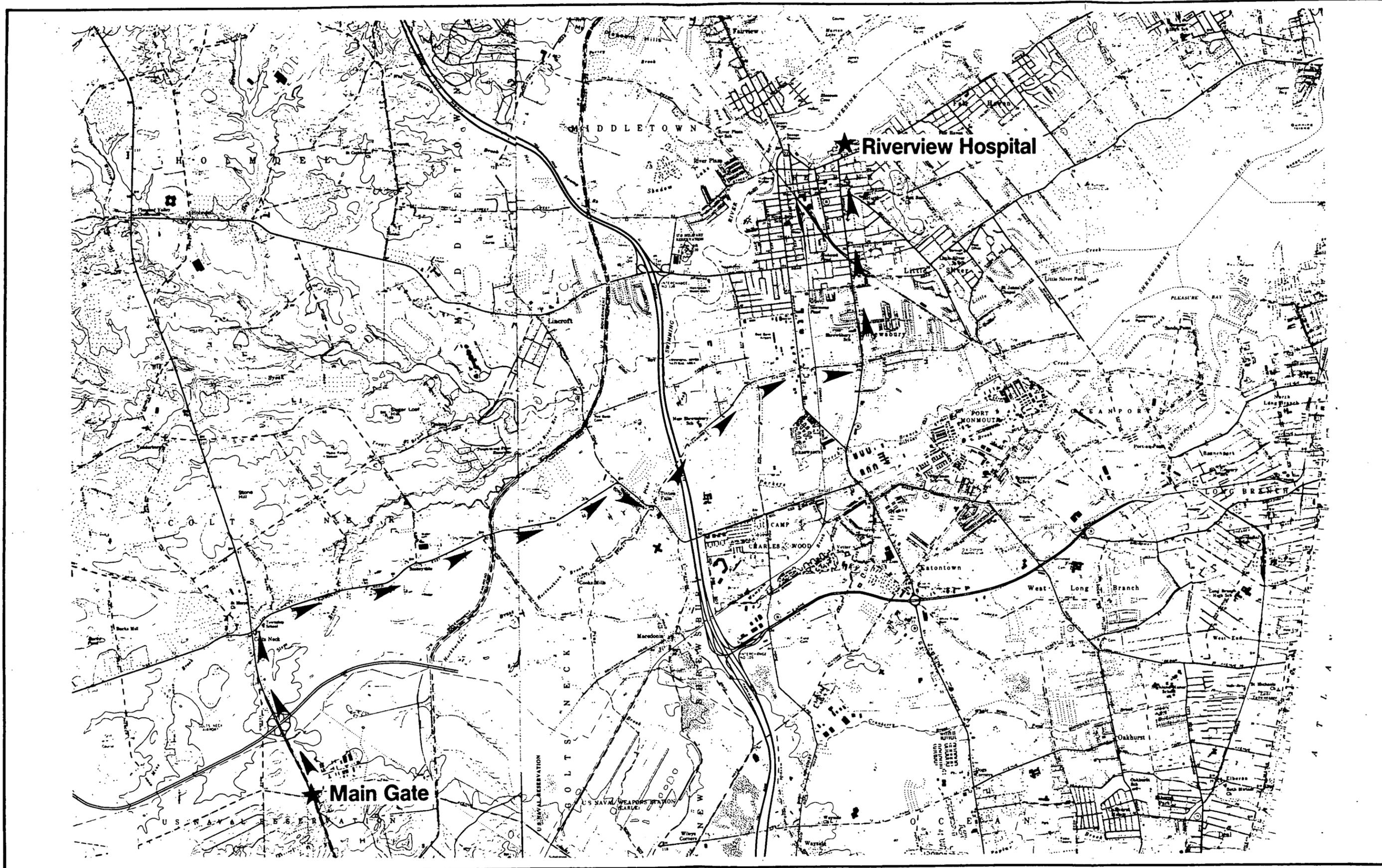


FIGURE 1 HOSPITAL ROUTE



**SECONDARY EMERGENCY CONTACTS**

The following are secondary emergency contacts for the NWS Earle remedial investigation/feasibility study (RI/FS).

After the emergency situation has stabilized and the proper emergency personnel have been contacted, the designated Site Health and Safety Coordinator (SHSC) will notify the following WESTON and U.S. Navy personnel:

**WESTON**

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Contact/Location/Name		Telephone Number
Richard C. Johnson	Project Manager	215-430-7315 (work)
Katherine A. Sheedy	Project Director	215-430-3047 (work)
Ted Blackburn	Corporate Health and Safety	215-430-7419 (work)

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**U. S. Navy**

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Contact/Location/Name		Telephone Number
Lt. Cdr. Dell	Station Point of Contact	201-577-2267/68
Adrian Townsel	Engineer in Charge	215-897-6431

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## SECTION 1

### INTRODUCTION

The purpose of this Health and Safety Plan (HSP) is to define specific procedures and protocols that will be implemented to ensure the health and safety of all Roy F. Weston, Inc. (WESTON) personnel and their subcontractors during field activities related to a remedial investigation/feasibility study (RI/FS) at Naval Weapons Station Earle (NWS Earle). This HSP is designed to complement and draws from information contained in the Draft Plan of Action and the Quality Assurance Project Plan (QAPP) prepared by WESTON.

A copy of the HSP will be given to each subcontractor, and a copy will be available at each work location. This HSP applies to all subcontractors of WESTON and all subcontractors to WESTON subcontractors. In addition, visitors to WESTON work locations on site will also be asked to adhere to WESTON health and safety protocols.

This HSP defines protection programs according to task activities at individual sites. These protection programs have been designed to account for known and potential unknown hazards. Monitoring equipment will be run continuously during activities unless otherwise stated. Readings from the monitoring equipment will be documented in the WESTON Site Health and Safety Log, which will be kept on site during activities and in the project files following the activities. Given the expected concentrations of contaminants and the anticipated activities, conservative protection programs will be designed so that the potential for exposure to and contact with contaminants is relatively low. If concentrations of contaminants are detected above expected levels during activities, protection programs will be upgraded by WESTON's Health and Safety Department. Any deviations from this HSP will be noted in WESTON's Site Health and Safety Log.

Consideration was given to the following references during development of this plan:

- WESTON health and safety operating practices.
- OSHA standards contained in 29 CFR 1900 to 1910.
- U.S. EPA Environmental Response Team operating guidelines.



- OSHA/NIOSH/EPA/Coast Guard "Occupational Health and Safety Guidelines for Activities at Hazardous Waste Sites."
- NIOSH Pocket Guide to Chemical Hazards.
- ACGIH Threshold Limit Values (1985 through 1987).
- Report of Current Situation and Draft Plan of Action, Naval Weapons Station Earle, Colts Neck, New Jersey (draft, December 1988).
- Quality Assurance Project Plan for NWS Earle (draft, April 1989).



## SECTION 2

### HEALTH AND SAFETY RESPONSIBILITIES

#### 2.1. WESTON AND WESTON SUBCONTRACTORS

WESTON will assign one individual to serve as Site Health and Safety Coordinator (SHSC) during each portion of scheduled field activities. That individual will be responsible for ensuring that all personnel and activities are in conformance with the protocols defined in this HSP. The SHSC will have complete control over health and safety matters on site. He or she may at any time stop a field activity if health and safety procedures are being compromised or are not sufficient. The SHSC will maintain direct contact with WESTON's Corporate Health and Safety Director.

If more than one field crew is required, one member from each crew will be assigned as the Field Safety Officer (FSO). The FSOs will have responsibility for health and safety compliance at each work location on site and will maintain contact with the SHSC.

WESTON's Corporate Health and Safety Director is ultimately responsible for ensuring that corporate health and safety programs are adhered to by all WESTON employees and subcontractors. With regard to site work at NWS Earle, the Corporate Health and Safety Director will review and approve this HSP. The SHSC, under the jurisdiction of the Corporate Health and Safety Director, will serve an audit function to ensure that the defined protocols are being implemented during field activities.

Other individuals responsible for the project's HSP include the Project Director and the Project Manager. The ultimate responsibility for project health and safety lies with the Project Director. In fulfillment of this responsibility, the Project Director and the Project Manager lend their support to site health and safety programs. Their support will be manifested by approving this HSP and by emphasizing the successful and safe completion of the project.

#### 2.2 VISITORS

Only visitors authorized by the Station Point of Contact (POC) will be permitted access to WESTON work locations. They will be required to follow policies and procedures outlined in this HSP.



Any visitor in the Exclusion or Contamination Reduction Zones will be expected to sign this HSP and will be expected to conform to applicable OSHA standards. Visitors will be required to provide their own personnel protection equipment. If necessary, WESTON can provide visitors with work area-specific orientation/training.

It is WESTON's intent to be helpful to visitors, but it is important for visitors to recognize work areas and safe zones. In the event that a visitor does not adhere to the provisions of this HSP, the SHSC will record non-conformance in the Site Safety Log. If the SHSC deems that the non-conformance is threatening to the health and safety of personnel, he/she may decide to temporarily suspend site operations.



## SECTION 3

### WESTON HEALTH AND SAFETY PROGRAM

#### 3.1 MEDICAL MONITORING

In compliance with OSHA standards, all personnel will be enrolled in a medical monitoring program. All WESTON personnel are required to monitor current medical status with an annual physical. Medical results and monitoring data for WESTON personnel are reviewed by an independent oversight group, Thomas Jefferson University, Philadelphia, PA. All subcontractor personnel will be required to have a medical monitoring program in place and must be certified by a physician to be medically fit to wear respiratory protection and to work with hazardous materials. The specific test parameters of the WESTON medical exam are as follows:

- Medical history questionnaire.
- Physical examination by physician.
- Vitals: height, weight, blood pressure, pulse.
- Audiometric test and questionnaire (0.5K, 1K, 2K, 3K, 4K, and 6K MHZ levels).
- Pulmonary function test (FVC and FEV1).
- Resting electrocardiogram (12 lead).
- Laboratory analysis -- Roche panel 95992.
  - Blood chemistry profile.
  - BC with differential.
  - Routine urinalysis.
  - Blood lead level and questionnaire.
  - Zinc protoporphyrin determination.
- Heavy metals testing -- Roche panel 94870.
- Urinary arsenic, mercury, cadmium.
- PA chest x-ray (one view).
- Other specific tests are performed on an individual basis.

### 3.2 PERSONNEL TRAINING

All WESTON personnel are required to attend the WESTON "Hazardous Incident Response Operations Course." This is currently a 40-hour training course. Individuals who have attended WESTON's 24- or 32-hour training courses meet the 40-hour requirement based on "grandfathering" of previous site experience. These courses certify WESTON personnel to perform various activities in potentially hazardous locations in EPA-designated levels of protection B and C. To serve as an SHSC, an individual must have additional training (8 hours), 24 hours of on-site experience in the prescribed level of protection, and final approval by WESTON's Corporate Health and Safety Director.

WESTON personnel document previous field experience by completing a WESTON Monthly Employee Health and Safety Report. This document is provided as an attachment in the form of an OSHA 100 log and is placed in the employee's file. Personnel who attended WESTON's 24- or 32-hour training courses were indoctrinated in procedures outlined in the "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" and EPA Executive Order 1440.2.

OSHA 29 CFR 1910.120 Subpart E-9 allows for the grandfathering of previous experience and training to meet the initial 40-hour training requirement for worker activities at uncontrolled hazardous waste sites.

