

R-49-6-91-15

**FINAL  
HEALTH AND SAFETY PLAN**

**COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION NAVY  
(CLEAN) PROGRAM**

**NWIRP BETHPAGE  
NASSAU COUNTY, NEW YORK**

**CONTRACT NUMBER N62472-90-D-1298**

**CONTRACT TASK ORDER 003**

**AUGUST 1991**



**HALLIBURTON NUS**  
*Environmental Corporation*



PARK WEST TWO 2100 CLIFF MINE ROAD PITTSBURGH, PENNSYLVANIA 15275-1071 (412) 788-1080

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COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION NAVY (CLEAN) PROGRAM**

**NWIRP BETHPAGE  
NASSAU COUNTY, NEW YORK**

**SUBMITTED TO:  
NORTHERN DIVISION, ENVIRONMENTAL BRANCH, CODE 14  
NAVAL FACILITIES ENGINEERING COMMAND  
BUILDING 77-L, U.S. NAVAL BASE  
PHILADELPHIA, PENNSYLVANIA 19112-5094**

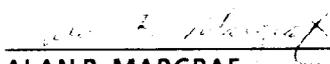
**SUBMITTED BY:  
HALLIBURTON NUS ENVIRONMENTAL CORPORATION  
PARK WEST TWO, 2100 CLIFF MINE ROAD  
PITTSBURGH, PENNSYLVANIA 15275**

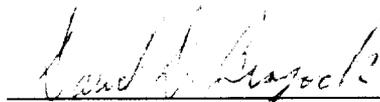
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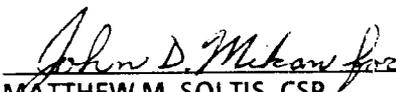
**AUGUST 1991**

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## 1.0 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

Site Name: NWIRP Bethpage

Client Contact: Frank Klanchar

Address: Nassau County, New York

Phone Number: (215) 897-6280

\_\_\_\_\_

Other Contacts: M. Simonson

\_\_\_\_\_

Phone Number: (516) 575-9952

\_\_\_\_\_

Other Contacts: Antonios Giouvalakis

Phone Number: (516) 575-3055

Effective Date: August 19, 1991

Purpose of Site Visit: Remedial Investigation

Proposed Dates of Work: Start third week of August and last approximately 7 weeks.

### Project Team:

#### HALLIBURTON NUS Personnel:

Dave Brayack

Kevin Kilmarton

Randy Patarcity

Fred Ramser

Dave Yost

Alan Margraf

Terry Rojahn

#### Discipline/Tasks Assigned:

Project Manager

Field Operations Leader (FOL)

Geologist/Sampler

Geologist

Geologist

Site Safety Officer (SSO)

Sampler

#### Non-HALLIBURTON NUS Personnel/Affiliation

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### Plan Preparation:

Prepared by: \_\_\_\_\_ ( \_\_/\_\_/\_\_ )

Reviewed and Approved by: \_\_\_\_\_ ( \_\_/\_\_/\_\_ )

### Reviewed:

HALLIBURTON NUS Project Manager: \_\_\_\_\_

### Follow Up Report:

Responsible Person: \_\_\_\_\_

(Must fill out Follow-up Report)

## 1.1 INTRODUCTION

This draft Health and Safety Plan (HASP) has been developed to provide safety procedures for HALLIBURTON NUS employees and HALLIBURTON NUS subcontractor personnel engaged in Remedial Investigation activities at the NWIRP Bethpage facility. This plan was developed using available information regarding known/suspected chemical contaminants and physical hazards that may be encountered during the planned investigatory activities. If additional information becomes available prior to or throughout the course of field activities, this document will be modified accordingly. Modifications will be determined by the HALLIBURTON NUS Health and Safety Officer (HSO) and will be immediately communicated to appropriate personnel. This HASP is intended to be in compliance with 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response; Final Rule."

The health and safety related programs presented as Appendices B, C, D, and E are fill-in-the-blank type programs which must be filled out completely the first day of site activity.

## 2.0 BACKGROUND OF SITES 1, 2, AND 3

*Facility Description:* The NWIRP Bethpage Site is located in Nassau County, New York, near the geographic center of Long Island (see Figure 2-1). NWIRP Bethpage conducts research prototyping, testing, design engineering, fabrication, and primary assembly of various military aircraft.

### 2.1 PRINCIPAL DISPOSAL METHOD (TYPE AND LOCATION)

#### 2.1.1 Site 1 - Former Drum Marshaling Areas

Starting in 1969, hazardous waste management practices for Grumman Aerospace Corporation facilities on Long Island included marshaling of drummed wastes on the Navy property at NWIRP Bethpage. Such storage first took place on a cinder-covered surface over the cesspool field east of Plant 03 (Area 2, Figure 2-2). From the early 1950s through about 1978, drums containing liquid cadmium waste were stored here. In 1978, the collection and marshaling point was moved a few yards south of the original unpaved site, to an area on a 100-foot concrete pad (Area 1, Figure 2-2). This pad had no cover, nor did it have berms for containment of spills. In 1982, drummed waste storage was transferred to the present Drum Marshaling facility, located in the Salvage Storage Area (Site 3); a cover was added in 1983.

Reportedly, all drums of waste marshaled at the Former Drum Marshaling Areas were taken off-activity by a private contractor for treatment or disposal. There are no reports of leaks or spills of drum contents.

Materials stored at the Former Drum Marshaling Areas included waste halogenated and nonhalogenated solvents. Cadmium and cyanide were also stored in Area 2 from the early 1950s through 1974. Reportedly, 200 to 300 drums were stored at each area at any one time.

The Mannelto gravel and the Upper Glacial and the Magothy aquifers underlying the site have a high migration potential for contaminants. Additionally, large volumes of hazardous wastes were stored at the site from the early 1950s to 1978, and the site operated without comprehensive containment safeguards. *Reportedly, there is no direct evidence of hazardous waste spills at the site.*

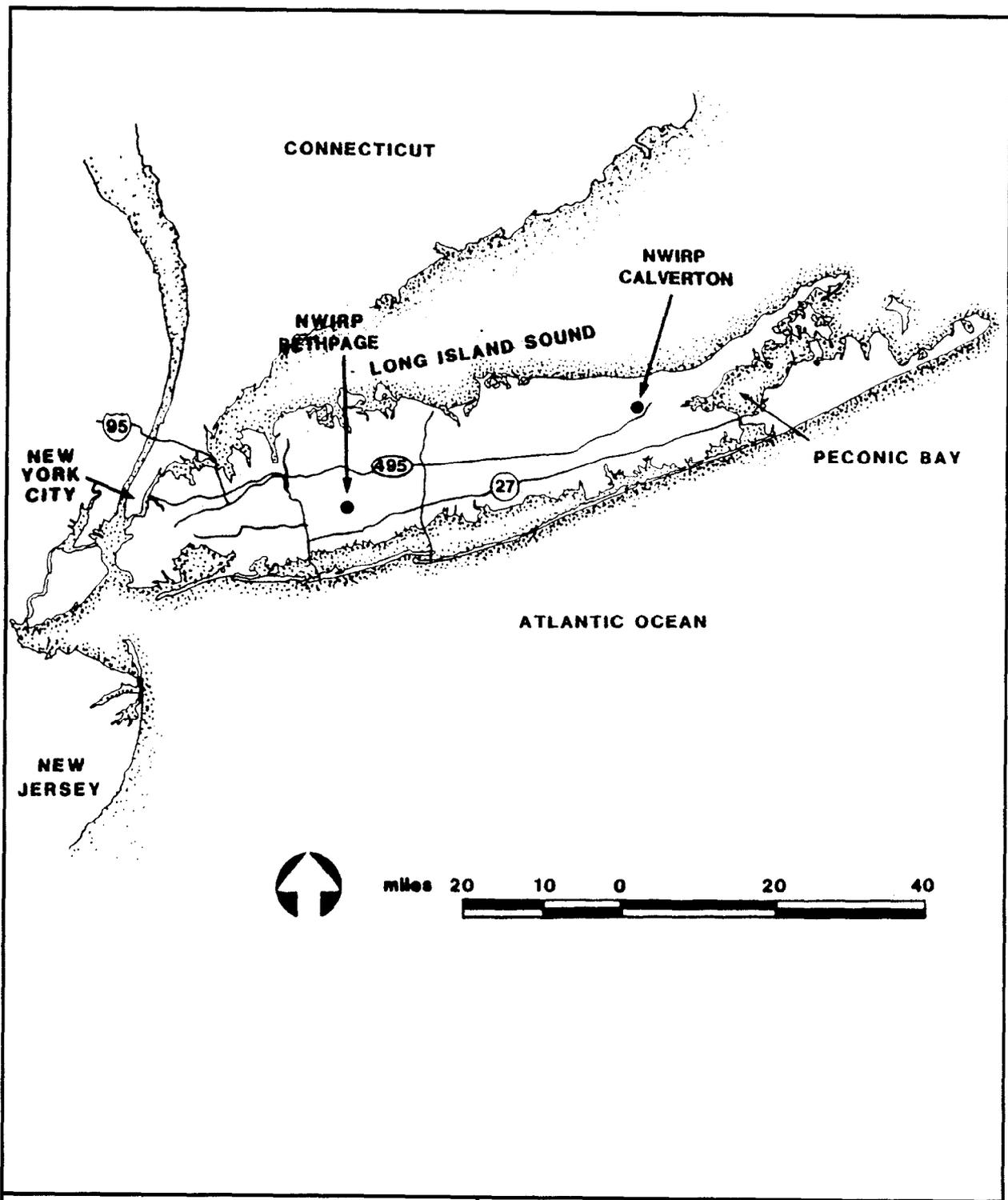
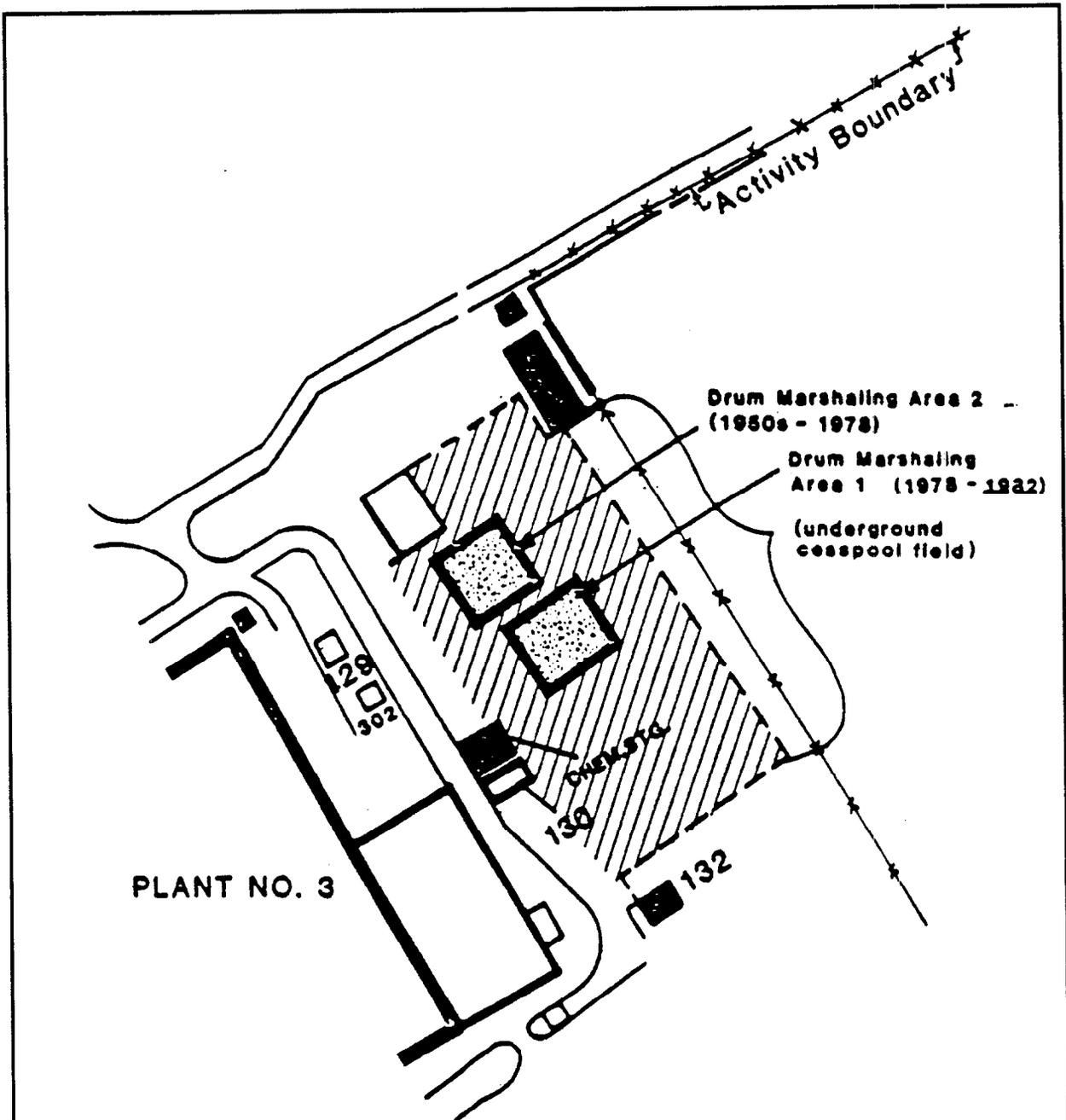


FIGURE 2-1  
 GENERAL LOCATION MAP  
 NWIRP BETHPAGE AND  
 NWIRP CALVERTON,  
 NEW YORK

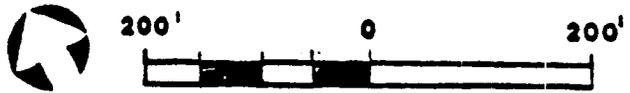


**Initial Assessment Study**  
 Naval Weapons Industrial  
 Reserve Plant  
 Bethpage and Calverton  
 Long Island, New York



**LEGEND**

-  Underground Cesspool Field
-  Marshaling / Spill Area



<p>FIGURE 2-2</p> <p>SITE 1</p> <p>FORMER DRUM MARSHALING AREAS</p> <p>NWIRP BETHPAGE, NEW YORK</p>	 <p><b>Initial Assessment Study</b></p> <p>Naval Weapons Industrial Reserve Plant</p> <p>Bethpage and Calverton</p> <p>Long Island, New York</p>
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### **2.1.2 Site 2 - Recharge Basin**

Surface water drainage on Long Island is, for the most part, locally controlled, with numerous recharge basins used to channel this resource back to the groundwater. There are several such recharge basins located at NWIRP Bethpage (Figure 2-3).

Prior to 1984, some Plant 03 production line rinse waters were discharged to the recharge basins. The Environmental/Energy Survey of the activity, published in 1976, states that 1.85 million gallons per week were discharged to the recharge beds. These waters were directly exposed to chemicals used in industrial processes (involving the rinsing of manufactured parts). Reportedly, these discharges of dilute rinsewaters did not contain chromates.

Since about 1977, the discharge rate has been 1.4 million gallons per week of non-contact cooling water. All discharge presently goes to the Industrial Wastewater Treatment Plant.