Prior to commencement of intrusive activities on site, all personnel and subcontractors will attend a site-specific Health and Safety Orientation to familiarize project personnel with site-specific hazards, to ensure compliance with the HSP, and to fulfill "right-to-know" regulations. This training will include the following:

- Chemical hazards.
- Physical hazards.
- Levels of protection.
- Decontamination procedures.
- Emergency procedures/telephone numbers.
- Hospital/infirmiry directions.
- Health and safety chain-of-command.
- Respiratory checkout procedures.

The SHSC will conduct this orientation, and all personnel and subcontractors will be required to sign the HSP indicating that they understand this orientation and that any questions they may have had have been answered by the SHSC. In addition, confirmation of necessary training requirements must be checked off and signed by each WESTON employee and subcontractor before activities commence. These checklists and signatures will be

kept on site with the HSP and the Site Health and Safety Log and later kept in the project files.

### **3.3 SUBCONTRACTORS**

All subcontractors to WESTON will be required to comply with WESTON standards as a minimum. In addition, they must adhere to all pertinent Federal, State, and local health and safety standards.

The following information must be supplied by each subcontractor to WESTON:

- A general statement indicating that the subcontractor's Health and Safety Program is in compliance with applicable sections of 29 CFR 1910 and 1926. Specifically, the statement must identify that the subcontractor's employees are aware of and that the subcontractor is in compliance with the intent of OSHA standard, 1910.120, "Hazardous Waste Operations and Emergency Response."
- A statement indicating that all employees who will or may take part in site operations during NWS Earle RI/FS field activities are enrolled in and current with respect to a medical monitoring program that complies with OSHA standards.
- A statement indicating that the subcontractor will provide protective equipment for its own employees and that the equipment is NIOSH/OSHA approved.
- A statement indicating that the subcontractor and its employees will follow WESTON's Health and Safety Plan and that they will cooperate with WESTON's SHSC.
- A matrix or listing of each employee that will be or may be involved with the NWS Earle RI/FS project, including the following information for each employee:
  - Name.
  - Start date.
  - Medical date (certified fit to wear respiratory protection and to work on hazardous waste sites).
  - Training dates (specify type, quantity).
  - Experience in levels of protection (hours, weeks).
  - Years working in the field (drilling experience).



### 3.4 EXPOSURE/INJURY REPORTS

In the case of an injury or exposure, an incident report will be filed with WESTON's Corporate Health and Safety Director. A copy of that report will also be filed with the Project Manager. A copy of the WESTON Exposure/Injury Report is presented in Appendix A.

If an injury or exposure occurs, the specific incident will be reported to the SHSC. The SHSC will immediately notify WESTON's Corporate Health and Safety Director. In addition, the Station POC and the Navy Engineer in Charge (EIC) will be notified by the SHSC. The SHSC will ensure that Exposure/Injury Reports are completed. After review of an Exposure/Injury Report is complete, WESTON's Corporate Health and Safety Department will investigate and recommend followup actions to be conducted to ensure that preventive measures are being implemented.



## SECTION 4

### HAZARD ANALYSIS

#### 4.1 PRIMARY CHEMICAL CONTAMINANTS OF CONCERN

Figure 2 presents activities scheduled to occur at each location of concern during the RI/FS. Table 1 lists the chemical contaminants of primary health and safety concern that could potentially be encountered during RI/FS activities at NWS Earle along with relevant exposure limits. This list was generated by analyzing previous site-specific and stationwide sampling data and air monitoring results obtained during the Confirmation Study along with site descriptions/histories contained in the Draft Plan of Action and the Quality Assurance Project Plan. The data summary sheets describing the toxicological effects and the symptoms from exposure for each contaminant are presented in Appendix C.

#### 4.2 PHYSICAL HAZARDS

Table 2 lists the physical hazards that may be encountered during RI/FS field activities at NWS Earle. Subsections included in the personnel protective measures describe preventive measures designed to eliminate injuries resulting from heat stress, cold stress, and extreme noise.

RI/FS Activity Matrix

Site 2	Site 3	Site 4	Site 5	Site 7	Site 10	Site 11	Site 19	Site 20	Site 22	Site 26	
●	●	●	●	●	●	●	●	●	●		Historical Aerial Photograph Interpretation
				●							Electromagnetics
●		●			●	●	●	●	●	●	Soil Boring/Soil Sampling
●	●	●	●	●	●	●	●			●	New Monitor Well Installation
		●			●						Surface Water Sampling
●	●	●	●	●	●	●	●			●	Monitor Well Sampling
●		●			●		●				Slug Test
●	●	●	●	●	●	●	●				Additional Geologic Characterization

● Proposed Activity

**FIGURE 2 ACTIVITY MATRIX**

Tabl 1

Primary Chemical Contaminants of Concern,  
NWS Earle RI/FS, Colts Neck, New Jersey

Contaminant	TLV (ppm)	I.D.L.H. (ppm)	Location	Route of Exposure
Acetone	750	20,000	Sites 5, 7, 10, 19	1, 2, 3
Methylene chloride	100	5,000	Sites 10, 19	1, 2, 3
2-Butanone (MEK)	200	3,000	Sites 5, 19	1, 2, 3
Toluene	100	2,000	Site 19	1, 2, 3
Pentachlorophenol	0.5 mg/m <sup>3</sup>	150 mg/m <sup>3</sup>	Sites 5, 11	1, 2, 3
Lead	0.15 mg/m <sup>3</sup>	40 mg/m <sup>3</sup>	Sites 10, 19	1, 2, 3
Beryllium	0.002 mg/m <sup>3</sup>	N/A Carcinogen	Site 19	1, 2, 3

- 1 - Inhalation
- 2 - Ingestion
- 3 - Skin contact
- N/A - Not applicable

Specific contaminants listed are those detected previously at elevated levels.  
General contaminant listings show what will be sampled for during RI/FS activities.



**Table 1**  
(continued)

Contaminant	TLV (ppm)	I.D.L.H. (ppm)	Location	Route of Exposure
Cadmium	0.05 mg/m <sup>3</sup>	40 mg/m <sup>3</sup>	Site 19	1, 2, 3
Zinc	NA	NA	Site 19	1, 2, 3
Petroleum hydrocarbons	NA	NA	Sites 3, 4, 11, 19	1, 2, 3
Volatile organic compounds	NA	NA	Sites 3, 4, 5, 7, 10, 11, 19	1, 2, 3
Base-neutral/acid- extractable compounds	NA	NA	Sites 4, 5, 7	1, 2, 3
Metals	NA	NA	Sites 2, 7, 10, 19	1, 2, 3
Picric acid	NA	NA	Sites 2, 26	1, 2, 3

- 1 - Inhalation
- 2 - Ingestion
- 3 - Skin contact

N/A - Not Applicable

Specific contaminants listed are those detected previously at elevated levels.  
General contaminant listings show what will be sampled for during RI/FS activities.



Tabl 2

Physical Hazards of Concern,  
NWS Earle RI/FS, Colts Neck, New Jersey

Hazard	Description	Location	Procedures to Monitor Hazards
Heat stress	Associated with use of protective clothing.	All field locations.	Implement monitoring prevention program outlined in Section 5. Topic will be covered during site Health Safety Orientation.
Cold stress	Associated with working outdoors in moderate to extreme cold temperatures.	All field locations.	Personal awareness and monitoring of daily exposure during extreme cold conditions. Must be considerate of wind chill effects.
Noise	Loud noise generated during field activities.	Active work sites: drill rig, compressors, generator.	Wear hearing protection.
Heavy equipment	Pinch points and weight associated with drill rig and backhoe.	All field locations.	Awareness and training seminar.





## SECTION 5

### PERSONNEL PROTECTION

This section outlines the specific procedures that will be used to prevent exposures or injuries during completion of field work. Included in this section are prescribed levels of protection, action levels, monitoring schemes, decontamination procedures, and heat/cold stress prevention.

Table 3 provides an overview of the protection program planned for each site, listing site number, abbreviated name, activities to be conducted, primary level of protection, and monitoring requirements. The primary level of protection is defined as that level at which work commences. Downgrades and upgrades will be based upon established action levels (see Subsections 5.2 and 5.3), prevailing site conditions, and the SHSC's evaluation.

#### 5.1 LEVELS OF PROTECTION

The primary level of protection to be used at the NWS Earle site is D accompanied by air monitoring. Upgraded level D will be used for specific tasks where no respiratory protection is necessary but skin contact with contaminants is to be prevented. Levels of protection as described in this document may be modified by the SHSC according to specific field conditions. Respiratory protection may be required if air monitoring action levels are reached, as discussed in Subsection 5.2.

##### Level D

- Cotton or Tyvek coveralls (dependent upon location and splash potential).
- Steel toe/shank boots.
- Surgical gloves.
- Cotton work gloves (when necessary).
- Hard hat.
- Eye protection (OSHA/NIOSH approved).

##### Upgraded Level D

- Cotton, Saranex, or Tyvek coveralls (dependent upon location and splash potential).
- Steel toe/shank boot.
- Latex boot cover.
- Surgical gloves
- Outer gloves (nitrile).
- Hard hat.
- Eye protection (OSHA/NIOSH approved)

**Level C**

- Cotton, Saranex, or Tyvek coveralls or equivalent designated work uniform (dependent upon location and splash potential).
- Full-face air purifying respirators (full-face NIOSH/OSHA approved).
- MSA GMC-H (or equivalent) cartridge.
- Steel toe/shank boots.
- Latex boot covers.
- Surgical gloves.
- Outer gloves (nitrile).
- Over gloves (neoprene) when contact with gross contamination is necessary.
- Hard hat.

**Level B**

- Cotton, Saranex, or Tyvek coveralls or equivalent designated work uniform (dependent upon location and splash potential).
- Self-contained breathing apparatus (SCBA).
- Steel toe/shank boots.
- Latex boot covers.
- Surgical gloves.
- Outer gloves (nitrile).
- Over gloves (neoprene) when contact with gross contamination is necessary.
- Hard hat.

**5.2 PERSONNEL MONITORING: ORGANICS**

During groundwater sampling, well construction, and soil boring work, pre-established levels will dictate subsequent levels of protection. The organic action levels are based on readings obtained continuously with an HNu photoionization detector and/or a Foxboro flame ionization detector (OVA). The OVA will be used to confirm and verify that HNu readings are consistent. Monitoring will emphasize breathing zone conditions. The breathing zone is defined as the lowest height (vertical space) from which personnel are inhaling.

The HNu is calibrated with isobutene in air with a concentration of 97.4 parts per million (ppm) with a relative response of 53 ppm benzene using the 10.2 eV lamp and a 61 ppm benzene response using the 11.7 eV lamp. The OVA is calibrated with methane using a concentration of 95 ppm. Relative responses for specific suspected contaminants for the HNu are contained in Table 3.

Table 3

HNu Relative Response of Contaminants of Concern

Parameter	Relative Response		
	9.8eV	10.2eV	11.7eV
2-Butanone	57	63	80
Toluene	100	100	100
Pentachlorophenol	Unk	Unk	Unk
Petroleum hydrocarbons	100	100	100
Picric acid	NR	NR	NR
Zinc	NR	NR	NR
Cadmium	NR	NR	NR
Lead	NR	NR	NR
Beryllium	NR	NR	NR

NR - No response anticipated  
 Unk - Unknown

In the event that ambient breathing zone conditions exceed 50 units as read by the HNu or OVA, air quality will be quantified before work continues. Quantification can be accomplished through the use of personnel air sampling pumps and specific sorbent media (Draeger tubes and/or soil test air sampling pump).