Also, adjacent to the recharge basins are the former sludge drying beds. Sludge from the Plant 02 Industrial Waste Treatment Facility was dewatered in the drying beds before off-site disposal.

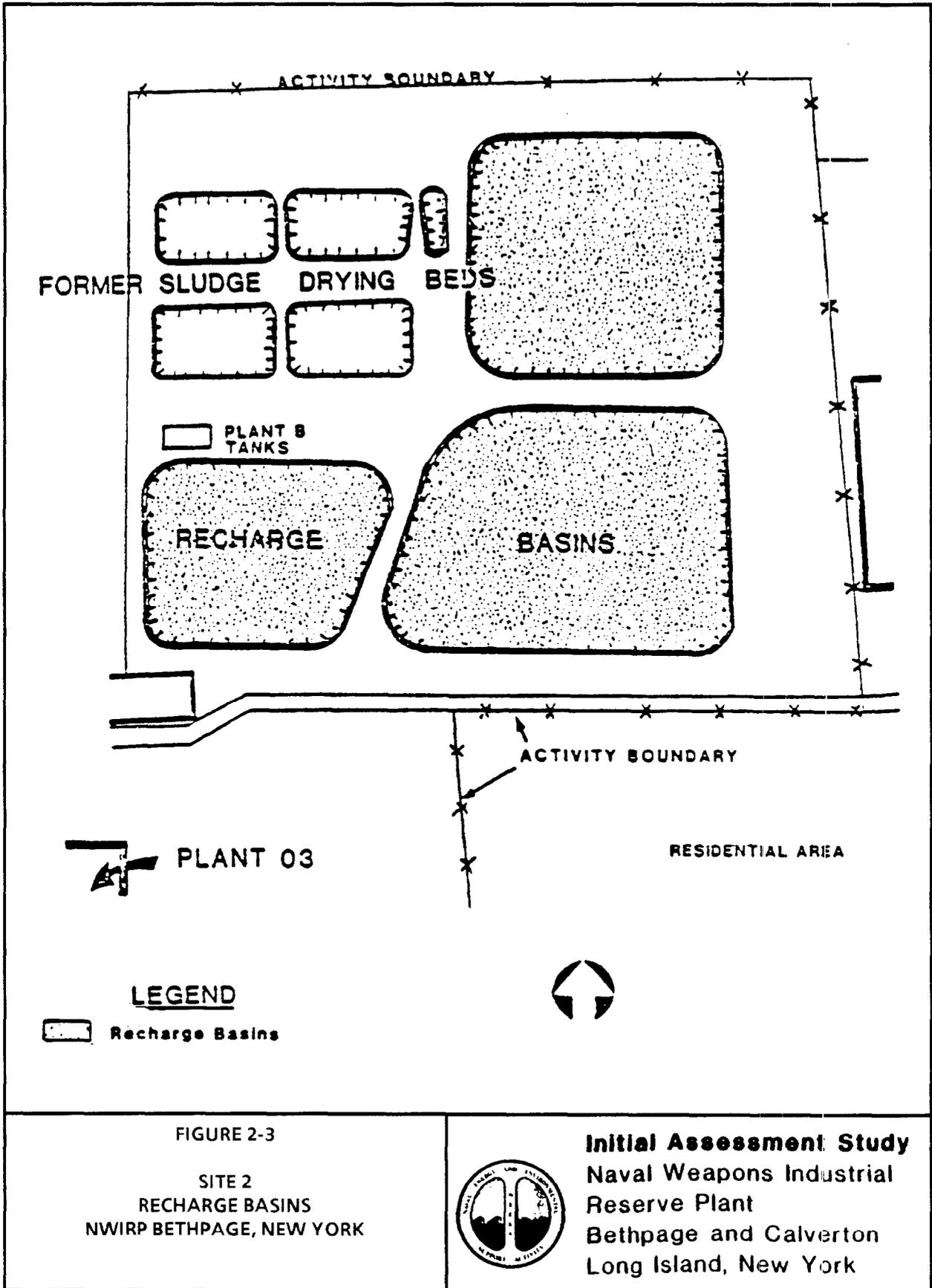
On at least one occasion, sampling performed by the Nassau County Department of Health detected levels of hexavalent chromium in excess of allowable limits. Grumman was notified of this noncompliance and asked to perform remedial actions necessary to eliminate the problem. Reportedly, Grumman complied with the request.

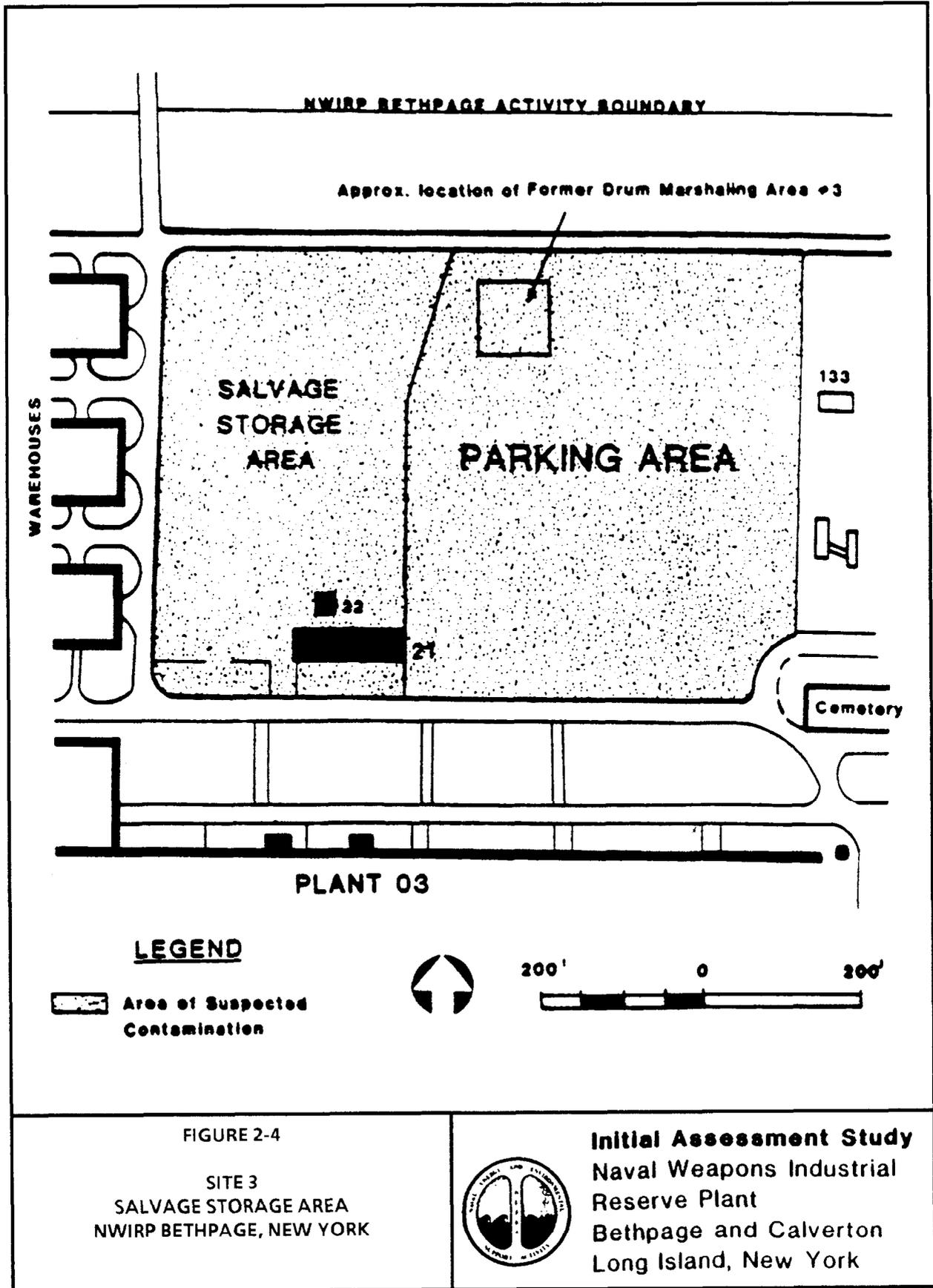
Contaminants of concern include the hexavalent (and other valence) chromium, aluminum, nitric acid, and sulfuric acid.

### **2.1.3 Site 3 - Salvage Storage Area**

The NWIRP Bethpage Salvage Storage Area is located north Plant 03 (Figure 2-4). Fixtures, tools, and metallic wastes were stored here prior to recycling from the early 1950s through 1969.

Stored materials included aluminum and titanium scraps and shavings. While in storage, cutting oils dripped from some of this metal. During the 1985 visit, IAS team members observed oil-stained ground at the site. However, soil tests performed by Grumman in 1984 revealed that oil stains were superficial; oil residues were not detected below the top several inches of soil material in the Salvage Storage Area at the location tested (NAVPRO, 1986).





Around 1960, the Salvage Storage Area was reduced in size to accommodate parking. Around 1970, it was reduced again for the same reason. Consequently, storage facility locations at this site have been periodically moved to accommodate changes in storage area size.

In addition to salvage storage, a 100- by 100-foot area within the boundary of the Salvage Storage Area was used for marshaling of drummed waste. The area was paved with coal ash cinders. Drum marshaling continued here from the early 1950s to 1969. Wastes marshaled throughout the area included waste oils, and waste halogenated and non-halogenated solvents.

Potential contaminants of concern at Site 3 (from both drum marshaling and salvage storage) include cutting oils, aluminum, titanium, and halogenated and nonhalogenated solvents. For map showing all three sites, see Figure 2-5.

## **2.2 HISTORY (GENERAL)**

NWIRP Bethpage was established in 1933. The main function of the facility throughout the years has been to design prototypes, test Navy aircraft, and to perform primary assembly of various Naval aircraft. Hazardous and industrial chemicals/wastes were generated primarily as a result of aircraft production.

### **2.2.1 Legal Action**

On December 6, 1983, a "Letter of Claim" was filed against Grumman Aerospace Corporation by the New York State Department of Environmental Conservation. The claim, filed pursuant to Section 112(d) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), is intended to cover any potential damage to the State's natural resources attributed to Grumman Aerospace's sludge drying beds. The sludge drying beds are located on Site 2, adjacent to the groundwater recharge basins.

### **2.2.2 Physical Features**

The Navy property at NWIRP Bethpage is nearly completely developed. Over 90 percent of the facility is covered by buildings, impermeable parking lots, roadways, and other developments. As a result of this extensive urban development, the natural physical features of NWIRP Bethpage have been altered greatly. There are no surface drainage features, no ponds, and the topography is flat; additionally soils are almost universally disturbed.



## 3.0 SCOPE OF WORK

### 3.1 FIELD ACTIVITIES

A concurrent, three-phase field investigation is planned at this facility. These three phases are a soil-gas survey, a soil sampling and HydroPunch groundwater sampling investigation, and a groundwater sampling investigation. The first phase will be a soil-gas survey to identify potential areas of soil and groundwater contamination. The soil-gas samples will be analyzed at an onsite mobile field GC laboratory. Locations for the Phase 2 activities will be selected at the areas found to have high soil-gas contaminant concentrations. The second phase will consist of a soil sampling and a HydroPunch groundwater sampling investigation. The soil samples will be collected at 5 feet and/or 20 to 30 feet and coincide with elevated concentrations in the soil-gas measurements. These samples will be analyzed at an offsite fixed-base laboratory. The HydroPunch samples will be collected approximately 5 feet into the water table and analyzed at an onsite mobile field GC laboratory. The HydroPunch groundwater survey will be used to determine the location of groundwater contamination and to place the monitoring well clusters. The third phase will consist of the installation of monitoring wells and the sampling and chemical analysis of surface soils, groundwater, sediment, surface water, and wastes. These samples will be analyzed at an offsite fixed-base laboratory. The three phases will overlap in order to avoid schedule delays. All of the samples will be analyzed for TCL (Target Compound List) volatile organics. Soil samples at the surface and up to 5 feet deep, groundwater (except the HydroPunch samples), sediments, surface water, and the waste (if found) will be analyzed for TCL semivolatile organics, TAL (Target Analyte List) metals, and cyanide. The water samples (except the HydroPunch samples) will also be analyzed for hexavalent chromium. In addition, select soil, sediment, and groundwater samples will be analyzed for engineering parameters.

#### 3.1.1 Soil-Gas Survey

The soil-gas survey will consist of placing soil-gas points in a uniform grid pattern in each of the three sites. A grid spacing of 150-foot centers will be used. In addition, opportunity locations will be selected in the field, based on results from grid pattern soil-gas locations, as well as areas of suspected contamination (drum marshaling areas). At each location, soil-gas samples will be obtained at two depths--5 feet and 20 to 30 feet. The 5-foot depth represents potential contamination in the soil near the source of a spill. Elevated soil-gas measurements at this depth would likely be an indication of soil contamination. The 20- to 30-foot depth represents the practical depth of this technique and

the result would likely be influenced by both soil and groundwater contamination. The samples will be analyzed in the field using a field GC.

A 3-point by 4-point grid would be used at Site 1. In addition, six opportunity sample locations would be selected in the field. A potential location of several of the opportunity locations would be near the former drum marshaling areas.

A 5-point by 5-point grid would be used at Site 2. In addition, four opportunity sample locations would be selected in the field. A potential location of several of the opportunity locations would be near the former sludge drying beds.

A 6-point by 5-point grid would be used at Site 3. In addition, six opportunity sample locations would be selected in the field. A potential location of several of the opportunity locations would be near the drum marshaling area.

The results of this testing are expected to provide a three dimension map of volatile organic contaminants in the soil vadose zone. These results would then be mapped for each site. Soil contamination would be expected to result in a relatively confined area of elevated soil-gas readings at the 5-foot depth, or at the 5-foot depth and the 20- to 30-foot depth. Whereas groundwater contamination would be expected to extend in the direction of the groundwater flow and result in higher readings at the 20- to 30-foot depth than at the 5-foot depth.

Based on this testing, HydroPunch groundwater sample locations and soil sample locations and depths would be selected. If minimal or no elevated soil-gas readings are found, then the HydroPunch sample points would be located primarily along the hydraulic upgradient and downgradient boundaries of the three sites. If elevated soil-gas readings are found, then 2 to 3 HydroPunch groundwater points would be located along the hydraulic downgradient boundary of each site; 2 to 3 HydroPunch groundwater points would be located along the hydraulic upgradient border of each site; and 3 to 4 HydroPunch groundwater points would be located in the center of the contamination at each site.

### **3.1.2 Soil Sampling**

Surface and subsurface soil samples will be collected at the site. The surface sample locations will consist of points in a relatively uniform 300-foot by 300-foot grid plus field determined opportunity sample locations. Areas covered by buildings and asphalt would not be considered for the

predetermined sample locations. The soil borings and soil samples during the collection of HydroPunch groundwater samples will be used to investigate the subsurface soil contamination.