Calibration and maintenance checks of monitoring equipment will be performed daily as described in the QAPP. It is important for personnel to be aware of the effects of cold temperature on the accuracy of the monitoring instrumentation. Appropriate preventative measures, such as shielding and plastic bubble wrap, should be used as necessary. Work will halt or a higher form of respiratory protection will be selected if monitoring instruments are rendered ineffective.

### 5.3 PERSONNEL MONITORING: ORGANICS/PARTICULATES

Action levels have been determined by using the procedure outlined in the "National Safety Council Fundamentals of Industrial Hygiene." An action level, as OSHA defines it, is one-half the permissible exposure limit. This concept, along with taking into account the response factor at the monitoring instrument to the contaminant of concern, provides the necessary worker protection. The process for determining action levels is presented below:

$$\frac{B}{2} \times A = \text{Action level}$$

Where:

B = OSHA permissible exposure level or ACGIH TLV for contaminant

A = Monitoring instrument percent response to specific contaminant

Note -- This calculation must be completed for each contaminant, with the lowest action level obtained mandating the use of personnel protection equipment.

When the action level is reached, personnel at that time will don level C protective equipment, as described in Subsection 5.1.

For all site locations, previous sampling results and historical site uses have been analyzed to develop the following action levels:

Units Above Background	Level of Protection/Action
0-1	Level D/continue
2-5	Level D/notify SHSC
6-50	Level C/notify Corporate Health and Safety/initiate air quality quantification
51-100	Level B
>100	Halt work, re-evaluate conditions

**5.4 PERSONNEL MONITORING: INORGANICS**

At locations where contaminants are linked to particulate matter, personnel will monitor for potential dust emissions with an aerosol monitor. If dust levels are registered at or above 2 mg/m<sup>3</sup>, personnel will upgrade from level D to level C personnel protection. Level C protection equipment will provide the necessary protection against contaminated respirable dust.

Two mg/m<sup>3</sup> is an extremely conservative action level that takes into account contaminant soil concentrations and published exposure limits for known contaminants. The action level is derived by taking one-half of the exposure limit and dividing by the known soil concentrations for each contaminant. This procedure is described below:

$$\frac{B}{2} - C = \text{Action level (mg/m}^3\text{)}$$

Where:

B = OSHA permissible Exposure Level or ACGIH TLV for contaminant

C = Soil concentration level

At Site 19, attention will be paid to dust conditions, as elevated levels of metals (especially cadmium) have been documented. If dust generation is observed, water sprays will be used to control the dust.

## 5.5 SITE CONTROL TECHNIQUES

The FSO will divide the work area at each location into three distinct zones. If appropriate, definition of these zones will be accomplished via banner guard or rope. The work zones are defined as follows:

- Zone 1: Exclusion Zone -- The zone where contamination does or could exist. All personnel entering the Exclusion Zone must wear the level of protection specified for that work area. The number of personnel in this zone will be controlled and minimized.
- Zone 2: Contamination Reduction Zone (CRZ) -- Provides a transition zone between the Exclusion Zone and the Support Zone to prevent the spread of contaminants from the Exclusion Zone. Decontamination is performed in this zone.
- Zone 3: Support Zone -- Area of work site considered to be non-contaminated (located upwind of the Exclusion Zone). This is a storage area for support equipment and provides a point of personnel access and traffic control to the CRZ and Exclusion Zone.

### 5.5.1 Decontamination

Personnel as well as equipment will be decontaminated within the Contamination Reduction Zone. Separate areas within the zone will be identified for field personnel and equipment. Field personnel will likely decontaminate themselves by removing potentially contaminated clothing from the most suspected contaminated areas to the least suspected areas. Protective clothing will be removed in the same manner, using an inside to outside procedure. If assistance is required by personnel within the CRZ, personnel assisting will don the same level of protection as the field personnel. A field log will be kept for the time span workers are wearing an EPA level of protection above level D. Equipment will be decontaminated in a segregated area within the CRZ using the appropriate methods. Personnel may wear level D protection during equipment decontamination. However, personnel decontaminating equipment that shows elevated levels of contamination above background on the organic vapor monitoring instruments should wear level C personnel protective equipment.

## 5.6 GENERAL SAFETY GUIDELINES

To comply with NWS Earle Security Standard Operating Procedures (SOPs), everyone connected with this project will comply with the following general regulations:

1. No smoking, matches, or sparking devices will be permitted on NWS Earle property.
2. No two-way communication devices will be permitted on NWS Earle property.
3. No cameras will be permitted on NWS Earle property.
4. All personnel will obtain badges from station security prior to entering the station.
5. All personnel are prohibited from entering any building on the station unless prior approval is obtained.
6. Fire extinguishers will be carried in all vehicles at times when on station property.
7. All project participants are required to comply with the "Safety Requirements for Construction and Contractor Operations," as described in Appendix B, and any safety directions given by NWS Earle personnel.
8. Any station vehicle displaying headlights and/or flashing lights will be yielded to by pulling to the edge of the road and stopping completely.

In addition to the NWS Earle Security SOPs, the following will be adhered to:

- Site personnel should sign a master sheet indicating they have read the Site Safety Plan and will comply.
- There will be no eating, drinking, or tobacco use in the Exclusion or Contamination Reduction Zones.
- All personnel must pass through the Contamination Reduction Zone to enter or exit the Exclusion Zone.
- As a minimum, emergency eye washes will be on the contaminated side of the Contamination Reduction Zone and/or at the work station.
- Fire extinguishers will be on site for use on equipment or small fires only.

- An adequately stocked first aid kit will be on scene at all times during operational hours.
- A morning safety meeting will be conducted for all site personnel, who will sign a daily attendance sheet. The safety procedures and the day's planned operations will be discussed.
- No drilling activities will be conducted during thunderstorms or lightning storms. The Field Safety Officer for each field crew will consult with the SHSC concerning this determination.
- All visitors and unnecessary personnel will maintain a one-boom length distance from the drill rig.
- All project personnel will wash hands thoroughly before eating. Portable hand wash stations will be provided to each field crew.

#### **5.6.1 Site-Specific Special Considerations**

The following special procedures are to be used at the site locations indicated. In any area where there is the potential to find unexploded ordnance or shock-sensitive materials, the Navy's Explosive Ordnance Detail (EOD) personnel should be notified and consulted. Special procedures, including the need to use remote sampling techniques, may be required in these areas if serious threats exist.

#### **Site 2: Ordnance Demilitarization Area**

Before any work commences at the ordnance disposal areas, the project team will meet with ordnance disposal personnel to determine whether any unexploded ordnance materials are present at the site. A schedule must be submitted to EOD at least 1 week prior to the start of any work to be completed in the area. Special procedures may be indicated following interaction with EOD personnel.

#### **Site 5: Landfill West of Army Barricades**

The project team will submit a schedule to EOD at least 1 week prior to the start of any work to be accomplished in this area. Special procedures may be indicated following interaction with EOD personnel.

#### **Site 19: Paint Chip and Sludge Disposal Area**

Due to the presence of elevated heavy metals, notably cadmium and beryllium, efforts should be made to minimize the creation of dust or windblown soil during intrusive work and soil sampling at this location. Work should be conducted while the

soil is moist due to weather conditions, or dust suppression via water spray should be used. An aerosol monitor will be used to determine the need for respiratory protection (see Sub-section 5.3).

#### Site 26: Explosive "D" Washout Area

Due to the presence of picric acid at this location, special procedures are required for intrusive work. Bulk deposits of picric acid (i.e., containers, drums, etc.) are not present at this location; however, picric acid solution was spilled over this area. During intrusive work or sampling tasks, soils should be kept moist via water spray to desensitize any picric acid potentially encountered. All drilling activities should include water lubrication of auger components and should progress slowly.

#### 5.7 HEAT STRESS PREVENTION AND MONITORING

The potential for heat stress is minimized by scheduling field work activities during cool weather. However, this is not always possible, and field work in summer months may be required.

Heat stress usually is a result of protective clothing decreasing natural body ventilation, although it may occur at any time work is being performed at elevated temperatures.

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physiological reactions can occur, ranging from mild (such as fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement) to fatal. Because heat stress is one of the most common and potentially serious illnesses at hazardous waste sites, regular monitoring and other preventive measures are vital. Site workers must learn to recognize and treat the various forms of heat stress. The best approach is preventive heat stress management. In general:

- Have workers drink 16 ounces of water before beginning work such as in the morning or after lunch. Provide disposable 4-ounce cups and water that is maintained at 50°-60°F. Urge workers to drink 1 to 2 cups of water every 20 minutes for a total of 1 to 2 gallons per day. Provide a cool area for rest breaks. Discourage the intake of coffee during working hours. Monitor for signs of heat stress.
- Acclimate workers to site work conditions by slowly increasing workloads (i.e., do not begin site work activities with extremely demanding activities).

- Provide cooling devices to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency. An example of a cooling aid is long cotton underwear that acts as a wick to absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing.
- In extremely hot weather, conduct field activities in the early morning and evening.
- Ensure that adequate shelter is available to protect personnel against heat as well as cold, rain, snow, etc., which can decrease physical efficiency and increase the probability of both heat and cold stress. If possible, set up the command post in a shaded area.
- In hot weather, rotate shifts of workers wearing impervious clothing.
- Good hygienic standards must be maintained by frequent changes of clothing and showering. Clothing should be permitted to dry during rest periods. Persons who notice skin problems should immediately consult medical personnel.

The following is a discussion of specific effects of heat stress.

#### **5.7.1 Heat Stroke**

Heat stroke is an acute and dangerous reaction to heat stress caused by a failure of heat regulating mechanisms of the body; the individual's temperature control system that causes sweating stops working correctly. Body temperature rises so high that brain damage and death will result if the person is not cooled quickly.

- Symptoms -- Red, hot, dry skin, although the person may have been sweating earlier; nausea; dizziness; confusion; extremely high body temperature; rapid respiratory and pulse rate; unconsciousness or coma.
- Treatment -- Cool the victim quickly. If the body temperature is not brought down quickly, permanent brain damage or death will result. Soak the victim in cool, but not cold, water; sponge the body with cool water, or pour water on the body to reduce the temperature to a safe level (102°F). Observe the victim, and obtain medical help. Do not give coffee, tea, or alcoholic beverages.

### 5.7.2 H at Exhaustion

Heat exhaustion is a state of very definite weakness or exhaustion caused by the loss of fluids from the body. The condition is much less dangerous than heat stroke, but it nonetheless must be treated.

- Symptoms -- Pale, clammy, moist skin; profuse perspiration and extreme weakness. Body temperature is normal, pulse is weak and rapid, breathing is shallow. The person may have a headache, may vomit, and may be dizzy.
- Treatment -- Remove the person to a cool, air conditioned place, loosen clothing, place in a head-low position, and provide bed rest. Consult a physician, especially in severe cases. The normal thirst mechanism is not sensitive enough to ensure body fluid replacement. Have the patient drink 1 to 2 cups of water immediately and every 20 minutes thereafter until symptoms subside. Total water consumption should be about 1 to 2 gallons per day.

### 5.7.3 Heat Cramps

Heat cramps are caused by perspiration that is not balanced by adequate fluid intake. Heat cramps are often the first sign of a condition that can lead to heat stroke.

- Symptoms -- Acute painful spasms of voluntary muscles (e.g., abdomen and extremities).
- Treatment -- Remove victim to a cool area and loosen clothing. Have the patient drink 1 to 2 cups of water immediately and every 20 minutes thereafter until symptoms subside. Total water consumption should be 1 to 2 gallons per day.