There would be a 2-point by 3-point grid at Site 1; a 3-point by 4-point grid at Site 2; and a 2-point by 3-point grid at Site 3. The opportunity samples would be selected in the field during the field activities. Soils which appear to be stained or visually discolored would be selected. The total number of surface samples would be 29 samples. These samples would be collected at a depth of 1 to 6 inches and would be analyzed for TCL volatile and semivolatile organics, TAL metals, and cyanide. The results will be used to determine the nature and extent of soil contamination and to prepare a risk assessment.

The subsurface samples will be collected at a depth of 5 feet and/or 20 to 30 feet. For each location, the decision to sample is dependent on the soil-gas measurement at that location of depth. In general, if volatile organics were detected at that point, then a soil sample will also be obtained for offsite fixed-base laboratory analysis. And if volatile organics were not detected at that point, then a sample would not be obtained. However, a minimum of two soil samples will be collected at points where soil-gas measurements indicated the absence of contamination. These samples would be analyzed offsite at a fixed-base laboratory to confirm the absence of soil contamination. There will be an estimated 29 locations for the soil augering with an estimated 1.5 soil samples (for offsite analysis) at each location.

Samples will be collected with a split-spoon device. The split-spoon samples will be used to collect samples for analytical testing, and to identify the depth of the groundwater table and the lithology. For analytical testing, the split-spoon samples will be collected at a depth of 3 to 5 feet and/or at 20 to 30 feet (depending on the depth of the soil-gas measurement). To identify the depth of the groundwater table and the lithology, the split-spoon sampling would start again at about 40 to 45 feet and be conducted continuously until a suitable lithology for use of the HydroPunch is encountered in the groundwater. At this point, the HydroPunch is used.

The location of the soil borings will be established through a site survey.

All the soil samples will be analyzed for TCL volatile organics. The surface and near-surface (3 to 5 feet deep) soil samples will also be analyzed for semivolatile organics, TAL metals, and cyanide. These results primarily will be used to determine the nature and extent of soil contamination and to prepare a risk assessment.

In addition to these chemical analyses, select samples will also be evaluated for engineering parameters. Two samples will be selected at each site (for a total of 6), based on the field screening data. For each site, one sample should represent a relatively low level of contamination, and the second sample should represent an intermediate or high level of contamination. The engineering parameters consist of:

- Total organic carbon (TOC) to evaluate the potential for groundwater contamination through an estimate of the contaminant soil/water partition coefficient.
- Bulk density, grain size, moisture content, and pH for general engineering considerations.

### **3.1.3 HydroPunch Survey**

A HydroPunch (HP) survey will be conducted to aid in the placement of the permanent monitoring wells. This instrument allows for the collection of groundwater samples without the installation of permanent monitoring points. A soil auger with periodic split-spoon samples is used to advance a hole to the water table. The HP is then driven or pushed to the sampling horizon. At this point, a sampling port is exposed and a groundwater sample is taken. The minimum depth at which a sample may be collected is 5 feet below the water table because 5 feet of head is required to fill the HP. The samples will be screened with a field gas chromatograph (GC). All sampling equipment will be decontaminated between sampling events.

The HP sample points will be selected based on the results of the soil-gas survey. As a result, the location cannot be presented at this time. At present, 29 sampling points coinciding with the soil sample locations are planned for the three sites.

### **3.1.4 Monitoring Wells**

Monitoring wells will be installed to evaluate the impact of the three sites being investigated on the local groundwater quality and to assess the potential vertical and lateral migration of any contaminants. The potential vertical migration of the contaminants will be investigated through the construction of well clusters composed of shallow (50- to 60-foot deep), intermediate (100- to 150-foot deep), and deep (200- to 250-foot deep) monitoring wells. These will yield groundwater quality analyses from various depths and define the magnitude and direction of local vertical hydraulic gradients. The potential lateral migration of any contaminants will be investigated through the placement of wells both upgradient and downgradient from the sites. These wells will define the slope and gradient of the water table and thereby yield local directions of flow. A

comparison of water quality analyses from the upgradient and downgradient wells will show the impact of each site on the local groundwater quality.

Two rounds of water level measurements will be conducted to better define groundwater flow paths and horizontal and vertical gradients. The measurements will be conducted at each of the HALLIBURTON NUS-installed monitoring wells, the USGS well located south of Site 1, and five of the Grumman monitoring well clusters (GM-6, GM-7, GM-8, GM-12, and GM-13).

#### **3.1.4.1 Monitoring Well Locations**

A total of 19 monitoring wells (8 shallow, 8 intermediate, and 3 deep) will be installed at the NWIRP. As discussed above, the results of the soil-gas and HydroPunch program will be used to determine the exact locations of the wells. Because of the proximity and location of the three sites, some wells between Site 1 and Sites 2 and 3 will perform two functions. That is, they will serve as downgradient wells for Sites 2 and 3 and will serve as upgradient wells for Site 1. Where possible, the site process-water wells will serve as medium or deep wells.

##### Site 1 - Drum Marshaling Area

The reported direction of groundwater flow at Site 1 is to the south. However, the groundwater direction in this area is likely influenced by the recharge basins located north of Site 1, as well as the process water extraction wells located northwest of Site 1. Sites 2 and 3, which are located north and northwest of Site 1, are also potentially contaminated and may result in contamination in the upgradient wells.

Well clusters will be installed in three locations at Site 1. Two well clusters may be located along the south and southeast border of the site to serve as downgradient wells and the third well cluster may be located along the northern border of the site to serve as an upgradient well. Each well cluster would consist of at least two wells, one well monitoring the shallow zone (screened between 0 and 10 feet below the water table), and the second well monitoring the intermediate zone (screened between 50 and 100 feet below the water table). In addition, the well cluster along the southeast border of the site would also include a deep well (screened between 150 and 200 feet below the water table). There will be a total of 7 monitoring wells installed at Site 1.

### Site 2 - Recharge Basins

The reported direction of groundwater flow at Site 2 is to the southeast. However, the groundwater direction in this area is likely influenced by the process water extraction wells located west of Site 2. The Grumman areas north and northwest are also potentially contaminated and may result in contamination in the upgradient wells.

Well clusters will be installed in three locations. One well cluster may be located near the southeast corner of the site. The well cluster would include a shallow, intermediate, and deep well. This well cluster, as well as the upgradient well cluster for Site 1, would be used to monitor the groundwater downgradient of Site 2. The second well cluster may be located near the northwest corner of the site to monitor the upgradient groundwater. The well cluster would include a shallow and intermediate well. The third well cluster may be located along the north border of the site to also monitor the upgradient groundwater. The existing/proposed Grumman monitoring wells would be used to monitor the shallow and intermediate zone at this location (as well as Grumman analytical data). HALLIBURTON NUS would install a deep monitoring well at this location. There will be a total of six monitoring wells installed at Site 2.

### Site 3 - Salvage Storage Area

The reported direction of groundwater flow at Site 3 is to the southeast. However, the groundwater direction in this area is likely influenced by the process water extraction wells located west of Site 3 and the infiltration basins located east of Site 3. The Grumman areas north and northwest of Site 3 are also potentially contaminated and may result in contamination in the upgradient wells.

Well clusters will be installed in three locations. These well clusters may be located around the perimeter of the site, one near the southwest corner (downgradient), one along the south border (downgradient), and one near the northwest corner (upgradient). Each well cluster would consist of a shallow and intermediate well. For the two downgradient locations, the process water extraction wells will serve as deep wells. In addition, the upgradient well cluster for Site 1 would be used as a downgradient well. There would be a total of 6 monitoring wells installed at Site 3.

#### **3.1.5 Monitoring Well Sampling**

One round of groundwater sampling is proposed. Each new monitoring well will be sampled. The samples will be analyzed for TCL volatile and semivolatile organics and TAL metals. In addition, the samples will be analyzed for cyanide and hexavalent chromium. During the evaluation of the metal

data, turbidity from the surrounding sediments often results in an overestimation of risks associated with metal contaminants. As a result, the groundwater samples will be analyzed for total TAL metals and field-filtered TAL metals. These chemical analyses would be used to determine the nature and extent of contamination and to prepare a risk assessment.

In addition to the chemical analysis used for the nature and extent of contamination and risk assessment, select samples will also be evaluated for engineering parameters. A total of three samples will be selected from all of the monitoring wells, based on the field screening data. One sample should represent a relatively low level of contamination, one sample should represent an intermediate level of contamination, and one sample should represent a high level of contamination. The selection of these wells will be determined based on the HydroPunch Testing Program. These engineering parameters consist of:

- pH, total dissolved solids (TDS), alkalinity, and hardness to evaluate the scaling potential of the groundwater.
- Biological oxygen demand (BOD), total organic carbon (TOC), chemical oxygen demand (COD), and total suspended solids (TSS) to evaluate other contamination in the groundwater and potential treatment requirements.

Four process water wells are located around Site 3 and a USGS well is located south of Site 1. Samples will be collected of the water in these wells and analyzed for TCL volatile and semivolatile organics and total TAL metal, cyanide, and hexavalent chromium.

### **3.1.6 Surface Water/Sediment Sampling**

Two samples of the surface water will be collected from one of the basins and two samples of the sediment from each of the three basins (total of 6 sediment samples).

One surface water sample will be collected during a precipitation event to evaluate the potential transport of sediments into the basins, and the second sample will be collected during a non-precipitation event to evaluate potential contamination in process-generated wastewaters. The samples will be analyzed for TCL volatile and semivolatile organics and TAL metals. In addition, the samples will be analyzed for cyanide and hexavalent chromium. During the evaluation of the metal data, turbidity from the surrounding sediments often results in the overestimation of risks associated with the metals. As a result, the surface water samples will be analyzed for total TAL metals and

field-filtered TAL metals. These chemical analyses would be used to confirm the reported noncontact source of this waste water.

The six sediment samples will be analyzed as the soil samples. The samples will be analyzed for TCL volatile and semivolatile organics, TAL metals, and cyanide. These results will be used to primarily determine the nature and extent of contamination and to prepare a risk assessment.

### **3.1.7 Waste Sampling**

During the drilling operations in Site 2, sludge from the area of the former sludge drying beds may be encountered. One sample of this sludge will be collected to evaluate potential direct contact and groundwater contamination risks. This sample will be analyzed for TCL volatile and semivolatile organics and TAL metals. The sample also will be analyzed for cyanide. These results primarily will be used to determine the nature and extent of contamination and to prepare a risk assessment.

## 4.0 RISK ANALYSIS

### 4.1 CHEMICALS HAZARDS

The primary hazard associated with this investigation will be the potential for dermal contact and inhalation exposure with the waste/contamination in general. Many of the contaminants are irritants; others cause headaches, nausea, drowsiness, abdominal pain; and some are experimental or suspected carcinogens. Additionally, due to the lack of analytical data, it must be assumed that there is the potential for existing unknown contaminants at each site. Therefore, these concerns will be given special consideration when establishing action levels. Table 4-1 presents the known or suspected contaminants of concern, which may be present at one or more of the sites being investigated in this study. Another potential hazard is the generation of a flammable or oxygen-deficient atmosphere that could exist as a result of emissions from wells or boreholes. Because of this potential, it will be necessary to periodically monitor for combustible atmospheres within such enclosed spaces. Action levels regarding combustible gas/vapor monitoring are presented in Section 12.0, Air Monitoring.

A primary concern of this investigation is potential exposure to vinyl chloride suspected to be present on site. Special consideration will be given to this potential hazard, as outlined in the Risk Analysis and Air Monitoring sections of this HASP.

Another concern to be addressed is the potential for trichloroethylene air emissions when exposing groundwater via drilling or sampling activities, due to potentially high concentrations of TCE in the groundwater.

The use of real-time monitoring instruments, visual observation, and olfactory observation will help to identify inhalation exposure to site contaminants. Personal protective equipment (PPE) and standard work practices, Sections 7.0 and 6.0 of this plan, respectively, will be used when necessary to help reduce or eliminate exposures and therefore reduce the potential for adverse health effects.

The characteristics of hazardous wastes and hazardous substances on the site are:

- Corrosive
- Toxic
- Flammable

**TABLE 4-1**  
**POTENTIAL CHEMICAL HAZARDS**

Substance	CAS Number	Appearance and Odor	Sites Where Contaminant May be Present	Toxicity			C
				PEL	Route of Exposure	Comments	
Cadmium	7440-43-9	Appearance and odor vary	1	0.05 mg/m <sup>3</sup>	Inhalation Ingestion	Pulmonary edema, cough, headache, chills, nausea.	X
Cyanide	151-50-8	White solids or faint almond odor	1	5.0 mg/m <sup>3</sup>	Inhalation Absorption Ingestion Contact	Asphyxia and death can occur. Headache, nausea, vomit, eye and skin irritant.	
Hexavalent Chromium	7440-47-3	Appearance and odor vary	2	5.0 mg/m <sup>3</sup>	Inhalation Ingestion	Histologic fibrosis of lungs.	X
Nitric Acid	7697-37-2	Colorless, yellow, or red fuming liquid	2	2.0 ppm 5.0 mg/m <sup>3</sup>	Inhalation Ingestion Contact	Irritating to eyes, nose, and skin; pulmonary edema	
Sulfuric Acid	7664-93-9	Odorless; colorless to dark brown liquid	2	1.0 mg/m <sup>3</sup>	Inhalation Ingestion Contact	Eyes, nose, throat irritation. Pulmonary edema, dental erosion.	
Methylene Chloride	75-09-2	Colorless liquid with chloroform-like odor	1, 3	50.0 ppm	Inhalation Ingestion Contact	Fatigue, light-headed, nausea, eye and skin irritant.	X
Perchloroethylene (PCE)	127-18-4	Colorless liquid with an odor similar to ether	1, 3	25.0 ppm	Inhalation Ingestion Contact	Irritant to eyes, nose, throat; nausea, dizziness, headache.	X
Trichloroethylene (TCE)	79-01-6	Colorless liquid, sweet odor similar to chloroform	1, 3	25.0 ppm	Inhalation Ingestion Contact	Headache, visual distortion, tremors, nausea, dermatitis, eye irritant.	X
Vinyl Chloride	75-01-4	Colorless gas	1, 2, 3	1.0 ppm	Inhalation	Weakness, abdominal pain, GI bleeding	X

C Suspected or confirmed carcinogen  
CAS Chemical Abstract Service Identification Number  
mg/m<sup>3</sup> Milligrams per cubic meter

PEL Permissible Exposure Limit established by OSHA  
ppm Parts per million

- Volatile
- Reactive

#### 4.2 PHYSICAL HAZARDS OF SITE

Physical hazards could involve the following items:

- Contact with energized sources
- Exposure to moving machinery, particularly during drilling activities
- Uneven or unstable terrain (slip, trip hazards)
- Strain or muscle pulls from manual lifting
- Noise in excess of 85 dBA
- Falls from elevated surfaces
- Heat stress (if PVC coveralls are worn)

Control efforts for these potential hazards include requirements that machinery on site (i.e., drill rigs) be kept properly maintained, positioned, guarded, and operated. No drilling masts or any other such projecting items shall be permitted within a 20-foot radius of energized sources. Also, any areas targeted for subsurface investigation shall first be investigated to determine the presence of underground utilities.

Personnel shall be advised of hazardous from contact with moving machinery pinch points. Personal protective gear must fit properly and be taped, not only to minimize chemical exposure, but also to minimize potential entanglement with moving machinery. Additionally, equipment will be shut down and locked out before maintenance functions are performed. To protect against overhead hazards, personnel are to wear hard hats when required.

During lifting tasks, personnel are to lift with the force of the load carried by their legs and not by their backs. An appropriate number of personnel must be used when lifting or handling heavy equipment. These procedures are to be employed to minimize the potential for back strain.

The HSO will make a decision regarding the need to perform a noise survey of operations. In any event, ear protection will be available on site. The Hearing Conservation Program (Appendix B) must be completed to project startup.

Additional control measures for these physical hazards are included in Section 6.0, Standard Work Practices, of this HASP.

## 5.0 SITE CONTROL MEASURES

### 5.1 EXISTING PERIMETER AND/OR ZONE CONTROLS

- Site secured
- Perimeter identified
- Map of contaminated zones
- Contaminated zones identified

### 5.2 OTHER CONTROL MEASURES

The following procedures and measures shall be observed to minimize the potentials for contaminant transfer and personnel exposures.

#### 5.2.1 Delineation of Site Zones

A three-zone approach will be used to control migration of contamination. The exclusion zone is the work area where contamination is known to be present. The contamination reduction zone is where all decontamination activities will take place. Appropriate PPE must be worn in these two areas. The third zone, support zone, is the designated clean area where no contamination is present and all support personnel will be stationed and materials stored. All personnel and/or materials that enter the exclusion zone must be properly decontaminated before returning to the support area. Zones will be set up for each individual site at the NWIRP Bethpage Site.

#### 5.2.2 Buddy System

Personnel will adhere to the "buddy system" throughout the project and will work together to maintain a line of sight to each other.

#### 5.2.3 Material Safety Data Sheet (MSDS) Requirements

HALLIBURTON NUS personnel must take an MSDS on site with them for every type of chemical brought on site. MSDSs shall be stored in a central location (e.g., office trailer) and will be available for review by anyone upon request. The Hazard Communication Program (Appendix D) must be completed at project startup and modified as necessary throughout the project.

### 5.3 IONIZING RADIATION

Normal background 0.01 to 0.02 mR/hr. If less than 2 mR/hr, continue investigation with caution. If greater than 2 mR/hr, evacuate site. Note: normal background is 10 to 20 counts per minute (CPM).

## 6.0 STANDARD WORK PRACTICES

All site investigation activities will follow the appropriate Health and Safety Standard Operating Procedures.

The following safe working procedures are to be applied in addition to the Health and Safety Standard Operating Procedures:

- Eating, drinking, chewing gum or tobacco, taking medication, and smoking are prohibited in the exclusion or decontamination zones, or any location where there is a possibility for contact with site contaminants exists.
- Upon leaving the exclusion zone, hands and face must be thoroughly washed. Any protective outer clothing is to be decontaminated and removed as specified in this HASP, and left at a designated area prior to entering the clean area.
- Contact with potentially-contaminated substances must be avoided. Contact with the ground or with contaminated equipment must also be avoided. Monitoring equipment must not be placed on potentially contaminated surfaces.
- No facial hair, which interferes with a satisfactory fit of the mask-to-face seal, is permitted on personnel required to wear respiratory protective equipment.
- All personnel must procure a site-specific Health and Safety Plan from the project Health and Safety Officer prior to commencing work on site. All site personnel must read and understand all components of this HASP. Additionally, a Site Safety Follow-up report must be filed with each trip report following completion of a task.
- All personnel must satisfy medical monitoring procedures.
- No flames or open fires will be permitted on site.
- No drilling within 20 feet in any direction of overhead power lines will be permitted. The locations of all underground utilities must be identified, documented, and marked prior to initiating any subsurface activities.

- All personnel must be aware of and follow the action levels presented in this HASP for upgrading respiratory protection.
- Any new analytical data must be promptly conveyed via telephone to the project Health and Safety Officer by the lab technician or Field Team Leader.
- Personnel must develop hand signals with the driller.
- A copy of the OSHA poster must be prominently posted at each site.
- All drill rigs and other machinery with exposed moving parts must be equipped with an operational emergency stop device. Drillers and geologists must be aware of the location of this device. This device must be tested prior to job initiation, and periodically thereafter. The driller and helper shall not simultaneously handle moving augers or flights unless there is a standby person to activate the emergency stop.
- The driller must never leave the controls while the tools are rotating unless all personnel are clear of the rotating equipment.
- A long handled shovel or equivalent must be used to clear drill cuttings away from the hole and from rotating tools. Hands and/or feet are not to be used for this purpose.
- A remote sampling device must be used to sample drill cuttings if the tools are rotating. Samplers must not reach into or near the rotating equipment. If personnel must work near any tools which could rotate, the driller must shut down the rig prior to initiating such work.
- Drillers, helpers and samplers must secure all loose clothing when in the vicinity of drilling operations.
- Only equipment which has been approved by the manufacturer may be used in conjunction with site equipment and specifically to attach sections of drilling tools together. Pins that protrude from augers shall not be allowed.
- No person shall climb the drill mast while tools are rotating.

- No person shall climb the drill mast without the use of ANSI-approved fall protection (i.e., approved belts, lanyards and a fall protection slide rail) or portable ladder which meets the requirements of OSHA standards.
- “All” compressed gas cylinders (empty or full) must be stored and used in an upright position, properly secured and protected from damage.
- The site safety officer must make an entry into the Health and Safety logbook each day, including monitoring instrument calibration logs.
- A copy of the appropriate Health and Safety Standard Operating Procedures must be present on site.
- Appropriate training and medical monitoring records must be maintained on site for all site personnel including subcontractors.
- All site personnel including subcontractors must complete a medical data sheet, to be maintained on site.
- Site personnel must immediately notify HALLIBURTON NUS Health Sciences (the OHSS or HSO) of all incidents for OSHA recordkeeping purposes.
- If personnel note any warning properties of chemicals (irritation, odors, symptoms, etc.) or even remotely suspect the occurrence of exposure, they must immediately notify the HSO for further direction.
- Site personnel are not to undertake any activity which would be considered a confined-space entry without first being trained in the proper procedures by the HSO, and obtaining a Confined Space/Limited Egress Permit.
- Areas must be designated for chemical storage. Acids, bases and flammables shall all be stored separately. Storage areas must be labeled as to the contents within the storage area.

The SSO must make an entry into the site health and safety logbook at least daily, to include:

- Weather conditions
- Site Personnel
- New arrivals and "clearance for site work"
- Air monitoring data summary
- Indications of inhalation exposure
- PPE used per task
- Deviations from HASP
- Inspection and cleaning of respiratory equipment
- General H&S problems/corrective actions

## 7.0 PERSONAL PROTECTIVE EQUIPMENT

### 7.1 PPE REQUIREMENTS (GENERAL)

All personnel must wear, as a minimum, steel-toe/hard-sole work boots and side-shielded safety glasses while on site. Hard hats must be worn if personnel are within 20 feet of the drill rig and drilling operations and/or if other conditions arise or exist where head protection may be necessary.

All drilling personnel, and all other personnel who could come in contact with waste material, are required to wear, in addition to the PPE listed above, **TYVEK** protective coveralls, **NEOPRENE** outer gloves, latex inner gloves, boot covers, and taped ankle and wrist seams. PVC coveralls may become necessary, if free-phase product and/or heavily contaminated soil becomes evident. Modification of protective clothing is at the discretion of the SSO.

All sampling personnel must wear, in addition to minimum requirements, **NEOPRENE** outer gloves, latex inner gloves, and boot covers when taking soil samples. Multiple pair (at least two worn together) of latex gloves are acceptable for groundwater sampling and monitoring well sampling.

Gloves should be changed frequently if handling free-phase product and/or if visible contamination is evident on the glove. Gloves and coveralls should be changed if any signs of deterioration appear.

Respiratory protection requirements are outlined in Section 12.0 of this HASP and are determined by air monitoring results.

### 7.2 PPE SELECTION CRITERIA

Safety glasses and work boots were selected as minimum requirements to protect personnel from the physical hazards which could exist on site. Hard hats were selected for use within a 20-foot radius around drilling operations for overhead and bump hazards. **NEOPRENE** boot covers, **NEOPRENE** outer gloves, and latex inner gloves were selected for drilling personnel to protect from exposure by contact with potentially contaminated soils.

### **7.3 ACTION LEVELS**

Modification to the prescribed levels of protection may be necessary and is at the discretion of the Site Safety Officer. The minimum protection specified above, along with appropriate dermal protection, will be adequate for work start-up. However, if action levels as described in Section 12.0, Air Monitoring, are reached, upgrading respiratory protection may be necessary.

### **7.4 PPE MAINTENANCE AND STORAGE PROCEDURES (ON SITE)**

All personal protective equipment will be stored in a dry location on site. Respirators will be stored in plastic bags and shall be cleaned after each day's use (if used).

### **7.5 PERSONNEL TRAINING AND PROPER FITTING OF PPE**

All HALLIBURTON NUS personnel will have completed a 40-hour introductory Health and Safety Training Class. Fit testing will be conducted during site-specific training. In addition, personnel will be refreshed in the use and limitations of PPE during the site-specific Health and Safety training class.

### **7.6 PROCEDURES FOR DONNING/DOFFING PPE**

Proper donning/doffing techniques for all PPE will be presented to personnel during the site-specific training class.

### **7.7 PROCEDURES FOR INSPECTION OF PPE**

All PPE, chemical protective clothing (CPC), and respirators will be inspected prior to use. Special attention to CPC should be given to coveralls and gloves during use due to acids suspected to be present on site. Signs of degradation will require immediate changing of CPC. Any PPE which is intended to be used again (e.g., respirators) shall be inspected after use for signs of wear and/or missing parts.

### **7.8 PPE PROGRAM**

The PPE Program (Appendix E) must be completed at project start-up and will be modified, if necessary, throughout the project.

## **8.0 MEDICAL SURVEILLANCE**

### **8.1 REQUIREMENTS FOR HALLIBURTON NUS PERSONNEL**

All personnel participating in field activities associated with the investigations at the NWIRP Bethpage facility will be required to have a current medical certificate. HALLIBURTON NUS employees are required to participate in the company medical monitoring program in order to perform field activities and must complete a medical data sheet (Figure 8-1). This is in accordance with Health and Safety Standard Operating Procedure (H&S SOP) No. MD01, *Medical Program Operating Procedure*, and OSHA Standard 1910.120. The HALLIBURTON NUS medical consultants (University of Pittsburgh Occupational Medicine Program) will make the final review of all HALLIBURTON NUS medical records to determine if additional testing is required.

### **8.2 REQUIREMENTS FOR SUBCONTRACTORS**

Subcontractors involved in field activities at NWIRP Bethpage are required to obtain a certificate of ability to perform their assigned task from a physician. An example of the Subcontractor Medical Approval Form can be found in Figure 8-2.

Also included in this section is an example of the OSHA Compliance Letter (Figure 8-3). All HALLIBURTON NUS subcontractors are to complete this form prior to initiation of work at this site. The illustrated statements must be typed on company letterhead and signed by an officer of the company.

This form must be completed by all onsite HALLIBURTON NUS personnel, prior to the commencement of activities, and shall be kept in the site command post during site activities. This form must be delivered to any attending physician, when medical assistance is needed.

Site \_\_\_\_\_

Name \_\_\_\_\_ Home Telephone (\_\_\_\_) \_\_\_\_\_

Address \_\_\_\_\_

Date of most recent physical examination\* \_\_\_\_/\_\_\_\_/\_\_\_\_

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

Name of next of kin \_\_\_\_\_ Telephone (\_\_\_\_) \_\_\_\_\_

Drug allergies or other allergies \_\_\_\_\_

Previous Illnesses or Exposures to Hazardous Substances:

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

Current Medication (prescription and nonprescription):

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

Medical Restrictions \_\_\_\_\_

\_\_\_\_\_

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

\_\_\_\_\_

\_\_\_\_\_

\*Confirmed by Site HSO \_\_\_\_\_ /\_\_\_\_/\_\_\_\_  
Signature of HSO Date

**FIGURE 8-1**

**MEDICAL DATA SHEET  
NWIRP BETHPAGE SITE**



For employees of \_\_\_\_\_  
Company Name

Participant Name: \_\_\_\_\_ Date of Exam: \_\_\_\_\_

**Part A**

The above-named individual has:

1. Undergone a physical examination in accordance with OSHA Standard 29 CFR 1910.120, paragraph (f) and found to be medically -  
 qualified to perform work at the \_\_\_\_\_ work site  
 not qualified to perform work at the \_\_\_\_\_ work site  
and,
2. Undergone a physical examination as per OSHA 29 CFR 1910.134 (b)(10) and found to be medically -  
 qualified to work in respiratory protection  
 not qualified to work in respiratory protection

My evaluation has been based on the following information, as provided to be by the employer.

- A copy of OSHA Standard 29 CFR 1910.120 and appendices.
- A description of the employee's duties as they relate to the employee's exposures.
- A list of known/suspected contaminants and their concentrations (if known).
- A description of any personal protective equipment used or to be used.
- Information from previous medical examinations of the employee which is not readily available to the examining physician.

**Part B**

I, \_\_\_\_\_, have examined \_\_\_\_\_  
Physician's Name (print) Participant's Name (print)  
and have determined the following information:

1. Results of the medical examination and tests (excluding findings or diagnoses unrelated to occupational exposure):

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

FIGURE 8-2

SUBCONTRACTOR MEDICAL APPROVAL FORM  
NWIRP BETHPAGE SITE



2. Any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health:

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---

3. Recommended limitations upon the employee's assigned work:

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---

---

I have informed this participant of the results of this medical examination and any medical conditions which require further examination or treatment.

Based on the information provided to me, and in view of the activities and hazard potentials involved at the \_work site, this participant

- ( ) may
- ( ) may not

perform his/her assignment task.

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

Address \_\_\_\_\_

Phone Number \_\_\_\_\_

NOTE: Copies of test results are maintained and available at:

\_\_\_\_\_  
Address

FIGURE 8-2 (CONTINUED)

SUBCONTRACTOR MEDICAL APPROVAL FORM  
NWIRP BETHPAGE SITE



LOGO  
XYZ CORPORATION  
555 E. 5th Street  
Nowheresville, Kansas 55555

Month, day, year

Mr./Ms. (Name of HALLIBURTON NUS Project Manager)  
HALLIBURTON NUS Environmental Corporation  
Park West Two, Cliff Mine Road  
Pittsburgh, Pennsylvania 15275-1071

Subject: OSHA Compliance

Dear Mr./Ms. (Name of HALLIBURTON NUS Project Manager):

As an officer of XYZ Corporation, I hereby state that I am aware of the potential hazardous nature of the subject project. I also understand that it is our responsibility to comply with all applicable occupational safety and health regulations including those stipulated in Title 29 of the Code of Federal Regulations (CFR), Parts 1900 through 1910 and Part 1926.

I also understand that Title 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response: Final Rule," requires, but is not limited to, medical surveillance, for applicable employees, and appropriate level of training as required in paragraph (e) of 29 CFR 1910.120 for employees engaged in certain hazardous waste operations. I hereby state that I have reviewed these requirements; understand Title 29 of the CFR, Parts 1900 through 1910, and Part 1926; and that XYZ Corporation and all of its employees who will perform work at the NWIRP Bethpage facility are in full compliance.