### 5.7.4 Heat Rash

Heat rash is caused by continuous exposure to heat and humid air and chafing clothes. The condition decreases the ability to tolerate heat.

- Symptoms -- Mild red rash, especially in areas of the body that come into contact with protective gear.
- Treatment -- Decrease amount of time in protective gear, and provide powder to help absorb moisture and decrease chafing.

### 5.7.5 Heat Stress Monitoring and Work Cycle Management

For strenuous field activities that are part of ongoing site work activities in hot weather, the following procedures will be used to monitor the body's physiological response to heat and to manage the work cycle even if workers are not wearing impervious clothing.

These procedures are to be instituted when the temperature exceeds 70°F:

- Measure Heart Rate -- Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats/minute. If the HR is higher, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the pulse rate still exceeds 110 beats/minute at the beginning of the next rest period, the following work cycle should be further shortened by 33 percent. The procedure is continued until the rate is maintained below 110 beats/minute.
  
- Measure Body Temperature -- When ambient temperatures exceed 90°F, body temperatures should be measured with a clinical thermometer as early as possible in the rest period.  
  
If the oral temperature (OT) exceeds 99.6°F at the beginning of the rest period, the next work cycle should be shortened by 33 percent, while the length of the rest period stays the same. If the OT exceeds 99.6°F at the beginning of the next rest period, the following work cycle should be further shortened by 33 percent. The procedure is continued until the body temperature is maintained below 99.6°F.
  
- Physiological Monitoring Schedule -- The following suggested frequency of physiological monitoring schedule for fit and acclimated workers will be used as a guideline.

Temperature	Level D	Levels C and B
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°-90°F (30.8°-32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 minutes of work	After each 60 minutes of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 minutes of work	After each 120 minutes of work

Measure the air temperature with a standard thermometer. Estimate the fraction of sunshine by judging what percent the sun is out.

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

Adjusted temperature = actual temperature + .13 x (percent sunshine factor).

The length of work period is governed by frequency of physiological monitoring. The length of the rest period is governed by physiological parameters (heart rate and oral temperature). For example, if an individual's heart rate exceeds 110 beats/minute at the beginning of the rest period, that individual will remain on rest time until his/her heart rate drops well below 110 beats/minute, and his/her next work period (duration of time before suggested physiological monitoring) will be decreased by 33 percent.

### **5.8 COLD STRESS**

Persons working outdoors in low temperatures, especially at or below freezing, are subject to cold stress. Exposure to extreme cold for a short time causes severe injury to the surface of the body or results in profound generalized cooling, causing death. Areas of the body that have high surface area to volume ratios, such as fingers, toes, and ears, are the most susceptible.

Protective clothing generally does not afford protection against cold stress. In many instances, it increases susceptibility.

Two factors influence the development of a cold injury; ambient temperature, and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 miles per hour (mph) increases to 10 mph. Additionally, water conducts heat 240 times faster than air; thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

### 5.8.1 Frostbite

Local injury resulting from cold is included in the generic term frostbite. Frostbite of the extremities can be categorized into:

- Frostnip or incipient frostbite is characterized by sudden blanching or whitening of skin.
- Superficial frostbite is characterized by skin with a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- Deep frostbite is characterized by tissue that is cold, pale, and solid.

The following steps should be taken to administer first aid for frostbite: Take the victim indoors, and rewarm the areas quickly in water that is between 39° and 41°C (102°-105°F). Give a warm drink -- water or juices, not coffee, tea, or alcohol. The victim must not smoke. Keep the frozen parts in warm water or covered with warm clothes for 30 minutes, even though the tissue will be very painful as it thaws. Then elevate the injured area, and protect it from injury. Do not allow blisters to be broken. Use sterile, soft, dry material to cover the injured areas. Keep the victim warm, and get immediate medical care.

After thawing, the victim should try to move the injured areas a little, but no more than can be done alone, without help. Seek medical attention as soon as possible.

#### Note:

- Do not rub the frostbitten part (this may cause gangrene).

- Do not use ice, snow, gasoline, or anything cold on the frostbitten area.
- Do not use heat lamps or hot water bottles to rewarm the part.
- Do not place the part near a hot stove.

### 5.8.2 Hypothermia

Systemic hypothermia is caused by exposure to wet, cool, or rapidly dropping temperatures. Its symptoms are usually exhibited in four stages:

- Shivering.
- Apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body to less than 95°F.
- Unconsciousness, glassy stare, slow pulse, and slow respiratory rate.
- Death.

If hypothermia is suspected in any field personnel, remove the person to a warmer location until symptoms recede.

### 5.9 NOISE PROTECTION

Noise is defined as unwanted sound. The guidelines to be used when encountering noise will be the following: Any noise/sound preventing normal vocal discussion between two individuals at arms-length distance will dictate the need for hearing protection.

Some sources of noise while conducting activities at NWS Earle can include any of the following: compressor motors, rig engines, hammer blows (from split-spoon or other), compressed air, compressed water, and heavy equipment. The list is not all inclusive. At any point, personnel can elect to wear hearing protection. Hearing protection will be afforded by either disposable ear plugs or ear muffs.

Administrative time control is not an acceptable method for preventing noise exposure, since extreme noise for a short duration can cause severe, permanent hearing loss. Probably the greatest risk of noise exposure will be encountered during activities on or near the drill rigs.



## 5.10 PERSONNEL DECONTAMINATION

The following decontamination sequences will be followed, as appropriate, for the level of protection being used:

### Level D Decontamination

- Step 1 Remove and dispose of outer boot covers.
- Step 2 Wash and rinse outer gloves.
- Step 3 Remove outer gloves.
- Step 4 Remove surgical gloves.
- Step 5 Wash and rinse hands.

### Upgraded Level D Decontamination

- Step 1 Remove and dispose of outer boot covers.
- Step 2 Wash and rinse outer gloves.
- Step 3 Remove outer gloves.
- Step 4 Remove chemical-protective coveralls.
- Step 5 Remove surgical gloves.
- Step 6 Wash and rinse hands.

### Level C Decontamination

- Step 1 Remove and dispose of outer boot covers.
- Step 2 Wash and rinse outer gloves.
- Step 3 Remove chemical-resistant coveralls.
- Step 4 Remove outer gloves.
- Step 5 Wash and rinse inner gloves.
- Step 6 Remove air-purifying respirator.
- Step 7 Remove inner gloves.
- Step 8 Wash and rinse hands.

### Level B Decontamination

- Step 1 Remove and dispose of outer boot covers.
- Step 2 Wash and rinse outer gloves.
- Step 3 Remove chemical-resistant coveralls.
  
- Step 4 Remove outer gloves.
- Step 5 Wash and rinse inner gloves.
- Step 6 Remove self-contained breathing apparatus.
  
- Step 7 Remove inner gloves.
- Step 8 Wash and rinse hands.

The wash solution will consist of a small amount of Alcanox added to water. Wastes will be disposed of in hazardous waste containers and later disposed of by the Navy.



## SECTION 6

### SITE SECURITY AND LOGISTICS

Access to the working sites at NWS Earle will be controlled because access to the station as a whole is controlled due to its status as a federally operated military installation. The following subsections describe site management items essential to site security and emergency logistics.

#### 6.1 GENERAL OPERATIONS AND COORDINATION WITH U.S. NAVY

The Station Point of Contact for this project will be Lt. Cdr. Dell. All contact with other parties on station will be performed by WESTON through the POC. All contacts from outside parties concerning the project will be made through the POC.

The Site Manager will be responsible for coordination of WESTON field teams and subcontractors, as well as for day-to-day contact with the POC. The POC will be responsible for arranging for personnel and vehicle passes for WESTON and subcontractor personnel and for locating utilities and coordinating issuance of digging permits for all sites designated for subsurface investigations.

For each field activity involving more than one person, a Field Team Leader and a Field Safety Officer will be designated, by the Site Manager in agreement with the Project Manager, from among the WESTON personnel present on station. The Field Team Leader will be responsible for coordinating the activities of his/her team, including subcontractors, and for notifying the Site Manager of progress and/or logistical problems.

#### 6.2 ON-STATION PROJECT FACILITIES

A construction trailer may be used as an on-station project office and indoor storage space and may be on station for the duration of the field portions of this project. The trailer may be equipped with telephone and electrical utilities and may contain a refrigerator, a copy machine, and a personal computer.

The trailer will be used as a central meeting point for planning field activities, for daily briefings, and in case of emergency. It will also serve as a field office for the Site Manager and the Data Administrator. In addition, it will contain dry storage space for staging of field equipment and sample containers, as necessary.

### 6.3 SITE ACCESS AND SECURITY

It is anticipated that all field work will be performed within the boundaries of NWS Earle. Access to NWS Earle is limited to Navy military and civilian personnel, dependents, and authorized visitors. Travel within station boundaries is restricted to authorized personnel. The individual RI/FS sites/work areas, in most cases, are not fenced. The entire station is fenced with 6- to 8-foot chainlink fence with four-strand barbed wire. The station is patrolled by armed security guards and military police.

Each night, all WESTON field equipment and subcontractor equipment that can easily be decontaminated and removed from a work area will be taken to authorized on-station staging areas. Smaller equipment and temperature-sensitive equipment will be stored in the storage portion of the field office trailer, which will be locked when no WESTON personnel are present. Larger equipment and supplies will be stored outdoors in a fenced work area to be designated by the Station POC.

### 6.4 EMERGENCY RESPONSE ACTIONS

Actions taken in the event of an emergency will include the following:

- Account for Personnel

The first priority during an emergency will be to account for all on-site personnel. The Site Safety Manager (SSM) will establish designated gathering points at each site that will be shown to all site personnel during orientation. The SSM will check the gathering points to determine whether all on-site personnel are accounted for.

- Identify Hazardous Materials

The SSM will immediately identify the character, source, amount, and extent of any release. The initial identification method will be to use visual analysis of the material and location of the release. If for some reason the released material cannot be identified, samples will be taken for analysis.

- Assess Hazards

Hazards that may result from a release, fire, or severe weather conditions will be assessed. The SSM will assess the hazards posed by an incident through the following steps, as appropriate:



- Identify the materials in the incident.
- Consult appropriate references to evaluate potential adverse effects or exposures/releases and appropriate safety precautions.
- Identify exposure and/or release pathways and the quantities of material involved.

This assessment will consider both the direct and indirect effects of the release, fire, or severe weather conditions (e.g., the effects of any toxic, irritating, or asphyxiating gasses that are generated or the effects of any hazardous surface water runoff due to the water or chemical agents used to control fire or heat-induced explosions).

Based on this assessment, the SSM will determine what risk is posed to workers and neighboring populations. If the incident cannot be controlled by operating personnel without incurring undue risk, the SSM will order the evacuation of workers at risk and notify appropriate response agencies of the situation and that assistance is required. If the SSM determines that any persons outside the site are at risk as a result of the incident, the SSM will contact the appropriate agencies and departments and advise them of the risk and the need or potential need to institute off-site evacuation procedures.

#### • Institute Specific Control Procedures

Potential incidents fall under three general classifications: (1) fire; (2) releases to the atmosphere, soil, and surface water; and (3) severe weather conditions such as hurricanes and lightning storms. The following sequence of events constitutes the specific responses and control procedures to be taken in the event of a fire or release to the air, land, or water.

The initial response to any emergency will be to protect human health and safety and then the environment. Secondary considerations will be contaminant identification, containment, treatment, and disposal. If an accident is within the on-site emergency response capabilities, the SSM will implement the necessary emergency action. If an accident is beyond the capabilities of the operating crew, the SSM will notify the appropriate local agencies.