The employees listed below meet the aforementioned training and medical surveillance requirements:

List Employee Names Here

Sincerely,

(Name of Company Officer)

FIGURE 8-3

OSHA COMPLIANCE LETTER  
NWIRP BETHPAGE SITE



## 9.0 DECONTAMINATION

### 9.1 PERSONNEL DECONTAMINATION REQUIREMENTS

The decontamination of personnel and their protective clothing shall be performed in three stages. Stage 1 includes removing contamination from reusable protective clothing with a detergent/water solution and soft bristle scrub brushes. Stage 2 shall include removal of protective clothing (disposable items shall be discarded into a container conspicuously marked "Potentially Contaminated Clothing"). Stage 3 shall consist of workers washing hands and face with potable water and soap upon leaving the exclusion or "Hot" zone. See Figure 9-1.

### 9.2 DECONTAMINATION OF SAMPLING TOOLS

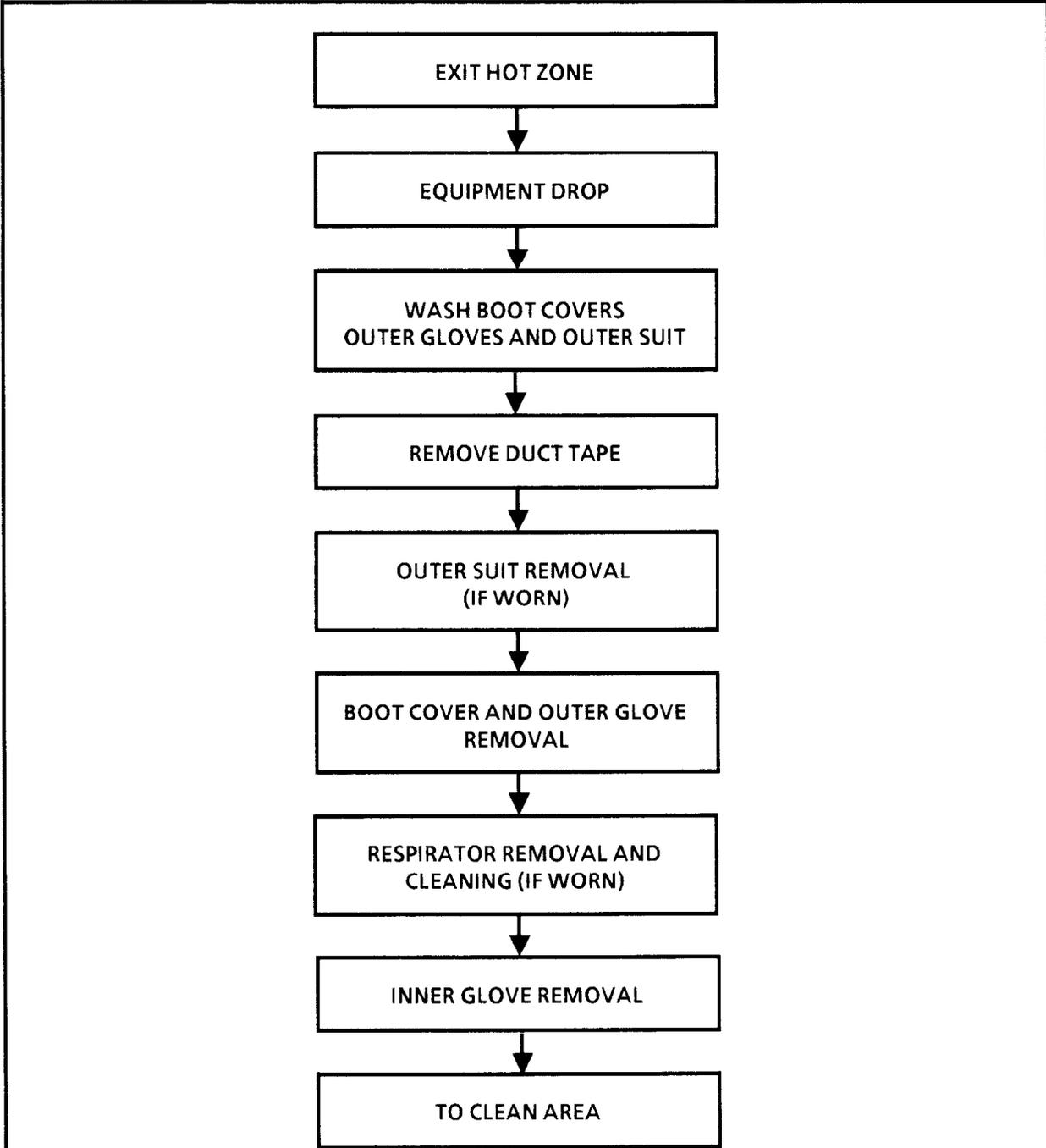
All sampling equipment that will be leaving the site will require a thorough decontamination. This can be accomplished either by steam cleaning or by a detergent wash and potable water rinse until tools are visibly clean. Decontamination of sampling tools to prevent cross contamination of samples shall be performed in accordance with the RFI Quality Assurance Project Plan. Waste fluids generated through decontamination shall be handled as described in Section 9.5. Any tool not capable of being decontaminated shall be disposed of as waste appropriately.

### 9.3 CORING/DRILLING EQUIPMENT DECONTAMINATION

Coring/drilling equipment will be thoroughly decontaminated as necessary to remove detectable contamination utilizing a method stipulated by the HALLIBURTON NUS subcontractor that will not damage the equipment. All decontamination fluids shall be contained and handled as in Section 9.5.

### 9.4 PPE REQUIREMENTS FOR DECON OPERATIONS

All personnel performing decontamination activities must wear, in addition to minimal requirements, PVC coveralls, nitrile outer gloves, latex inner gloves, boot covers, and taped ankle and wrist seams. When decontaminating heavy equipment (drill rigs) or anything else where a splash potential exists from high-pressure water, personnel must wear hard hats with a chemical splash shield attached to protect the eyes and face. If respirators were necessary during field activities when using the equipment to be decontaminated, then the same respiratory protection is required for decontaminating that particular equipment.



The sketch is for general decontamination procedures for operations at the NWIRP Bethpage Site. The level of protection, concentration of chemicals (visual inspection), and other factors will determine the extent of decontamination. Decontamination procedures may have to be modified after work begins if site conditions warrant change.

**FIGURE 9-1**  
**SKETCH OF DECONTAMINATION PROCEDURE**  
**NWIRP BETHPAGE SITE**



**9.5 DISPOSAL OF POTENTIALLY CONTAMINATED PPE AND DECONTAMINATION OF WASTE FLUIDS**

- Personnel are responsible for drumming, staging, and all disposable PPE, labeling containers of decon-generated wastes appropriately, taking it off site, and disposing of it properly. Questions regarding this practice should be directed to the project manager.
- All decontamination waste fluids will be sent to the onsite wastewater treatment plant. Direction can be taken from the client contact. Soil sampling shall be containerized in 55-gallon drums, soil augering for the monitoring well installation.
- Drill cuttings shall be left onsite and will be covered by a tarp.

## 10.0 TRAINING

### 10.1 INTRODUCTORY TRAINING

HALLIBURTON NUS employees and HALLIBURTON NUS subcontractors must complete a 40-hour introductory health and safety training class. HALLIBURTON NUS subcontractors must provide evidence of having received 40 hours of introductory health and safety training as defined by OSHA Standard 29 CFR 1910.120. Figure 10-1 shows the names and dates of training for site personnel.

### 10.2 SITE-SPECIFIC TRAINING

HALLIBURTON NUS will provide site-specific training to all HALLIBURTON NUS employees and subcontractor personnel who will perform work at the Site. Site-specific training will include:

- Names of personnel and alternates responsible for site safety and health.
- Safety, health and other hazards present on the site.
- Use of personal protective equipment.
- Work practices by which the employee can minimize risks from hazards.
- Safe use of engineering controls and equipment on the site.
- Medical surveillance requirements, including recognition of symptoms and signs which might indicate overexposure to hazards.
- The contents of the site safety and health plan.

#### 10.2.1 Site-Specific Training Documentation

HALLIBURTON NUS and subcontractor personnel will be required to sign a statement indicating receipt of site-specific training and understanding of site hazards and control measures. Figure 10-2 will be used in this capacity.

Name	Type(s) of Training Received	Date(s) Training Received
Dave Brayack	40-Hour Health and Safety Training	05/88
	8-Hour Refresher	07/90
Kevin Kilmarton	40-Hour Health and Safety Training	11/89
Randy Patarcity	40-Hour Health and Safety Training	07/86
	8-Hour Refresher	12/90
Alan Margraf	40-Hour Health and Safety Training	08/88
Terry Rojahn	40-Hour Health and Safety Training	
	8-Hour Refresher	
Dave Yost	40-Hour Health and Safety Training	
	8-Hour Refresher	
Fred Ramser	40-Hour Health and Safety Training	
	8-Hour Refresher	

FIGURE 10-1  
PREVIOUS TRAINING RECORD





## **11.0 EMERGENCY RESPONSE PLAN (ERP)**

### **11.1 ANTICIPATED SITE EMERGENCIES**

Personal injury/illness is the only reasonably foreseeable emergency anticipated during the investigation at the NWIRP Bethpage facility.

### **11.2 PERSONNEL ROLES AND LINES OF AUTHORITY**

The HALLIBURTON NUS Field Operations Leader (FOL) shall be responsible for the overall direction and implementation of this ERP, and for overall coordination of any emergency response actions.

The HALLIBURTON NUS site safety officer (SSO) shall serve as assistant and alternate to the FOL and shall provide health and safety input during emergencies.

The FOL or his alternate is responsible for notifying the appropriate outside emergency assistance, as needed, in accordance with Section 11.0 (Figure 11-1).

### **11.3 EMERGENCY RECOGNITION AND PREVENTION**

Compliance with this HASP can assist in the prevention of anticipated site emergencies. These emergency situations can easily be recognized by visual observations, or worker complaints. Personnel will be working in close proximity to one another therefore eliminating the need for alarms or horns.

### **11.4 SAFE DISTANCES, PLACES OF REFUGE AND EVACUATION ROUTES**

To be determined by the FOL/SSO prior to initiation of site activity. Considerations shall include wind direction and site topography.

### **11.5 SITE SECURITY AND CONTROL**

Site control measures are typically employed during site activities to prevent or reduce the migration of potentially contaminated materials and to prevent the entry of unauthorized personnel into the work area.

Site: NWIRP Bethpage

Project No.: 3281

**Emergency Information:**

Local Resources:

Office:	_____	_____
Ambulance (Name):	<u>Guard Headquarters</u>	<u>575-3895</u>
Hospital (Name):	<u>Guard Headquarters</u>	<u>575-3895</u>
Police (Local or State):	<u>Guard Headquarters</u>	<u>575-3895</u>
Fire Department (Name):	<u>Guard Headquarters</u>	<u>575-3895</u>
Nearest Phone:	<u>TBA</u>	_____
Project Manager:	<u>Dave Brayack</u>	<u>(412) 747-7888</u>
Site Health and Safety Officer:	<u>Alan Margraf</u>	<u>(412) 747-7857</u>
Alternate Site Health and Safety Officer:	<u>Tom Dickson</u>	<u>(412) 747-7856</u>

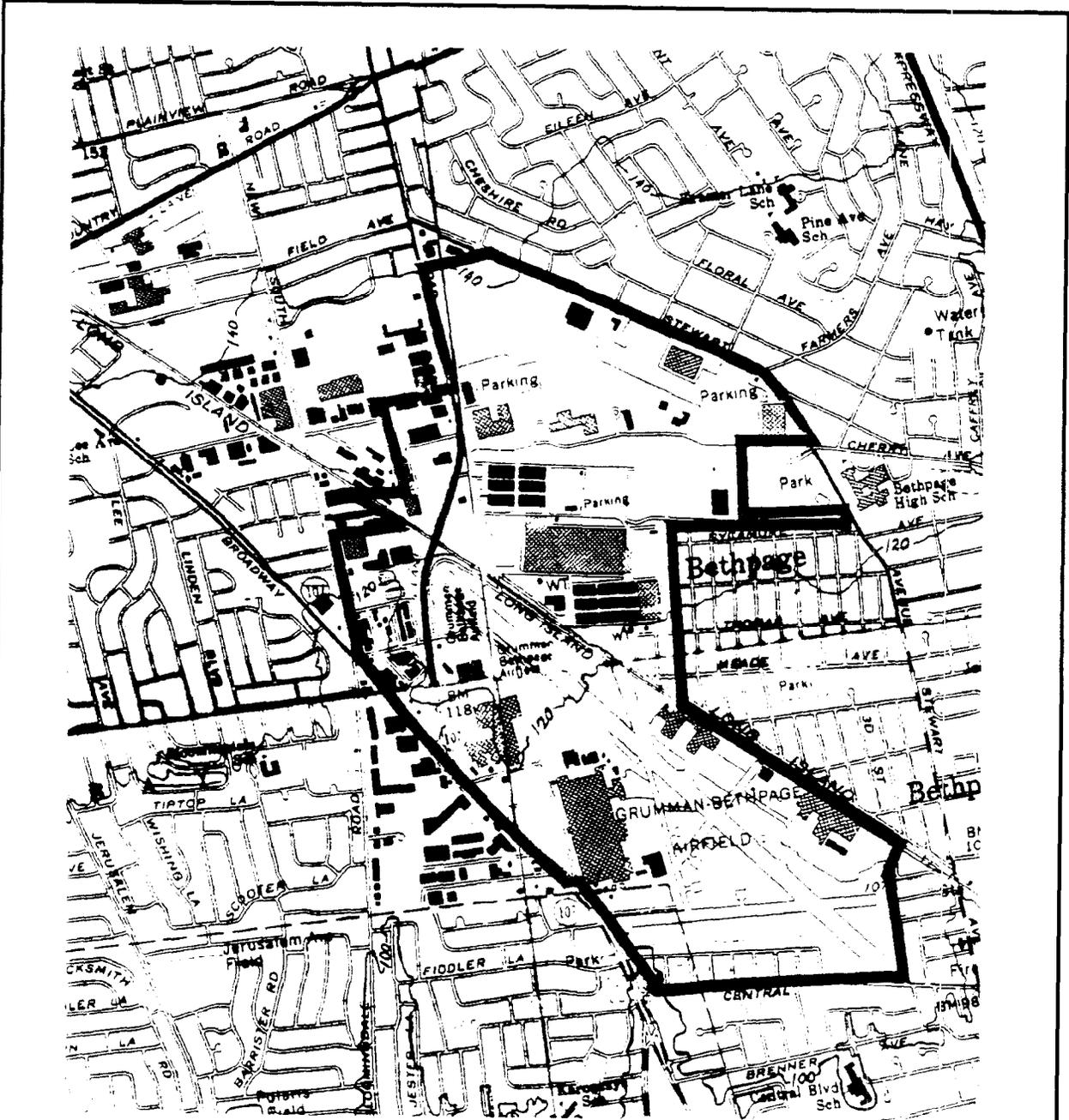
**Emergency Contacts (Medical and Health):**

- HALLIBURTON NUS Consulting Physician: Dr. Donald J. McGraw  
Office: (412) 648-3240
- Office Health and Safety Supervisor: Matthew M. Soltis, CSP  
Office: (412) 747-7846
- Manager of Health Sciences: Richard C. Gerlach, Ph.D., CIH  
Office: (412) 747-7843  
Home: (412) 531-8014
- Poison Information Center: Philadelphia (212) 922-5523
- National Response Center (for Environmental Emergency Only): 1-800-424-8802
- Office:

Directions to Hospital (Attach Map): Guard Headquarters will make all arrangements in the case of a medical emergency.

FIGURE 11-1  
EMERGENCY REFERENCE INFORMATION  
(Post Onsite)





**LEGEND**

**—** Base Boundary



Not to scale

FIGURE 11-2

TOPOGRAPHIC MAP  
NWIRP BETHPAGE,  
NEW YORK



**Initial Assessment Study**  
Naval Weapons Industrial  
Reserve Plant  
Bethpage and Calverton  
Long Island, New York

If HALLIBURTON NUS personnel or equipment are exposed to contamination, the project team shall ensure that proper decontamination procedures are followed. All decontamination liquids shall be contained to prevent migration outside the decontamination area.

The HALLIBURTON NUS project team shall observe site control measures which will prevent migration of contamination outside of the exclusion zone.

## **11.6 RESPONSE PROCEDURES**

The information provided in this subsection is presented as a guideline to assist the FOL and SSO in safe and effective response to anticipated site emergencies. This information is in no way designed to take the place of reasonable decisions based on incident-specific information.

### **11.6.1 First Priority**

Prevent further injury or illness by:

- *Protecting response personnel*
- *Isolating the scene to authorized personnel only*
- *Rescuing the injured parties*
- *Notifying Outside Emergency Assistance (Figure 11-1)*

### **11.6.2 Second Priority**

Provide first-aid to those persons with life threatening injuries or illnesses (Attachment A-3).

### **11.6.3 Third Priority**

Alleviate the immediate hazards.

### **11.6.4 Fourth Priority**

Provide first-aid to those persons with non-lifethreatening injuries or illnesses and further efforts to alleviate the hazard.

#### **11.6.5 Last Priority**

Complete an incident report (included in Appendix A), critique the response and prevent recurrence.

All persons with known or suspected chemically related injuries or illnesses shall be immediately examined by a licensed physician. The examining physician may choose to consult with the HALLIBURTON NUS medical consultant for additional expertise on occupational injury/illness. Attachment A-4 provides notification procedures to access this resource at any time of the day or night.

#### **11.7 DECONTAMINATION AND FIRST-AID**

Decontamination of injured or ill personnel shall consist of removing contaminated clothing. If worker's street clothes are grossly contaminated, remove them to prevent chemical exposures and wrap the injured party in a blanket.

#### **11.8 EMERGENCY PHONE NUMBERS AND ROUTE TO HOSPITAL**

Numbers shall be posted at the nearest available telephone.

All site personnel including subcontractors shall complete a medical data sheet and field team review. This form shall accompany any injured party to the hospital.

See Figure 11-1 for emergency directions and written route to hospital.

See Figure 8-1 for medical data sheet.

#### **11.9 EMERGENCY SPILL RESPONSE PROCEDURES**

The Environmental Operations Department at NWIRP Bethpage operates a spill response truck which responds to any accidental spills at the NWIRP Bethpage facility. See Section 14.0 of this HASP for more information.

#### **11.10 PROCEDURES FOR CONTACTING LOCAL, STATE, AND FEDERAL AGENCIES TO REPORT SITE INCIDENTS**

Will be performed by Field Operations Leader.

## 11.11 FIRST AID

### 11.11.1 Emergency First-Aid Procedures

See Attachment D.

### 11.11.2 Other

Administer necessary first-aid (see attached American Red Cross Information sheet, Figure 11-3), contact offsite medical facilities, implement Emergency Physician Access Plan.

## 11.12 EMERGENCY PROCEDURE FOR OVERT PERSONNEL EXPOSURE

- Skin Contact: Remove contaminated clothing. Wash immediately with water. Use soap, if available.
- Inhalation: Remove from contaminated atmosphere. Use artificial respiration, if necessary. Transport to hospital.
- Ingestion: Never induce vomiting on an unconscious person. Also, never induce vomiting when acids, alkalis, or petroleum products are suspected. Contact the Poison Control Center.



American Red Cross

# First Aid

### EMERGENCY TELEPHONE NUMBERS

Police:	575-3895
Fire Dept.:	575-3895
Doctor:	575-3895
Ambulance:	575-3895
Hospital:	575-3895
Poison Control Center:	(212)922-5523

**BITES** Animal Bites - Thoroughly wash the wound with soap and water. Flush the area with running water and apply a sterile dressing. Immobilize affected part until the victim has been attended by a physician. See that the animal is kept alive and in quarantine. Obtain name and address of the owner of the animal.

Insect Bites - Remove "stinger" if present. Keep affected part down below the level of the heart. Apply ice bag. For minor bites and stings apply soothing lotions, such as calamine.

**BURNS AND SCALDS** Minor Burns - DO NOT APPLY VASELINE OR GREASE OF ANY KIND. Apply cold water applications until pain subsides. Cover with a dry, sterile gauze dressing. Do not break blisters or remove tissue. Seek medical attention.

Severe Burns - Do not remove adhered particles of clothing. Do not apply ice or immerse in cold water. Do not apply ointment, grease or vaseline. Cover burns with thick sterile dressings. Keep burned feet or legs elevated. Seek medical attention immediately.

Chemical Burns - Wash away the chemical soaked clothing with large amounts of water. Remove victim's chemical soaked clothing. If dry lime, brush away before flushing. Apply sterile dressing and seek medical attention.

**CRAMPS** Symptoms - Cramps in muscles of abdomen and extremities. Heat exhaustion may also be present.

Treatment - Same as for heat exhaustion.

**CUTS** Apply pressure with sterile gauze dressing, and elevate the area until bleeding stops. Apply a bandage and seek medical attention.

**EYES** Foreign Objects - Keep the victim from rubbing his eye. Flush the eye with water. If flushing fails to remove the object, apply a dry, protective dressing and consult a physician.

Chemicals - Flood the eye thoroughly with water for 15 minutes. Cover the eye with a dry pad and seek medical attention.

**FAINTING** Keep the victim lying down. Loosen tight clothing. If victim vomits, roll him onto his side or turn his head to the side. If necessary wipe out his mouth. Maintain an open airway. Bathe his face gently with cool water. Unless recovery is prompt, seek medical attention.

**FRACTURES** Deformity of an injured part usually means a fracture. If fracture is suspected, splint the part. DO NOT ATTEMPT TO MOVE INJURED PERSON; seek medical attention immediately.

**FROSTBITE** Symptoms - Just before frostbite occurs skin may be flushed, then change to white or grayish-yellow. Pain may be felt early then subsides. Blisters may appear. affected part feels very cold and numb.

Treatment - Bring victim indoors, cover the frozen area, provide extra clothing and blankets. Rewarm frozen area quickly by immersion in warm water--NOT HOT WATER. DO NOT RUB THE PART. Seek medical attention immediately.

**HEAT EXHAUSTION** Caused by exposure to heat - either sun or indoors. Symptoms - Near normal body temperature. Skin is pale and clammy. Profuse sweating, tiredness, weakness, headache, perhaps cramps, nausea, dizziness, and possible fainting.

Treatment - Keep in lying position and raise victim's feet. Loosen clothing, apply cool wet cloths. If conscious, give sips of salt water (1 teaspoon of salt per glass) over a period of one hour. If vomiting occurs, discontinue the salt water. Seek medical attention immediately.

**SUNSTROKE** Symptoms - Body temperature is high (106 degrees F or higher). Skin is hot, red, and dry. Pulse is rapid and strong. Victim may be unconscious.

Treatment - Keep victim in lying position with head elevated. Remove clothing and repeatedly sponge the bare skin with cool water or rubbing alcohol. Seek medical attention immediately.

**POISONING** Call the poison control center for instruction on immediate care. If victim becomes unconscious, keep the airway open. If breathing stops give artificial respiration, by mouth to mouth breathing. Call an emergency squad as soon as possible.

**POISON IVY** Remove contaminated clothing, wash all exposed areas thoroughly with soap and water followed by rubbing alcohol. If rash is mild, apply calamine or other soothing skin lotion. If a severe reaction occurs, seek medical attention.

**PUNCTURE WOUNDS** If puncture wound is deeper than skin surface, seek medical attention. Serious infection can arise unless proper treatment is received.

**SPRAINS** Elevate injured part and apply ice bag or cold packs. DO NOT SOAK IN HOT WATER. If pain and swelling persist, seek medical attention.

**UNCONSCIOUSNESS** Never attempt to give anything by mouth. Keep victim lying flat, maintain open airway. If victim is not breathing provide artificial respiration, by mouth to mouth breathing and call an emergency squad as soon as possible.

FIGURE 11-3

AMERICAN RED CROSS INFORMATION SHEET



HALLIBURTON NUS  
Environmental Corporation

## 12.0 AIR MONITORING

### Monitoring/Sampling Equipment Checklist

Type of Equipment	Number Needed	Calibrated (Date and Initials)
HNU PID - 10.2 eV Probe	1	To be calibrated before each day's use.
MSA LEL/O <sub>2</sub> meter	1	To be calibrated at warehouse prior to job startup.
Draeger Bellows Pump	1	N/A
Draeger Detector Tubes Vinyl Chloride 0.5/a	1 package	N/A

The primary mechanism for the detection of toxic gas/vapor/mist will be the utilization of an HNU photoionization detector (PID) equipped with an 10.2 eV probe. Worker's sense of smell and perception of irritation will also be helpful in detecting the presence of contaminants. Monitoring with an LEL/O<sub>2</sub> meter will also be necessary to identify potentially flammable and/or oxygen deficient atmospheres that could exist as a result of emissions generated by drilling operations. Monitoring should be conducted within the headspace of samples and boreholes to detect potential flammable conditions.

### 12.1 FREQUENCY OF MONITORING

Monitoring shall be conducted continuously during all drilling operations and periodically as work progresses and when there is potential for atmospheric change within the work area. Monitoring will be initiated at any potential source emissions, then moved to the worker's breathing zone if positive indications are observed at the source.

## 12.2 AIR MONITORING ACTION LEVELS

Due to the potential presence of vinyl chloride on Sites 1, 2, and 3, emphasis must be given to the observation of needle deflection on the PID meter. Any reading observed on the PID (above designated background levels) for a sustained period of time (~1 minute) will require immediate shutdown of work activities until a determination can be made as to whether vinyl chloride is present or not. This will be determined through the use of Draeger tubes specific for vinyl chloride (Draeger tube vinyl chloride 0.5/a). If Draeger tube readings indicate a positive response to vinyl chloride, Level B protection will be necessary to continue work. However, if no response is indicated, work may continue, but in Level C protection and with periodic monitoring for vinyl chloride. The following action levels shall be utilized:

### 12.2.1 Level B

Air supplied respirators, line air or SCBAs, shall be used in accordance with the following criteria:

- Anytime “breakthrough” of the chemical cartridge on the APR occurs (e.g., odor and/or irritation, see Level C, Action Levels).
- Anytime consistent HNU readings above background are observed and it has been determined (by Draeger tubes) that vinyl chloride is present.

### 12.2.2 Level C

Full-face air purifying respirators (APRs) equipped with organic vapor/acid gas cartridges with HEPA filters (MSA’s GMCH cartridge), shall be used in accordance with the following criteria:

- Anytime consistent HNU readings above background are observed and a determination has been made, through the use of Draeger tubes, that vinyl chloride is not present.
- Anytime an acrid, irritating or pungent odor is perceived.
- Anytime a ether, mint or aromatic-like order is perceived.

- Anytime irritation of the eyes, nose, throat or lungs is perceived by one or more of the team.
- Anytime work generates perceptible dust in the worker's breathing zone; unless dust can be controlled by other methods (e.g., wetting down areas of concern).

### **12.2.3 LEL/O<sub>2</sub> Meter**

Action levels while monitoring with the LEL/O<sub>2</sub> meter are as follows:

- If percent oxygen is measured less than 19.5 percent, work must stop and personnel must evacuate the area until oxygen levels stabilize and the situation can be re-evaluated.
- At 10 percent LEL, work shall proceed with caution, monitoring shall become more frequent, and personnel must use spark-proof tools and intrinsically safe equipment.
- At 20 percent LEL in the headspace of a sample or borehole, work must stop and efforts must be taken to reduce levels before drilling (or any other activity) may continue.

## **12.3 METHODS OF MAINTENANCE AND CALIBRATION**

All equipment maintenance and calibration efforts shall be conducted by a technician at the HALLIBURTON NUS warehouse/training facility. These efforts shall be performed in accordance with the following HALLIBURTON NUS Health and Safety Standard Operating Procedures. In addition, daily calibration of the HNU will be conducted by the SSO or his designee.

- Number ME01: Use, Calibration, and Maintenance of the HNU PI-101
- Number ME05: Combustible Gas Indicator
- Number ME02: Use, Calibration, and Maintenance of the OVA 128

## **12.4 FIELD CALIBRATION**

Results of instrument calibration performed in the field must be recorded on Table 12-1 and returned to the Health Sciences Department with the Site Health and Safety Follow-up Report.







## **12.5 DIRECT-READING INSTRUMENT RESPONSE DATA**

Any readings obtained through the use of direct-reading instruments must be recorded throughout the duration of project activities. This information is to be recorded on Table 12-2 and returned to the Health Sciences Department with the Site Health and Safety Follow-up Report, at the conclusion of project site activities.

## **12.6 RESPIRATORY PROTECTION PROGRAM**

The Respiratory Protection Program (Appendix C) will be completed at project start-up and will be modified as necessary throughout the project.

## 13.0 CONFINED SPACE ENTRY (CSE) PROCEDURES

There are no confined space entry operations anticipated for this project; therefore, this section is not applicable.

## **14.0 SPILL CONTAINMENT PROGRAM**

### **14.1 SPILL RESPONSE PROCEDURES**

In case of an accidental spill, notify the Guard Headquarters located onsite at 575-3895. This department operates a spill response truck which responds to any accidental spills at the NWIRP Bethpage facility. The FOL will direct any emergency situations of this nature and will be assisted by the SSO.



**APPENDIX A**

**SITE HEALTH AND SAFETY  
FOLLOW-UP REPORT**

## SITE HEALTH AND SAFETY FOLLOW-UP REPORT

This section must be filled out and returned to the Site Health and Safety Officer after the conclusion of each site visit.