1) Fire

When a fire on-site appears imminent or has occurred, all site activity will cease. The SSM will assess the severity of the situation and decide whether or not the emergency is controllable with existing portable fire extinguishers, site equipment, vapor, foam, or materials at hand. Firefighting will not be done if the risk to operating personnel appears high.

The local fire department will be called in all situations in which fires have occurred.

If the situation appears uncontrollable and poses a direct threat to human life, a warning will be sounded to all personnel to secure emergency equipment and to immediately evacuate the area. The SSM will alert all personnel when all danger has passed, as determined by fire department personnel.

All equipment used in the emergency will be immediately cleaned and refurbished for use in the event of any future emergency.

2) Spill or Material Release

If a release results in a probable vapor release, the information will be immediately relayed to the SSM. The SSM will assess the magnitude and potential seriousness of the release by reviewing the following information:

- Safety data sheets of the material spilled or released, if known.
- Source of the release or spillage of hazardous material.
- An estimate of the quantity released and the rate at which it is being released.
- The direction in which the release is moving.
- Personnel who may be or may have been in contact with materials, or air release, and possible injury or sickness as a result.
- Estimate of area under influence from the situation.



In the event of an emergency spill or release, all personnel not involved with emergency response activity will be evacuated from the immediate area.

The area will be roped or otherwise blocked off. Area activities will resume only after air monitoring has been performed. Also, based on air monitoring data, evacuation procedures may be implemented.

### 3) Severe Weather Conditions

When a hurricane or tornado warning has been issued or when a severe lightning storm is eminent, the information will be immediately relayed to the SSM. The SSM will institute emergency weather condition procedures. All personnel will proceed indoors after completing appropriate outdoor shutdown procedures and will stand by for emergency procedures. When the storm passes, the SSM or his representative will inspect on-site equipment to ensure its readiness for operation. If any emergency equipment has been damaged, the equipment will be repaired or replaced before other site activities resume.

- One of three levels of evacuation will be declared:

A -- Evacuation of any areas beyond the restricted zone that, in the opinion of the local fire service, are threatened by the subject incident.

B -- Evacuation of immediate work areas and close surrounding areas.

C -- Evacuation of immediate work area.

#### • Initiate Evacuation Plan

The first person recognizing an emergency situation will notify the SSM, who will evaluate the situation for a site evacuation. The Evacuation Plan consists of:

- The signal to evacuate will be given.

- Leave the area quickly by the nearest safe exit. Operating personnel are to escort visitors out of the immediate area. Personnel are to take note, before leaving, of where the emergency situation exists so they do not jeopardize their safety by walking into that area. All machinery will be shut off.

- Assemble in the area designated by the SSM during the safety meeting for headcount and further instructions.

- Investigate Cause of Emergency

The cause of the incident resulting in or causing the possibility for resulting in spills, releases, fires, or explosions will be investigated by the SSM. If a cause or likely cause can be established, necessary steps to reduce or eliminate a recurrence will be implemented. These changes will be identified in an amendment to this Emergency Contingency Plan.

- Arrange for Storage and Treatment of Released Material

Immediately after an emergency, the SSM will make arrangements for treatment, storage, or disposal of recovered wastes and contaminated materials.

- Coordinate Post-Emergency Equipment Maintenance

After an emergency event, all emergency equipment will be cleaned so that it is serviceable for use, or it will be replaced. An inspection of all safety equipment will be conducted before other site activities are resumed. The SSM will be notified that post-emergency equipment maintenance has been performed and that other activities can resume.

The SSM will further direct actions, as necessary, and initiate the proper notification procedures for the agencies involved. No one is to return to the site unless so instructed by the SSM or until the SSM or other recognized official in charge issues an "all clear."

- Reports

The SSM will note, in appropriate site logs, the implementation of any portion of the Contingency Plan. The log entries will include:

- Date and time of the incident.
- Type of incident (e.g., fire, explosion, personnel injury).
- A description of the incident, including source, cause, actions taken, materials (and volumes involved), and other information appropriate for the incident.



Dependent upon the nature of the incident, the SSM will:

- Report the incident to the Corporate Health and Safety Department for further assistance and coordination with other agencies.

#### **6.5 CONTINGENCIES**

In the event that any unforeseen circumstances arise during the course of the investigation which would endanger anyone on site, the site will be vacated, and both the Project Manager and the POC will be notified. Due to the nature of the contaminants expected to be found on the site, it is not anticipated that a fire or explosive conditions will be a problem. In an emergency, all personnel will be evacuated to the nearest point of safety, and if possible, they will regroup at the field office.



APPROVAL AND COMPLIANCE SIGNOFF

I have read, I understand, and I agree to follow the information and procedures that are set forth in this Health and Safety Plan (and attachments) and that were discussed during the Personnel Health and Safety briefing.

Project Director Signature Date

Project Manager Signature Date

Site Manager Signature Date

George Crawford Director of Corporate Health and Safety Signature Date

Ted Blackburn Project Health and Safety Coordinator Signature Date

Site Health and Safety Coordinator Signature Date

Site Health and Safety meeting conducted by:

Name Signature Date

Name Signature Date

**APPENDIX A**  
**HEALTH AND SAFETY FORMS**

VI. Site Personnel and Certification Status

A. WESTON

Name	Title	Task(s)	Medical	Fit Test		Training	Certification
			Current	Qual.	Quant.	Current	Level or Description
			a.	b.	b.	c.	
1.			( )	( )	( )	( )	( )
2.			( )	( )	( )	( )	( )
3.			( )	( )	( )	( )	( )
4.			( )	( )	( )	( )	( )
5.			( )	( )	( )	( )	( )
6.			( )	( )	( )	( )	( )
7.			( )	( )	( )	( )	( )
8.			( )	( )	( )	( )	( )
9.			( )	( )	( )	( )	( )
10.			( )	( )	( )	( )	( )
11.			( )	( )	( )	( )	( )
12.			( )	( )	( )	( )	( )
	Site Health and Safety Coordinator (SHSC)						
14.			( )	( )	( )	( )	( )

(a) Training - All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910.29, CFR 1926/1910 or 29 CFR 1910.120.

(b) Respirator Fit Testing - All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 or ANSI within the last 12 months. If site conditions require the use of a full face negative pressure, air purifying respirator for protection from Asbestos or lead, employees must have had a Quantitative fit test, administered according to OSHA 29 CFR 1910.1002 or 1025 within the last 6 months.

(c) Medical Monitoring Requirements - All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work, and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 29 CFR 1926/1910 or 29 CFR 1910.120.

The Site Health and Safety Coordinator is responsible for verifying all certifications and fit tests.

**B. Subcontractor's Health and Safety Program Evaluation**

Name and address of subcontractor: \_\_\_\_\_

Activities to be conducted by subcontractor: \_\_\_\_\_

**EVALUATION CRITERIA**

Item	Acceptable	Unacceptable	Comments
Medical Program meets OSHA/WESTON Criteria	( )	( )	_____
Personal Protective Equipment Available:			
a. meets OSHA criteria,	( )	( )	_____
b. is as specified in WLHASP	( )	( )	_____
On-Site Monitoring Equipment Available, Calibrated and Operated Properly	( )	( )	_____
Safe Working Procedures Clearly Specified	( )	( )	_____
Training meets OSHA/WESTON Criteria	( )	( )	_____
Emergency Procedures	( )	( )	_____
Decontamination Procedures	( )	( )	_____
General Health and Safety Program Evaluation	( )	( )	_____

Additional Comments: \_\_\_\_\_

Evaluation conducted by: \_\_\_\_\_ Date: \_\_\_\_\_

**C. Subcontractor**

Name	Title	Task(s)	Medical	Fit Test		Training	Certification
			Current	Current	Current	Level or	
			a.	b.	b.	c.	Description
1.			( )	( )	( )	( )	( )
2.			( )	( )	( )	( )	( )
3.			( )	( )	( )	( )	( )
4.			( )	( )	( )	( )	( )
5.			( )	( )	( )	( )	( )
6.			( )	( )	( )	( )	( )
7.			( )	( )	( )	( )	( )



VIII. Training and Briefing Topics

The following items will be covered at the site specific training meeting, daily or periodically.

Site Specific Training Meeting	Daily	Periodically	
_____	_____	_____	Site characterization and analysis, Sec. 3.0; 29 CFR 1910.120 i.
_____	_____	_____	Physical hazards, Table 3.2.
_____	_____	_____	Chemical hazards, Table 3.1.
_____	_____	_____	Animal bites, stings and poisonous plants.
_____	_____	_____	Etiologic (Infectious) Agents.
_____	_____	_____	Site control, Sec. 8.0; 29 CFR 1910.120 d.
_____	_____	_____	Engineering controls and work practices, Sec. 8.5; 29 CFR 1910.120 g.
_____	_____	_____	Heavy Machinery.
_____	_____	_____	Forklift
_____	_____	_____	Backhoe
_____	_____	_____	Equipment
_____	_____	_____	Tools
_____	_____	_____	Ladder 29 CFR 1910.27 d.
_____	_____	_____	Overhead and Underground Utilities
_____	_____	_____	Scaffolds
_____	_____	_____	Structural Integrity
_____	_____	_____	Unguarded Openings-wall, Floor, Ceilings (?).
_____	_____	_____	Pressurized Air Cylinders
_____	_____	_____	Personnel Protective Equipment, Sec. 5.0; 29 CFR 1910.120 g; 29 CFR 1910.134

Site  
Specific  
Training  
Meeting

Daily

Periodically

_____	_____	_____	Respiratory Protection Sec. 5.8; 29 CFR 1910.120g; Z88.2-1980.
_____	_____	_____	Level A
_____	_____	_____	Level B
_____	_____	_____	Level C
_____	_____	_____	Level D
_____	_____	_____	Monitoring, Sec. 7.0; 29 CFR 1910.120 h.
_____	_____	_____	Decontamination, Sec. 9.0; 29 CFR 1910.120 k.
_____	_____	_____	Emergency Response, Sec. 10.0; 29 CFR 1910.120 l.
_____	_____	_____	Elements of an Emergency Response, Sec. 100; 29 CFR 1910.120 l.
_____	_____	_____	Procedures for Handling Site Emergency Incidents, Sec. 10.0; 29 CFR 1910.120 l.
_____	_____	_____	Off Site Emergency Response, 29 CFR 1910.120 l.
_____	_____	_____	Handling Drums and Containers, 29 CFR 1910.120 j.
_____	_____	_____	Opening Drums and Containers
_____	_____	_____	Electrical Material Handling Equipment.
_____	_____	_____	Radioactive Waste.
_____	_____	_____	Shock Sensitive Waste.
_____	_____	_____	Laboratory Waste Packs.
_____	_____	_____	Sampling Drums and Containers.
_____	_____	_____	Shipping and Transport, 49 CFR 172.101
_____	_____	_____	Tank and Vault Procedures.
_____	_____	_____	Illumination, 29 CFR 1910.120 m.
_____	_____	_____	Sanitation, 29 CFR 1910.120 n.



EMPLOYEE EXPOSURE / INJURY INCIDENT REPORT

(A separate report is to be completed for each incident and submitted immediately to the Director, Corporate Health and Safety for consideration.)

DATE: \_\_\_\_\_

1. Employee's Name: \_\_\_\_\_ 2. Employee No. \_\_\_\_\_

3. Sex: M \_\_\_ F \_\_\_ 4. Age: \_\_\_\_\_ 5. Marital Status: \_\_\_\_\_

6. Office / Department: \_\_\_\_\_ 7. WO No. \_\_\_\_\_

8. Title: \_\_\_\_\_

9. Incident:

a. Type - Possible Exposure \_\_\_\_\_ Exposure \_\_\_\_\_

Physical Injury \_\_\_\_\_

b. Location \_\_\_\_\_

c. Date of Incident \_\_\_\_\_ d. Time of Incident \_\_\_\_\_

e. Date of Reporting Incident \_\_\_\_\_

f. Date of Initial Diagnosis \_\_\_\_\_

g. Person to Whom Incident was Reported \_\_\_\_\_

h. Weather Condition During Incident - Temperature \_\_\_\_\_

i. Name of Materials Potentially Encountered:

Chemical (liquid, solid, gas, vapor, fume, mist): \_\_\_\_\_

Radiological: \_\_\_\_\_

Other: \_\_\_\_\_



j. Has the client been notified of the incident? Y \_\_\_ N \_\_\_  
If "yes", attach documentation.

10. Nature of the Exposure/Injury:

a. State the nature of the exposure/injury in detail, list the parts of the body affected and how it occurred. (Attach extra sheets if needed.)

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b. Did you receive medical care? Yes \_\_\_ No \_\_\_

c. If so, When? \_\_\_\_\_

d. Where? On-Site? \_\_\_\_\_ Off-Site? \_\_\_\_\_

e. By Whom? Name of Paramedic \_\_\_\_\_

Name of Physician \_\_\_\_\_

Other \_\_\_\_\_

f. If "Off-Site", name facility (hospital, clinic, etc);  
obtain Copy of medical report. \_\_\_\_\_

g. Length of stay at the facility \_\_\_\_\_

h. Was the Director, Corporate Health and Safety contacted?  
Yes \_\_\_ No \_\_\_\_\_. If Yes, When? \_\_\_\_\_

i. Was the WESTON Medical/Toxicological System activated?  
Yes \_\_\_ No \_\_\_\_\_. If so, who was the contact? \_\_\_\_\_

j. Did the exposure/injury result in death? Yes \_\_\_ No \_\_\_  
If so, give the date \_\_\_\_\_

k. Did the exposure/injury result in permanent disability?  
Yes \_\_\_ No \_\_\_\_\_. If so, explain: \_\_\_\_\_

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1. Has the employee returned to work Yes \_\_\_\_\_ No \_\_\_\_\_  
If so, give date \_\_\_\_\_

m. List the names of other persons affected during this incident:  
\_\_\_\_\_  
\_\_\_\_\_

n. List the names of persons who witnessed the exposure/  
injury incident:  
\_\_\_\_\_  
\_\_\_\_\_

11. Possible cause of the exposure/injury:

a. What was the name and title of the field team leader or  
immediate supervisor at the site of the incident?  
\_\_\_\_\_

b. Was the operation being conducted under an established  
Safety Plan? Yes \_\_\_ No \_\_\_. If yes, attach a copy.  
If no, explain: \_\_\_\_\_

c. Was protective equipment and clothing used by the employee  
Yes \_\_\_ No \_\_\_. If yes, list items: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

d. Did any limitations in safety equipment or protective  
clothing contribute or affect exposure, or contribute to  
the injury? If so, explain: \_\_\_\_\_  
\_\_\_\_\_

e. What was the employee doing when the exposure/injury  
occurred? (Describe specific activity)  
\_\_\_\_\_  
\_\_\_\_\_



f. Where exactly on-site or off-site did the exposure/injury occur?

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g. How did the exposure/injury occur? (Describe fully what factors led up to and/or contributed to the incident.)

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12. Attach any other relevant data and information regarding this incident.

13. Name of person(s) initiating report, job title, phone number:

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\_\_\_\_\_  
(Employee Signature)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Site Safety Coordinator)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Employee's Supervisor)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Project Managers Signature)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Project Director's Signature)

\_\_\_\_\_  
(Date)



Medical Consultants Comments: \_\_\_\_\_

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

\_\_\_\_\_  
Physician's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
(For Director, Corporate Health and Safety use only)

Reviewed and Comments: \_\_\_\_\_

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

Action Required: Yes \_\_\_\_\_ No \_\_\_\_\_. If so, what action: \_\_\_\_\_

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

Follow-up action carried out: \_\_\_\_\_

\_\_\_\_\_  
Corporate Health and Safety, Director



Explain Corrective Actions to be Taken to Prevent Similar Recurrences: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
(Supervisor's Signature)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Employee's Signature)

\_\_\_\_\_  
(Date)

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**APPENDIX B**

**NWS EARLE SAFETY REQUIREMENTS FOR  
CONSTRUCTION AND CONTRACTOR OPERATIONS**

WPNSTAEINST 5100.1  
22 June 1979

SAFETY REQUIREMENTS FOR CONSTRUCTION  
AND CONTRACTOR OPERATIONS

0801. POLICY. Private contractors performing construction work, maintenance and repair, and utilities services on board the Station shall comply with all applicable safety regulations, OSHA standards, and the regulations contained herein. Additional safety requirements will be outlined by the Contracting Officer during the preconstruction conference.

a. The Occupational Safety and Health Act of 1970 (OSHA), Public Law 91-596, requires contractors to comply with safety standards promulgated by the Occupational Safety and Health (OSH) Administration. The OSH Administration has the authority and responsibility for enforcing the safety standards. Personnel involved in the administration, management or inspection of Naval Facilities Engineering Command (NAVFAC) contracts do not have any authority or responsibility for enforcing contractor compliance with OSHA standards.

b. Under Authority of the OSH Act. OSHA officials (commonly referred to as OSHA compliance officers), whether they be Federal (i.e., Department of Labor) or state, inspect and conduct investigations at contractor workplaces for the purpose of enforcing compliance with OSHA standards. Subject to allowing access by the Station Commanding Officer, these officials may visit without prior notice, work sites where the Navy has contract administration responsibility for safe working conditions. Such visits may be the result of a random selection of locations, in direct response to a complaint of a hazardous condition by a worker, or a serious accident.

c. This chapter will be issued to contractors at time of contract award.

0802. CONTRACTS AND FEDERALLY-AIDED PROGRAMS AND PROJECTS.  
In accordance with the provisions of Public Law 91-596 and the rules set by the Secretary of Labor in 29 CFR, employees are responsible for the safety of their employees.

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22 June 1979

Therefore, in accordance with those rules, each contractor, grantee, or other entity conducting programs or projects which are funded in whole or in part by the Navy, bears the responsibility to provide safe and healthful places and conditions of employment for its employees as a condition under the terms of the contract or agreement. Under the standard safety clauses in each Federal contract or agreement, the Navy shall take action to ensure contractor compliance with those clauses whenever non-compliance is recognized by the contracting officer or his representative. The following paragraphs outline procedures to be followed in providing the control necessary to ensure the safe prosecution of contracts or Federally funded programs.

0803. STOP ORDERS FOR IMMINENT DANGER. Safety Manage, Contracting Officer or their representatives, shall issue a "Stop Order" when in their opinion a condition exists, during the term of the contract, which could reasonably be expected to cause death, serious physical harm, or substantial property damage immediately, or before such danger can be eliminated through corrective procedures. When such an order is issued, the contracting officer shall be notified by the most expedient means of such issuance. Examples of conditions which may warrant stop order action are (but are not limited to):

- a. Personnel working in hazardous atmospheres without proper respiratory protection.
- b. Personnel working in deep trenches, the sides of which are crumbling and unprotected by shoring or other means.
- c. Work being conducted over an unprotected passageway, walkway, or workplace.
- d. Unauthorized welding or cutting or working on unpurged containers (hot work permits must be approved by the Fire Department).
- e. Personnel working under suspended loads.
- f. Improper use or safeguarding of explosives.

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g. Improper guarding of excavations.

h. Personnel working over or near water without USCG approved life jacket or buoyant work vests.

0804. ADDITIONAL DETAIL FOR CONTRACT ADMINISTRATION

a. Specifications developed for contract projects shall be reviewed by the office of prime responsibility to ensure that specifications are not in conflict with applicable safety and occupational health standards published in 29 CFR and that specifications are included as necessary to provide protection as required by this Article.

b. Contracting officers shall ensure, by requiring certification or by other mechanism, that the review required above has been made prior to taking solicitation action.

c. Prior to the commencement of work and as part of the responsibility determination, the contracting officer shall review the contractor's written safety and occupational health plan to ensure that it is adequate. If, in the opinion of the contracting officer or the Station safety and health manager, a meeting with the contractor is necessary, the contracting officer, his field representative, the safety and health manager, and the contractor shall meet to review the contractor's written safety and occupational health plan. They shall modify and add to the plan all necessary details to ensure the safe prosecution of the work and to ensure that the rules are understood by all parties concerned.

d. Accident reports and statistical data on contractor accidents will be made available to properly identified OSHA (Federal or state) representatives upon request. However, accident report requirements levied on the contractor, as a provision of the contract, in no way change the reporting requirements of OSHA.

e. When work will impinge on the living or working conditions of Station employees, military personnel, their dependents, or the public, the contracting officer shall so ad-

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advise the commanding officer and shall assist as requested in ensuring that affected personnel are aware of the project, potential unsafe conditions, and the personnel to contact should they feel potentially dangerous conditions exist during the course of the contract.

0805. DUTIES AND RESPONSIBILITIES

a. Commanding Officer, Naval Weapons Station, Earle, is responsible for the safety and health of Station personnel under all conditions and circumstances and shall take timely action to safeguard all personnel and property under his command.

b. Contracting officers and their representatives shall take action to assure compliance with fire, safety and occupational health contract specifications.

c. Safety and health management personnel shall advise the command with regard to contract safety and occupational health matters and advise and assist contracting officers and their representatives in obtaining compliance with safety and occupational health specifications.

0806. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RESPONSIBILITIES. The Department of Labor has the responsibility for enforcing standards promulgated in 29 CFR. OSHA compliance personnel have a legal right to enter upon any Navy facility or vessel to observe contractor operations, consistent with security regulations. If considered necessary to assist the Navy in ensuring full contractor compliance with the safety and occupational health specifications of a contract, commanding officers should not hesitate to ask OSHA representatives to inspect the contractor's work-site.

0807. OSHA COMPLIANCE. Permission may be granted by the Commanding Officer or his designated representative for OSHA officials to enter the Station for the sole purpose of conducting safety and health inspections involving contractor workplaces. As a matter of interim guidance, a "contractor workplace" shall be considered to be any place where work is currently being, recently has been, or will be

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performed by contractor employees under a Department of Defense contract, including a reasonable access route to and from the workplace. The term "contractor workplace" does not include any area, structure, machine, apparatus, device equipment, or material therein, with which a contractor is not required or reasonably expected to have contact, nor does it include any work environment with respect to which OSHACT jurisdiction has been preempted.

0808. OSHA INSPECTION PROCEDURES

a. Upon presenting appropriate credentials and security clearance, the OSHA official, acting under the inspections and investigations provisions of 29 CFR Section 657, will be provided with an escort to the contractor workplace, as defined herein, for inspection purposes and to conduct investigation of contractor workplaces based upon specific complaints from, or accidents involving contractor employees.

b. If photographs are required, they shall be taken by a Station official photographer and will be tentatively classified CONFIDENTIAL. Photographs will not be delivered to OSHA officials until all film, negatives, and photographs have been sent to the Deputy Chief of Naval Material for Sea Systems (SEA 09G2) and fully screened and censored, as data or design information, e.g., recordings of noise sound level profiles, etc., shall be forwarded to the Deputy Chief of Naval Material for Sea Systems (SEA 09G2) for screening as above prior to release.

c. Public Law 91-596 prohibits giving advance notice to employers of pending OSHA inspections under penalty of a fine up to \$1,000 and/or imprisonment up to 1 year. It is therefore incumbent upon Station personnel to abide by this requirement and not notify a contractor of an impending inspection.