Person responsible for follow-up report: \_\_\_\_\_

Actual date(s) of work: \_\_\_\_\_

**Actual Project Team:**

HALLIBURTON NUS Personnel:	Discipline/Tasks:

Non-HALLIBURTON NUS Personnel/Application:	

PERSONAL PROTECTIVE EQUIPMENT

● Level of Respiratory Protection Used	Activity Performed

● Field Dress	Activity

**REQUEST FOR HASP MODIFICATION**  
**(To be Completed for Each Field Change in Plan)**

Describe, in detail, requested changes to the Health and Safety Plan:

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Reason for changes:

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Follow-up, Review and Evaluation Prepared by: \_\_\_\_\_ Date \_\_\_\_\_

Discipline \_\_\_\_\_

Approved by: Site Manager \_\_\_\_\_ Date \_\_\_\_\_

Site Health and Safety Officer \_\_\_\_\_ Date \_\_\_\_\_

Approved by: Office Health & Safety Supervisor \_\_\_\_\_ Date \_\_\_\_\_

**GENERAL SAFETY**

Were any health or safety problems encountered while on site?

Explain: \_\_\_\_\_

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**INCIDENT REPORT INFORMATION**

Did any team member report:

- Chemical exposure
- Illness, discomfort, or unusual symptoms
- Environmental problems (heat, cold, etc.)
- Injury

<u>Yes</u>	<u>No</u>
_____	_____
_____	_____
_____	_____
_____	_____

Explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was an Employee Incident Report Completed?      \_\_\_ Yes      \_\_\_ No

**Evaluation of Site Health and Safety Plan**

Was the Health and Safety Plan adequate?      \_\_\_ yes      \_\_\_ no

What changes would you recommend?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_







### EMPLOYEE INCIDENT REPORT

Report No. \_\_\_\_\_

Site: \_\_\_\_\_

Project No. \_\_\_\_\_

Location: \_\_\_\_\_

Date of Report: \_\_\_\_\_ Preparer's Name: \_\_\_\_\_

Name and Address of Injured: \_\_\_\_\_ SSN: \_\_\_\_\_ Age: \_\_\_\_\_

Sex: \_\_\_\_\_

Years of Service: \_\_\_\_\_ Time of Present Job: \_\_\_\_\_ Title/Classification: \_\_\_\_\_

Division/Department: \_\_\_\_\_ Date of Incident: \_\_\_\_\_ Time: \_\_\_\_\_

**Incident Category:** \_\_\_\_\_ Motor Vehicle \_\_\_\_\_ Property Damage \_\_\_\_\_ Fire  
\_\_\_\_\_ Chemical Exposure \_\_\_\_\_ Near-Miss \_\_\_\_\_ Other

**Severity of Injury or Illness:** \_\_\_\_\_ Nondisabling \_\_\_\_\_ Disabling  
\_\_\_\_\_ Medical Treatment \_\_\_\_\_ Fatality

Amount of Damage: \$ \_\_\_\_\_ Property Damage: \_\_\_\_\_

Estimated Number of Days Away from Job: \_\_\_\_\_

Nature of Injury or Illness: \_\_\_\_\_

**Classification of Injury:**

_____ Fractures	_____ Heat Burns	_____ Cold Exposure
_____ Dislocations	_____ Chemical Burns	_____ Frostbite
_____ Sprains	_____ Radiation Burns	_____ Heat Stroke
_____ Abrasions	_____ Bruises	_____ Heat Exhaustion
_____ Lacerations	_____ Blisters	_____ Concussion
_____ Punctures	_____ Toxic Respiratory Exposure	_____ Faint/Dizziness
_____ Bites	_____ Toxic Ingestion	_____ Toxic Respiratory
_____ Respiratory Allergy		_____ Dermal Allergy

Part of Body Affected: \_\_\_\_\_

Degree of Disability: \_\_\_\_\_

Date Medical Care was Received: \_\_\_\_\_

Where Medical Care was Received: \_\_\_\_\_  
Address (if off site): \_\_\_\_\_

**Incident Location**

Causative agent most directly related to accident (object, substance, material, machinery, equipment, conditions): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was weather a factor? \_\_\_\_\_  
Unsafe mechanical/physical/environmental condition at time of accident (Be specific): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Unsafe act by injured and/or others contributing to the accident (Be specific, must be answered): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Personal factors (improper attitude, lack of knowledge or skill, slow reaction, fatigue): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Level of personal protection equipment required in Site Safety Plan: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Modifications: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was injured using required equipment: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If not, how did actual equipment use differ from plan? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What can be done to prevent a recurrence of this type of accident (modification of machine; mechanical guards; correct environment; training)?  
\_\_\_\_\_  
\_\_\_\_\_

Detailed narrative description (how did accident occur, why; objects, equipment tools used, circumstances, assigned duties). Be specific:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Use back of sheet, as required)

Witnesses to accident: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature of Preparer \_\_\_\_\_  
Signature of Site Manager \_\_\_\_\_

**Department Appraisal and Recommendation**

In your opinion, what actions or equipment contributed to this accident?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Your recommendation:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_ Signature of Department Manager \_\_\_\_\_

**FOR HEALTH AND SAFETY USE ONLY**

Temporary total \_\_\_\_\_

Death or permanent total \_\_\_\_\_

Started losing time \_\_\_\_\_

Returned to work \_\_\_\_\_

Time charge \_\_\_\_\_

Compensation \$ \_\_\_\_\_

Other \$ \_\_\_\_\_

Permanent partial \_\_\_\_\_

Part of body \_\_\_\_\_

Percent loss or \_\_\_\_\_

loss of use \_\_\_\_\_

Time charge \_\_\_\_\_

Medical \$ \_\_\_\_\_

Total \$ \_\_\_\_\_

Name and Address  
of Hospital \_\_\_\_\_  
\_\_\_\_\_

Name and Address  
of Physician \_\_\_\_\_  
\_\_\_\_\_

cc: OHSS  
Administrative Manager  
MHS  
Medical Consultant

**INCIDENT FOLLOW-UP REPORT**

Date of Incident: \_\_\_\_\_

Name: \_\_\_\_\_

Employee No. \_\_\_\_\_

Site: \_\_\_\_\_

Brief description of incident: \_\_\_\_\_

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

Outcome of incident: \_\_\_\_\_

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

Physician's recommendations: \_\_\_\_\_

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

Date returned to work: \_\_\_\_\_

ATTACH ANY ADDITIONAL INFORMATION TO THIS FORM

cc: OHSS  
Administrative Manager  
MHS  
Medical Consultant

# JOB SAFETY & HEALTH PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Requirements of the Act include the following:

## Employers

All employers must furnish to employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

## Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct periodic inspections to help ensure compliance with the Act.

## Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

## Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthy conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with the nearest OSHA office within 30 days of the alleged discrimination.

## Citation

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each

citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of a alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

## Proposed Penalty

The Act provides for mandatory penalties against employers of up to \$1,000 for each serious violation and for optional penalties of up to \$1,000 for each non-serious violation. Penalties of up to \$1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$10,000 for each such violation.

Criminal penalties are also provided for in the Act. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of not more than \$10,000, or by imprisonment for not more than six months, or by both. Conviction of an employer after a first conviction doubles these maximum penalties.

## Voluntary Activity

While providing penalties for violations, the Act also encourages efforts by labor and management before an OSHA inspection to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

Such voluntary action should initially focus on the identification and elimination of hazards that could cause death, injury, or illness to employees and supervisors. There are many public and private organizations that can provide information and assistance in this effort, if requested. Also, your local OSHA office can provide considerable help and advice on solving safety and health problems or can refer you to other sources for help, such as training.

## Consultation

Free consultative assistance, without citation or penalty, is available to employers, on request, through OSHA supported programs in most State departments of labor or health.

## More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from you, employer or from the nearest OSHA Regional Office in the following locations:

Allaha, Georgia  
Boston, Massachusetts  
Chicago, Illinois  
Dallas, Texas  
Denver, Colorado  
Kansas City, Missouri  
New York, New York  
Philadelphia, Pennsylvania  
San Francisco, California  
Seattle, Washington

Telephone numbers for these offices, and additional area office locations, are listed in the telephone directory under the United States Department of Labor in the United States Government listing.

Washington, D.C.  
1988 (Revised)  
OSHA 2203



*Ann McLaughlin*

Ann McLaughlin, Secretary of Labor

**U.S. Department of Labor**  
Occupational Safety and Health Administration

Under provisions of Title 29, Code of Federal Regulations, Part 1903.2(a)(1) employers must post this notice (or a facsimile) in a conspicuous place where notices to employees are customarily posted.

OJC - 1988 O - 219-667

**APPENDIX B**

**HEARING CONSERVATION PROGRAM**

# APPENDIX B

## HEALTH AND SAFETY STANDARD OPERATING PROCEDURES

Subject

HEARING CONSERVATION PROGRAM

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- 1.0 PURPOSE
- 2.0 SCOPE OF COVERAGE
- 3.0 DEFINITIONS
- 4.0 RESPONSIBILITIES
- 5.0 PROCEDURES
  - 5.1 AVAILABILITY
    - 5.1.1 Short Duration Projects
    - 5.1.2 Long Duration Project/Remediation Projects

### ATTACHMENTS

Form HS2.13-1

Subject  HEARING CONSERVATION PROGRAM	Number HS2.13	Page 2 of 3
	Revision 1	Effective Date 08/01/90

## 1.0 PURPOSE

To establish the requirements of a minimally acceptable hearing conservation program in accordance with OSHA 29 CFR 1910.95.

## 2.0 SCOPE OF COVERAGE

This procedure covers all HALLIBURTON NUS projects where noise exposures may equal or exceed an 8-hour time-weighted average sound level of 85 decibels measured on the "A" scale (slow response).

## 3.0 DEFINITIONS

OSHA - Occupational Safety and Health Administration

OHSS - Office Health and Safety Supervisor

HSSO - Health and Safety Site Officer

HSO - Health and Safety Officer

dB(A) - Decibels on the "A" weighted scale

## 4.0 RESPONSIBILITIES

PM - Is responsible for the development and implementation of a written hearing conservation program, as required by this procedure, for the projects under his/her control

FTL - Is responsible for field implementation of the program.

HSSO - Is responsible for providing technical assistance to the FTL for field implementation of the program and to audit compliance with the program.

OHSS - Is responsible for providing technical expertise in the area of program development, at the request of the PM.

HSO - Is responsible for auditing the overall compliance with the procedure.

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**5.0 PROCEDURES**

The written program required as part of this procedure must include all elements specified by OSHA 29 CFR 1910.95.

**5.1 AVAILABILITY**

The written program must be available on-site and must be available for review by all site employees, their representatives or OSHA inspectors.

**5.1.1 Short Duration Projects**

For investigation projects, where each field task is scheduled for less than 1 month, a general hearing conservation program developed for corporate use will satisfy the requirements of this procedure.

**5.1.2 Long Duration Project/Remediation Projects**

Any investigation project where a field task is scheduled for greater than 1 month in duration and/or any remediation project must have a completed form HS2.13-1 or equivalent on-site. This form is designed to allow the OHSS and HSSO develop a hearing conservation program which is specific to the site.

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	Revision 1	Effective Date 08/01/90

**SITE-SPECIFIC HEARING CONSERVATION PROGRAM**

**1.0 MONITORING**

Noise monitoring will be conducted in accordance with OSHA 29 CFR 1910.95 by:

\_\_\_\_\_ Name/Title

Noise monitoring will consist of (check all that apply):

- Sound level meter survey
- Noise dosimeter monitoring

The specific instrument to be used is \_\_\_\_\_  
Make/Model

The monitoring devices will be calibrated at a frequency of \_\_\_\_\_ and documented in the \_\_\_\_\_.

The monitoring strategy is as follows: (List all equipment on site which may produce sound pressure levels above 80 dBA and an explanation of the strategy to document actual exposures.)

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

All monitoring will be documented utilizing the format illustrated following Section 7.0 (attach form developed for the specific site). These forms will be maintained in accordance with Section 7.0 of this program.

Subject SITE-SPECIFIC HEARING CONSERVATION PROGRAM	Number HS2.13-1	Page 2 of 4
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Monitoring will be repeated at a frequency of \_\_\_\_\_ and anytime the following changes occur:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**2.0 EMPLOYEE NOTIFICATION**

All site employees exposed above 85 dBA as an 8-hour time-weighted average (TWA) will be notified of the results of the monitoring by \_\_\_\_\_

Name/Title

at an interval not to exceed \_\_\_\_\_ after the monitoring has been completed.

Notification shall be (check all that apply):

- Verbal
- Written

Notifications shall be documented in the health and safety logbook with appropriate signatures of employees notified.

**3.0 OBSERVATION OF MONITORING**

Prior to noise monitoring, all employees affected by the monitoring or a designated representative shall be given the opportunity to observe the monitoring. This will be accomplished by:

\_\_\_\_\_

\_\_\_\_\_

**4.0 AUDIOMETRIC TESTING PROGRAM AND REQUIREMENTS**

HALLIBURTON NUS personnel who perform field activities are required to participate in the HALLIBURTON NUS medical monitoring program which includes an audiometric test program meeting the requirements of OSHA 29 CFR 1910.95. Additionally, any subcontractors performing work on HALLIBURTON NUS projects who will be exposed to noise levels exceeding 85 dBA will be required to provide documentation that they participate in an audiometric testing program which

Subject SITE-SPECIFIC HEARING CONSERVATION PROGRAM	Number HS2.13-1	Page 3 of 4
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meets the requirements of 29 CFR 1910.95. Documentation of participation in the testing program will be maintained by \_\_\_\_\_ and \_\_\_\_\_ will be located at \_\_\_\_\_

**5.0 HEARING PROTECTORS AND ESTIMATING ATTENUATION**

A selection of suitable hearing protectors will be made available to all employees who are expected to have 8-hour TWA noise exposures above 85 dBA. The types anticipated to be available include:

- \_\_\_\_\_ Attenuation \_\_\_\_\_
- \_\_\_\_\_ Attenuation \_\_\_\_\_
- \_\_\_\_\_ Attenuation \_\_\_\_\_

Hearing protector attenuation will be evaluated by \_\_\_\_\_ for specific noise environments according to the following method prior to determining their suitability for use: \_\_\_\_\_

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

The following site personnel will be required to wear hearing protectors during specific activities as determined in accordance with 29 CFR 1910.95 and the results of site-specific monitoring conducted according to Section 1.0 of this program. (This section can be completed after monitoring, if necessary.)

Name	Activity	Type of Protection Required

Subject: SITE-SPECIFIC HEARING CONSERVATION PROGRAM	Number HS2.13-1	Page 4 of 4
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Upon initial distribution to site workers, hearing protectors will be properly fitted by \_\_\_\_\_ and a record of the size and type of protector will be recorded.

Training in the use and care of hearing protectors shall be conducted by \_\_\_\_\_ during the initial site-specific health and safety training as part of the PPE training. The contents of the training shall be in accordance with 29 CFR 1910.95.

Hearing protectors will be distributed by \_\_\_\_\_ from the storage location at the \_\_\_\_\_.

**6.0 ACCESS TO INFORMATION AND TRAINING MATERIALS**

All information required by 29 CFR 1910.95 to be made available to the employees will be posted by \_\_\_\_\_ at the \_\_\_\_\_.  
Name/Title

Attached is a copy of the OSHA standard 29 CFR 1910.95. This will be posted onsite by \_\_\_\_\_.

**7.0 RECORDKEEPING**

All records required by 29 CFR 1910.95 shall be completed by \_\_\_\_\_ and maintained at the \_\_\_\_\_ and placed on permanent file at the \_\_\_\_\_, for the minimum duration required by the standard.