0809. OSHA INSPECTION RESPONSIBILITIES

a. Director, Administration/Security Department.  
When an OSHA official requests to visit a contractor workplace aboard this activity, the following procedure shall be followed:

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(1) Upon presentation of appropriate credentials prepare a one-visit escort required pass. Security clearances will be mailed ahead of the initial visit and the clearance will be renewed annually. A hand-carried copy of a security clearance will not be accepted as proof of a security clearance status. Certification of security clearance must be on file with the cognizant DOD Regional Security Office and with the Station's Administration/Security Department. OSHA officials normally have no operational "need to know" and they should not be given access to classified information beyond what is necessary.

(2) Notify Head, Safety Department to provide an escort, and upon arrival of the escort, issue the Escort Required Pass to the OSHA visitor.

b. Director, Safety Department. When an OSHA official requests permission to visit a contractor workplace, as defined in this instruction, the following procedure shall be followed:

(1) When notified by the Administration/Security Department, provide an escort for the OSHA official for the purpose of conducting an inspection or investigation as defined herein.

(2) Notify the Commanding Officer of the OSHA official's findings following the visit.

0810. CONTRACTS INVOLVING AMMUNITION AND EXPLOSIVES

a. The primary mission of this activity is centered around unique military ammunition, explosives and weaponry. Therefore, special guidance is necessary. Accordingly, contractors are required to comply with the provisions of DOD 4145.26M, NAVSEA OP-5, and all other applicable DOD/DON safety regulations regarding work in ammunition and explosives areas and facilities.

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b. Contracting Officer Responsibilities:

(1) Provide safety clauses and technical safety data in contracts for work in connection with ammunition and explosive areas and facilities.

(2) Consult with the Station Safety Director and Fire Chief to insure that adequate safety and fire criteria are included in the contract.

(3) Require pre-award safety surveys be conducted to determine that the contractor can meet at least the minimum requirements of applicable explosives safety regulations.

c. Contractor Responsibility. Provide a safety program to assure the safety of its employees, Station personnel and the general public and property. Designate a responsible individual as point of contact for safety matters.

d. Safety Office Responsibility. Review for safety implications and specifications, including plans for modifying or changing, in any way, facilities or equipment.

e. Waivers and Exemptions.

(1) When compliance with mandatory safety requirements cannot be effected, a request for waiver or exemption will be forwarded by the Contracting Officer to the Station Safety Director.

(2) The Safety Director will evaluate the request and, if valid, forward recommendations to CNO/NAVSEA, as appropriate, in accordance with the procedures established in Chapter 11 of this manual.

f. Use of Lasers. Every system using a laser must have prior approval of the Station Commanding Officer. Laser safety encompasses hazards to personnel, ordnance, fuel and all other material that can be irradiated by a laser. Laser safety and health standards are contained in NAVSEAINST 5101.1 (NAVSEA Laser Safety Program) and BUMEDINST 6470.14 (Laser Health Standards).

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g. Use of Explosives and Explosive Devices.

(1) Permission shall be obtained from the Commanding Officer before explosives are brought on the Station. Plans for the use of explosives or explosive devices shall be reviewed by the ROICC in consultation with the Station Safety Director prior to use of such explosives or explosive devices on the Station.

(2) Blasting materials or other explosives shall be stored in approved magazine storage when such materials must remain on the Station beyond regular working hours.

(3) Powder-actuated tools shall not be used in explosive facilities unless authorized by the Station Safety Director and the Ordnance Officer.

h. Portable Power Tools. Sparking portable electric tools shall not be introduced or used in magazines or in locations where exposed explosives are present.

0811. CONSTRUCTION SITES

a. Walkways and Sidewalks.

(1) All walkways and sidewalks bordering on or running through any construction site shall be provided with substantial guardrails or board fences. In addition, temporary footwalks beyond the curb shall be substantially constructed and provided with protection on both sides.

(2) Sidewalks and walkways shall be kept clean of excavated materials or other obstructions and no sidewalks shall be undermined unless shored to carry a live load of 125 pounds per square foot.

(3) If planks are used for a sidewalk they shall be butt ended and cleated underneath to prevent displacement. Planks shall be uniform in thickness and all exposed ends shall be beveled to prevent tripping.

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(4) Raised walkways shall be provided with plank steps on strong stringers. Ramps used in place of steps shall be provided with cleats to insure safe walking.

b. Illumination. During the hours between sunset and sunrise, all sidewalks and walkways shall be adequately illuminated, and warning lights shall be placed about the property.

c. Overhead Protection. Pedestrian and vehicle traffic shall not be required or permitted to travel under loads handled by power shovels, derricks, or hoists, unless ample side barricades and overhead protection are provided.

0812. STREET AND ROAD WORK PROJECTS

a. Traffic flow must be maintained safe and with minimum of delay on Station street and roadway systems. Contractors performing any type of work on or near Station thoroughfares, thoroughfares, or whose vehicle is disabled shall place adequate traffic warning devices (signs, flashers, barricades, etc.) on roadways at least 300 feet prior to work sites or vehicle on straightaways and 500 feet on curves (in both directions). Traffic controls and placement of traffic warning devices shall comply with Federal Standards for Uniform Traffic Control Devices for Streets and Roadways (ANSI Standard D6.1).

b. When signs, signals, and barricades do not provide necessary protection on or adjacent to a roadway or street, flagmen or other appropriate traffic controls shall be provided.

(1) Flagmen shall be provided with and shall wear a red or orange warning garment while flagging. Warning garments worn at night shall be reflectorized material. Danger or warning signs shall be posted at all truck entrances and exits.

c. Open trenches, manholes, overhead work on wires or trees, or other potential hazards to pedestrians or motor vehicles shall be adequately marked with warning devices and barricades.

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0813. MOTOR VEHICLE REGULATIONS

a. Motor vehicle operations on the Station must comply with New Jersey Traffic Laws (NJSA Title 39) and Station Security Regulations (WPNSTAEINST 5510.1 series).

b. Only personnel holding a valid driver's license issued by a state or government authority may operate a motor vehicle aboard this Station. Operation of a government vehicle requires a current government vehicle operator's license.

c. On entering or leaving the Station, a motor vehicle must be brought to a complete stop until the sentry directs it to proceed. At night, lights will be dimmed when approaching gates.

d. The following vehicles are classified as emergency vehicles at this Station: fire apparatus, ambulances, security (police) vehicles, and vehicles marked "ammunition" or "explosives." "Ammunition" or "explosive" vehicles in operation are placarded on all four sides, and have their head lights on and flashers in operation.

e. When approached by an emergency vehicle from any direction, a motor vehicle shall pull to the side of the road and stop until the emergency vehicle has passed.

f. A motor vehicle overtaking an emergency vehicle shall remain a safe distance behind and not pass the emergency vehicle.

g. Troops marching on the highway shall have the right of way, but may be passed at a safe clearance at no more than 5 mph.

h. No unauthorized vehicles are permitted in restricted areas of the Station.

i. Only one lane traffic is permitted on overpasses or underpasses on Normandy Road. Southbound (toward Main Base area) traffic shall, in constricted areas, yield right of way to northbound (toward Waterfront Area) traffic, except that emergency vehicles displaying their lights shall have right of way over all other vehicles.

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j. All vehicles will be operated with due regard for the possibility of the sudden appearance of wildlife on the roadway.

k. Motor vehicles with catalytic converters shall not be operated within 100 feet of fuel storage and transfer operations, where low-lying accumulations of flammable vapors or hazardous ignition-combustible material sources are present. In addition, such vehicles will not be parked over any grassy area or unpaved surfaces which could be considered to be oil soaked.

l. All motor vehicle accidents must be reported to the Security Officer without delay.

m. Except for Station vehicles, CB radio transmission is not authorized on the Station because of the radio frequency (rf) signals present potential dangerous situations when near certain buildings with rf activated explosive devices. All such equipment must be registered in accordance with WPNSTAEINST 2302.1 series and the Security Manual, WPNSTAEINST 5510.1. Any unauthorized radio transmission is cause for denying entry on the Station.

n. Smoking in vehicles is strictly prohibited while on the Station.

0814. BROKEN ARROW ACCIDENTS/INCIDENTS

a. A "Broken Arrow" Accident/Incident alert signifies that an emergency of grave significance exists. The Station signal for this condition is repeated blasts (10 or more) of the fire whistles.

b. When this signal is sounded, all personnel will take the following actions:

(1) All windows, doors, vents and air conditioners of offices and shops are to be secured.

(2) Personnel walking or working outdoors will take cover in the nearest building. (Contractor/utility supervisors will be responsible for knowing the location of an open building nearest this work site.)

**APPENDIX C**  
**CHEMICAL HAZARD DATA SUMMARIES**

[1] Chemical Hazards

[a] Identify and attach Material Safety Data Sheets for all reagent type chemicals, solutions or other materials identified as or which in normal use could produce hazardous substances used in performing tasks related to tasks related to this project. ( ) N/A

[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Arsenic (As)  Site 19 -1.3 mg/kg	(* ) State <u>Solid</u> pH <u>FP</u> -- IEL -- UEL -- Auto.Ig -- BP <u>2672</u> °C MP <u>-1157</u> °C Incompatible with - <u>properties vary depending</u> <u>upon specific compound</u> Sp.Gr <u>7.2</u> Vap.D Vap.P <u>H2O Sol.</u> Oth. _____	<u>10 ug/m<sup>3</sup></u> <del>200 ug/m<sup>3</sup></del>  Ca	Inhalation Ingestion Skin Absorption Direct Penetration Dermatitis GI disturbances Respiratory system irritation Hyperpigment of skin	
Chromium  Site 19 -0.021 mg/kg	(* ) State <u>Solid</u> pH <u>FP</u> -- IEL -- UEL -- Auto.Ig <u>BP2672</u> °C MP <u>1157</u> °C Incompatible with - <u>properties vary depending</u> <u>upon specific compound</u> Sp.Gr <u>7.2</u> Vap.D Vap.P <u>H2O Sol.</u> Oth. _____	<u>1 mg/m<sup>3</sup></u> <del>.5 mg/m<sup>3</sup></del>  IDLH-500mg/m <sup>3</sup>  TLV for Gr VI - .05 mg/m <sup>3</sup>	Inhalation Ingestion Chromium (VI) carcinogen Irritant - eye, throat	

\* E = Explosive, F = Flammable, C = Corrosive, R = Reactive, W = Water reactive, O = Oxidizing, Ra = Radioactive. State = Normal physical state at site/proj. temp.

\*\* Use lowest of two, if no TLV/PEL, use Toxicity data in following order: Lowest Toxic Concentration in humans (LTC-HMN), Lowest Lethal Conc. in humans (LLC-HMN), Lowest Toxic Dose in humans (LT), Lowest Lethal Dose in humans (LLD-HMN), LC50 or LD50 in humans, the Lowest Toxic Concentration in animals, the lowest LC50 or LD50 in animals.

\*\*\* I = Inhalation, G = Ingestion, S = Skin Absorption, C = Contact, D = Direct Penetration

+ IP = Ionization Potential

[1] Chemical Hazards

[a] Identify and attach Material Safety Data Sheets for all reagent type chemicals, solutions or other materials identified as or which in normal use could produce hazardous substances used in performing tasks related to tasks related to this project. ( ) N/A

[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ & Response
Cadium (Cd)	(* ) State <u>Solid</u> pH <u>FP</u> -- LEL -- UEL -- Auto.Ig <u>BP</u> <u>MP</u>	40 mg/m <sup>3</sup>  Ca	Inhalation Ingestion Shortness of breath Coughing; tight chest Headache; chills Muscle aches Nausea Diarrhea	
Site 3-0.008 mg/L	Incompatible with - <u>strong oxidizers; elemental sulfur; selenium; tellurium</u>			
Site 19- 0.006, 0.005, and 0.004 mg/L	Sp.Gr _____ Vap.D _____ Vap.P _____ H2O Sol. _____ Oth. <u>appearance and odor vary for specific compound</u>			

(\* ) State \_\_\_\_\_  
pH \_\_\_\_\_ FP \_\_\_\_\_ LEL \_\_\_\_\_ UEL \_\_\_\_\_  
Auto.Ig \_\_\_\_\_ BP \_\_\_\_\_ MP \_\_\_\_\_  
Incompatible with -  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Sp.Gr \_\_\_\_\_ Vap.D \_\_\_\_\_  
Vap.P \_\_\_\_\_ H2O Sol. \_\_\_\_\_  
Oth. \_\_\_\_\_, \_\_\_\_\_

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\*\* Use lowest of two, if no TLV/PEL, use Toxicity data in following order: Lowest Toxic Concentration in humans (LTC-HMN), Lowest Lethal Conc. in humans (LLC-HMN), Lowest Toxic Dose in humans (LT), Lowest Lethal Dose in humans (LLD-HMN), LC50 or LD50 in humans, the Lowest Toxic Concentration in animals, the lowest LC50 or LD50 in animals.

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[1] Chemical Hazards

[a] Identify and attach Material Safety Data Sheets for all reagent type chemicals, solutions or other materials identified as or which in normal use could produce hazardous substances used in performing tasks related to tasks related to this project. ( ) N/A

[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Copper (Cu)	(* ) State <u>Solid</u> pH <u>FP</u> -- LEL -- UEL -- Auto.Ig -- BP <u>2567°C</u> MP <u>1083°C</u> <u>Incompatible with -</u> <u>acetylene gas;</u> <u>magnesium metal</u> Sp.Gr <u>8.92</u> Vap.D Vap.P <u>NA</u> H2O Sol. Oth. <u>odorless solids</u>	1 mg/m <sup>3</sup>  NA	Inhalation Ingestion Contact Mucous membrane pharynx irritant Eye irritant Metal taste Dermatitis	
Site 2-0.024 mg/L				
Lead (Pb)	(* ) State <u>Solid</u> pH <u>FP</u> LEL UEL Auto.Ig <u>BP1740°C</u> MP <u>327.5°C</u> <u>Incompatible with -</u> <u>strong oxidizers, hydrogen</u> <u>peroxide; active metals -</u> <u>sodium, potassium</u> Sp.Gr <u>11.34</u> Vap.D Vap.P H2O Sol. Oth. <u>odorless solids</u>	0.05 mg/M <sup>3</sup> 0.15 mg/M <sup>3</sup>  IDLH variable	Inhalation Ingestion Contact Abdominal pain Insomnia Malnutrition Tremors	
Properties vary depending upon specific compound				
Site 2-.014 mg/L				

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[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Nickel (Ni)	(* ) State <u>Solid</u> pH <u>    </u> FP <u>--</u> LEL <u>--</u> UEL <u>--</u> Properties vary depending upon specific compound. Auto.Ig <u>--</u> BP <u>2732°C</u> MP <u>1453°C</u> Incompatible with - <u>strong acids; combustibles</u>	1.0 mg/m <sup>3</sup>  Ca	Inhalation Ingestion Contact Sensitization Dermatitis	
Site 3-.05 mg/L groundwater	Sp.Gr <u>9.9</u> Vap.D <u>    </u>			
Site 19-.016mg/L surface water	Vap.P <u>    </u> H2O Sol. <u>    </u> Oth. <u>appearance, and odor vary depending upon specific compound</u>			
Silver (Ag)	(* ) State <u>Solid</u> pH <u>    </u> FP <u>--</u> LEL <u>--</u> UEL <u>--</u> Properties vary depending upon specific compound Auto.Ig <u>--</u> BP <u>2212°C</u> MP <u>961°C</u> Incompatible with - <u>acetylene, ammonia, hydrogen peroxide</u>	.01 mg/m <sup>3</sup> <del>0.1 mg/m<sup>3</sup></del>  NA	Inhalation Ingestion Contact Nasal septum, throat Skin irritant Gastro-intestinal tract disturbances	
Site 10-.004mg/L	Sp.Gr <u>10.5</u> Vap.D <u>    </u> Vap.P <u>    </u> H2O Sol. <u>    </u> Oth. <u>appearance, and odor vary depending upon specific compounds</u>			

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[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP <sup>+</sup> % Response
Zinc (Zn)  Properties vary depending upon specific compound  .22 mg/L Site 3  1.01 mg/L Site 10	(* ) State <u>Solid</u> pH <u>    </u> FP <u>--</u> LEL <u>--</u> UEL <u>--</u> Auto.Ig <u>    </u> BP <u>907°C</u> MP <u>419.6°C</u> Incompatible with - <u>chlorinated compounds</u>   Sp.Gr <u>7.14</u> Vap.D <u>    </u> Vap.P <u>    </u> H2O Sol. <u>    </u> Oth. <u>    </u> , <u>    </u>	5 mg/m <sup>3</sup>	Inhalation Ingestion Sweet metal taste Dry throat, cough Tight chest Shortness of breath Nausea Headache Vomiting Fatigue	
214 mg/kg Site 19	(* ) State <u>    </u> pH <u>    </u> FP <u>    </u> LEL <u>    </u> UEL <u>    </u> Auto.Ig <u>    </u> BP <u>    </u> MP <u>    </u> Incompatible with - <u>    </u>   Sp.Gr <u>    </u> Vap.D <u>    </u> Vap.P <u>    </u> H2O Sol. <u>    </u> Oth. <u>    </u> , <u>    </u>			

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[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Methylene Chloride  Site 5 -420 ug/L	(* ) State <u>Liquid</u> pH <u>FP None</u> LEL <u>12%</u> UEL <u>19%</u> Auto.Ig <u>-</u> BP <u>104°F</u> MP <u>-142°F</u> Incompatible with - <u>strong oxidizers and</u> <u>caustics; active metals</u>  Sp.Gr _____ Vap.D _____ Vap.P <u>350 mm</u> of H <sub>2</sub> O Sol. <u>1.3%</u> Oth. <u>colorless, liquid with</u> <u>chloroform-like odor</u>	500/100 ppm  IDLH -5,000ppm	Inhalation Ingestion Contact Fatigue Weakness Light-headedness Nausea Irritant - eyes, skin	
Acetone  Site 10 - 760 ug/L	(* ) State <u>Liquid</u> pH <u>FP 1.4°F</u> LEL <u>2.6%</u> UEL <u>12.8%</u> Auto.Ig _____ BP <u>133°F</u> MP <u>-169°F</u> Incompatible with - <u>oxidizing materials; acids</u>  Sp.Gr _____ Vap.D _____ Vap.P <u>266 mm</u> of H <sub>2</sub> O Sol. <u>Miscible</u> Oth. <u>colorless liquid, mint-</u> <u>like odor</u>	1000/750 ppm  IDLH - 20,000 ppm	Inhalation Ingestion Contact Eyes, Nose, Throat Irritant Headache Dizziness Dermatitis	

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[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
is (2-Ethylhexyl) phthalate  Site 4-53 ug/L	(* ) State <u>Solid</u> pH <u>FP</u> <u>LEL</u> <u>UEL</u> Auto.Ig <u>BP</u> <u>MP</u> Incompatible with -  Sp.Gr <u>Vap.D</u> Vap.P <u>H2O Sol.</u> Oth. <u>,</u>	5 mg/m <sup>3</sup>  Ca	Inhalation Ingestion Skin Absorption Contact Chronic exposure symptoms determined only.	
N-nitrosodiphenylamine  Site 4-60 ug/L	(* ) State <u>Solid</u> pH <u>FP</u> <u>LEL</u> <u>UEL</u> Auto.Ig <u>BP</u> <u>MP 144°F</u> Incompatible with -  Sp.Gr <u>Vap.D</u> Vap.P <u>H2O Sol.</u> Oth. <u>green plates with bluish luster</u>	ND	Inhalation Ingestion Skin Absorption Contact Chronic exposure symptoms determined only.	

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Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Di-n-Butyl Phthalate	(* ) State _____ pH _____ FP _____ LEL _____ UEL _____ Auto.Ig _____ BP _____ MP _____	ND	Inhalation Ingestion Skin Absorption	
Site 7-54 ug/L	Incompatible with - _____ _____	Ca	Contact Only chronic symptoms determined	
Site 10-70 ug/L	Sp.Gr _____ Vap.D _____ Vap.P _____ H2O Sol. _____ Oth. _____			
2,4,6 Trinitrotoluene	(* E ) State Solid pH _____ FP _____ LEL _____ UEL _____ Auto.Ig 887°F BP 464°F MP 178°F	1.5 mg/m <sup>3</sup> <del>0.5 mg/m<sup>3</sup></del>	Inhalation	
2,4,6 TNT	Incompatible with - <u>strong oxidizers; ammonia,</u> <u>strong alkalis; oxidizable</u> <u>materials</u>		Ingestion Skin Absorption Contact Sneezing Coughing Sore throat Dermatitis	
Site 11-1.85 ug/L	Sp.Gr _____ Vap.D _____ Vap.P <u>0.5 mm of Hg</u> H2O Sol. <u>0.013%</u> Oth. <u>colorless to pale yellow;</u> <u>odorless solid</u>			

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[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ & Response
2-Butanone Methyl ethyl ketone	(* ) State <u>Liquid</u> pH <u>FP 21°F</u> LEL <u>2%</u> UEL <u>10%</u> Auto.Ig <u>BP 175°F</u> MP <u>-123°F</u> Incompatible with - <u>very strong oxidizers</u>	200 ppm IDLH-3,000ppm	Inhalation Ingestion Contact Irritant - eyes, nose Dizziness, vomiting Headache	
Site 5-12 ug/L	Sp.Gr _____ Vap.D _____ Vap.P <u>70 mm of H2O Sol. 27%</u> Oth. <u>clear, colorless liquid;</u> <u>moderately sharp odor</u>			
Pentachlorophenol (PCP)	(* <u>Not Combustible</u> ) State <u>Solid</u> pH <u>FP -</u> LEL <u>-</u> UEL <u>-</u> Auto.Ig <u>BP 592°F</u> MP <u>360°F</u> Incompatible with - <u>strong oxidizers</u>	0.5 mg/m <sup>3</sup> IDLH-150mg/m <sup>3</sup>	Inhalation Ingestion Skin Absorption Contact Irritant - eyes, nose, throat Sneezing; coughing; weakness Headaches; dizziness; nausea Vomiting; shortness of breath Chest pain; dermatitis	
Site 11-120 ug/L	Sp.Gr _____ Vap.D _____ Vap.P <u>.0002 mm H2O Sol. .002%</u> Oth. <u>slight brown solid with</u> <u>pungent odor</u>			

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