Employees can access these records by contacting \_\_\_\_\_.  
Name/Title

All records required by this section will be transferred to any employees successive employer if \_\_\_\_\_ ceases to do business.  
Company Name

**APPENDIX C**

**RESPIRATORY PROTECTION PROGRAM**

# APPENDIX C

## HEALTH AND SAFETY STANDARD OPERATING PROCEDURES

Subject

RESPIRATORY PROTECTION PROGRAM

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- 2.0 SCOPE
- 3.0 DEFINITIONS
- 4.0 RESPONSIBILITIES
- 5.0 PROCEDURES
  - 5.1 Availability
    - 5.1.1 Short Duration Projects
    - 5.1.2 Long Duration Project/Remediation Projects

### ATTACHMENTS

- H52.10-1 Site-Specific Respiratory Protection Program

Subject  RESPIRATORY PROTECTION PROGRAM	Number HS2.10	Page 2 of 4
	Revision 1	Effective Date 08/01/90

## 1.0 PURPOSE

To establish the requirements for a minimally acceptable respiratory protection program in accordance with OSHA 29 CFR 1910.134.

## 2.0 SCOPE

This procedure is applicable to all HALLIBURTON NUS field activities where respiratory protective equipment is used and/or available on-site.

## 3.0 DEFINITIONS

PM - Project Manager.

FTL - Field Team Leader.

OHSS - Office Health and Safety Supervisor.

HSSO - Health and Safety Site Officer.

HSO - Health and Safety Officer.

SOPS - Standard Operating Procedure.

OSHA - Occupational Safety and Health Administration

Action Level - A pre-established reading on any monitoring instrument which requires an upgrade, downgrade or reevaluation of respiratory protection.

Oxygen Deficient Atmosphere - Any work area atmosphere which contains less than 19.5 percent oxygen by volume.

Toxic Environment - Any work area atmosphere which has an airborne concentration of greater than 1/2 the current TLV, PEL, REL, or other accepted safe exposure level. Additionally, any work area which contains measurable concentrations of unknown contaminants will be considered a toxic environment.

SCBA - Self-Contained Breathing Apparatus.

APR - Air-Purifying Respirators.

Subject  RESPIRATORY PROTECTION PROGRAM	Number HS2.10	Page 3 of 4
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TLV - Threshold Limit Value as defined by the American Conference of Governmental Industrial Hygienists (ACGIH).

PEL - Permissible Exposure Limit as defined by the Occupational Safety and Health Administration (OSHA).

REL - Recommended Exposure Limit as defined by the National Institute for Occupational Safety and Health (NIOSH).

#### 4.0 RESPONSIBILITIES

PM - Is responsible for the development and implementation of a written respiratory protection program, as required by this procedure, for the projects under his/her control.

FTL - Is responsible for field implementation of the program.

HSSO - Is responsible for providing technical assistance to the FTL for field implementation of the program and to audit compliance with the program.

OHSS - Is responsible for providing technical expertise in the area of program development, at the request of the PM.

HSO - Is responsible for auditing the overall compliance with this procedure.

#### 5.0 PROCEDURES

The written program required as part of this procedure must include all elements specified by OSHA 29 CFR 1910.134(b) and must be consistent with the site-specific Health and Safety Plan.

##### 5.1 AVAILABILITY

The written program must be available on-site and must be available for review by all site employees, their representatives or OSHA inspectors.

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**5.1.1 Short Duration Projects**

For investigation projects where each site task is scheduled for less than one month, a general respiratory protection program developed for corporate use will be sufficient.

**5.1.2 Long Duration Project/Remediation Projects**

Any investigation project where a site task is scheduled for greater than one month in duration and/or any remediation project must have a completed form HALLIBURTON NUS SOP No. HS2.10-1 or equivalent on site. This form is designed to allow the OHSS and HSSO to develop a respiratory protection program which is specific to the site.



Subject SITE-SPECIFIC RESPIRATORY PROTECTION PROGRAM	Number HS2.10-1	Page 2 of 9
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## 2.0 USE OF RESPIRATORY PROTECTION

Based on the site-specific chemical hazards and the anticipated site activities, the following respiratory protection is anticipated to be used at this project.

Activity	Respiratory Protection Anticipated

- Respiratory protection utilized to prevent exposures to toxic chemicals must only be used when accepted engineering controls are not feasible. Administrative controls (i.e. worker rotation) are not considered an accepted control measure to reduce personnel exposures on hazardous waste sites.
- Only approved respiratory protective equipment which has been properly selected for the job shall be used by HALLIBURTON NUS personnel.
- In areas where an employee, because of a failure of a respirator, could be overcome by a toxic or oxygen-deficient atmosphere, at least one additional person shall be present. Communications (voice, visual or signal line) shall be maintained between all individuals present. Planning shall be such that one individual will be unaffected by any likely incident and he/she will have the necessary rescue equipment to assist the others in case of emergency.

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- All personnel on-site must be properly fit-tested for each type of equipment available on-site. The personnel qualified to perform this testing are \_\_\_\_\_  
The records of all fit-tests for site personnel are maintained by \_\_\_\_\_  
and can be reviewed at \_\_\_\_\_.
  
- All personnel on-site must be trained in the proper use of each type of respiratory protective equipment available. The following are qualified to conduct this training: \_\_\_\_\_  
Records of this training are maintained by \_\_\_\_\_  
and may be reviewed at \_\_\_\_\_.
  
- Respirators shall not be worn when conditions exist which prevent a good face-to-facepiece seal. These conditions include, but are not limited to, the growth of a beard on sideburns, a skull cap which projects under the facepiece, or the use of regular corrective glasses because the temple bars prohibit a proper seal. Also, the absence of one or both dentures can seriously affect the fit of any respiratory protection.
  
- Workers shall only use the respiratory protective equipment which has been assigned to them. Assignment of respiratory equipment will be conducted by \_\_\_\_\_  
in the following manner \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
- Contact lenses shall not be worn while using respiratory protection.
  
- All individuals required to use respiratory protection must successfully pass a physical examination and receive written approval from the examining physician to use both positive and negative pressure respiratory protection. The written approvals for all site personnel are maintained by \_\_\_\_\_ and may be reviewed at \_\_\_\_\_.
  
- The actual use of all respiratory protective equipment shall conform to the manufacturer's operating instructions and training provided to the employee. A copy of all operating instructions for each type of equipment is maintained by \_\_\_\_\_  
and may be reviewed at \_\_\_\_\_.

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- Use of SCBA and APR will be documented by \_\_\_\_\_ using log sheets provided in Appendix A. These logs will be kept current on a daily basis and can be reviewed at \_\_\_\_\_.
- Respirator Cleaning - All Respirators must be cleaned and disinfected at a frequency necessary to insure that the proper protection is provided to the wearer. Those used by more than one worker must be cleaned and disinfected after each use.

In order to accomplish this task a respiratory cleaning station has been set up at \_\_\_\_\_ . This station includes the following items to assist in the cleaning process: \_\_\_\_\_

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The following instructions will be posted at the respirator cleaning station to ensure adequate cleaning and disinfection: \_\_\_\_\_

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Subject SITE-SPECIFIC RESPIRATORY PROTECTION PROGRAM	Number HS2.10-1	Page 6 of 9
	Revision 1	Effective Date 08/01/90

### 3.0 RESPIRATOR INSPECTION

All respiratory protection equipment used on a routine basis must be inspected during cleaning. Worn or deteriorated parts must be immediately replaced or the unit tagged and taken out of service. Respirators for emergency use must be inspected at least every 30 days and after each use. Additionally, all respiratory protective equipment must be inspected by the HSSO, regardless of use, and the condition documented on a suitable form signed by the HSSO.

The inspection procedure for each type of equipment will follow the manufacturer's recommended procedure. The specific procedures to be used are available on-site and can be reviewed by contacting \_\_\_\_\_.

The following schedule will be followed by the HSSO in implementing the inspection requirements:

Equipment	Inspection Date	Person Responsible

Subject SITE-SPECIFIC RESPIRATORY PROTECTION PROGRAM	Number HS2.10-1	Page 7 of 9
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**4.0 RESPIRATOR STORAGE**

All respiratory protection utilized by HALLIBURTON NUS employees must be stored in a convenient, clean, and sanitary location and according to specific manufacturer recommendations. Special attention must be paid to protecting respiratory protection from dusty conditions, temperature extremes, and potential contamination during storage.

The following storage procedures will be utilized for equipment used on a routine basis (i.e., storage during non-use periods of a workshift or storage between workshifts): \_\_\_\_\_

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All equipment not routinely used will be stored according to the procedures outlined below:

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Any equipment not assigned to specific site personnel will be stored under the supervision of \_\_\_\_\_. This equipment will be stored at \_\_\_\_\_ following the procedures outlined below:

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Subject SITE-SPECIFIC RESPIRATORY PROTECTION PROGRAM	Number HS2.10-1	Page 8 of 9
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**5.0 SURVEILLANCE OF WORK AREA**

- Appropriate monitoring of the work area conditions shall be performed frequently to establish the degree of employee exposure or stress. In order to simplify this surveillance, the following procedures have been determined for this project:

Monitoring Equipment Used	Frequency of Surveillance	Personnel/Area Being Monitored

Records of the above surveillance will be recorded on the following forms: (Attach blank field documentation format to be used). Completed forms will be maintained by \_\_\_\_\_ and can be reviewed at \_\_\_\_\_.

Subject SITE-SPECIFIC RESPIRATORY PROTECTION PROGRAM	Number HS2.10-1	Page 9 of 9
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**6.0 QUALITY ASSURANCE OF BREATHING AIR**

Compressed air utilized for respiratory protection shall be of high purity. Breathing air shall meet at least the requirements of the specification for Grade D breathing air as established by the Compressed Gas Association. The following specifications must be certified by the vendor/supplier:

Oxygen Content - 19.5 percent to 23.5 percent

Contaminant	Maximum Allowed
Carbon Monoxide (CO)	20 ppm
Carbon Dioxide (CO <sub>2</sub> )	1000 ppm
Condensed Hydrocarbons	5 mg/m <sup>3</sup>
Objectional odors	None

Documentation assuring that breathing air meets the above specifications will be obtained by \_\_\_\_\_ by requesting such documentation from the vendor or supplier.

Site personnel can review this documentation in the \_\_\_\_\_.

**7.0 PROGRAM EVALUATION**

- There will be regular inspections and evaluations to determine the continued effectiveness of this program. Documentation will be maintained by \_\_\_\_\_, and can be reviewed in the \_\_\_\_\_.

The program will be evaluated in the following manner:

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**APPENDIX D**

**HAZARD COMMUNICATION PROGRAM**

# APPENDIX D

## HEALTH AND SAFETY STANDARD OPERATING PROCEDURES

Subject:

HAZARD COMMUNICATION PROGRAM

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### ATTACHMENTS

- HS2.12-1 Site-Specific Hazard Communication Program

Subject  HAZARD COMMUNICATION PROGRAM	Number HS2.12	Page 2 of 3
	Revision 1	Effective Date 08/01/90

## 1.0 PURPOSE

To establish the requirements for a minimally acceptable hazard communication program in accordance with OSHA 29 CFR 1910.1200.

## 2.0 SCOPE

This procedure covers all HALLIBURTON NUS field activities where hazardous substances are used and/or stored as defined by OSHA 29 CFR 1910.1200.

## 3.0 DEFINITIONS

Hazardous Substances - See OSHA 29 CFR 1910.1200.

MSDS - Material Safety Data Sheet

HSSO - Health and Safety Site Officers

HSO - Health and Safety Officer

OHSS - Office Health and Safety Supervisor

OSHA - Occupational Safety and Health Administration

## 4.0 RESPONSIBILITIES

PM - Is responsible for the development and implementation of a written hazard communication program, as required by this procedure, for the projects under his/her control.

FTL - Is responsible for field implementation of the program.

HSSO - Is responsible for providing technical assistance to the FTL for field implementation of the program and to audit compliance with the program.

OHSS - Is responsible for providing technical expertise in the area of program development, at the request of the PM.

HSO - Is responsible for auditing the overall compliance with this procedure.

Subject  HAZARD COMMUNICATION PROGRAM	Number HS2.12	Page 3 of 3
	Revision 1	Effective Date 08/01/90

## 5.0 PROCEDURES

The written program required as part of this procedure must include all elements specified by OSHA 29 CFR 1910.1200.

## 5.1 AVAILABILITY

The written program must be available on-site and must be available for review by all site employees, their representatives, or OSHA inspectors.

### 5.1.1 Short Duration Projects

For investigation projects where each field task is scheduled for less than one month, a general hazard communication program developed for corporate use will be sufficient.

### 5.1.2 Long Duration Project/Remediation Projects

Any investigation project where a field task is scheduled for greater than one month in duration and/or any remediation project must have a completed form HS2.12-1 or equivalent on site. This form is designed to allow the OHSS and HSSO develop a hazard communication program which is specific to the site.

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## SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM

Site Name: \_\_\_\_\_

Location: \_\_\_\_\_

1. Person responsible for the Hazard Communication Program: \_\_\_\_\_

2. Inventory of hazardous substances is attached and also located: \_\_\_\_\_

3. Material Safety Data Sheets (MSDSs) for all hazardous substances are located at: \_\_\_\_\_

4. Employees may review MSDSs and the standard by following this procedure: \_\_\_\_\_

MSDSs not on hand, that are requested by employees, will be requested of suppliers within 7 days by letter.

5. The MSDS file is updated with new information and new hazards identified by: \_\_\_\_\_

Any new hazards will be reported immediately to: \_\_\_\_\_  
\_\_\_\_\_ and affected employees notified within 30 days.

6. Containers of hazardous materials entering the site will be checked by \_\_\_\_\_

to assure that they are properly labeled with the chemical name of the contents, the appropriate hazard warning and the name and address of the supplier or manufacturer.

7. On site containers of hazardous materials will be labeled with the chemical name and hazard warning. Exceptions must be approved by \_\_\_\_\_

The following exceptions have been approved: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. Non-routine tasks involving hazardous materials are: \_\_\_\_\_

Procedures for complying with the Hazard Communication Standard for these jobs are the following: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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9. Employee training is provided initially to all employees and for all new employees. This training covers the following areas:

- a. The basic requirements of the Hazard Communication Standard and their right to information on chemical hazards.
- b. Our company's program to comply with the standard, and procedures to follow to see the standard, company program, and MSDSs.
- c. How to interpret and use the labels on containers of hazardous materials.
- d. The potential physical hazards and health effects of the hazardous substances and how to use MSDSs for more information.
- e. How to handle the hazardous substances safely and other protective measures in place.
- f. What to do in an emergency, release or over-exposure to the chemicals
- g. How the presence of hazardous chemicals can be detected in the work area.

10. This training is documented in the following manner: \_\_\_\_\_

Records are maintained at the following location: \_\_\_\_\_

11. Training concerning new hazards (new chemicals or new information on MSDSs) will be provided within 30 days and documented.

12. Periodic refresher training will be provided and documented as follows: \_\_\_\_\_

13. Outside employees (subcontractors and visitors) will be advised of chemical hazards at our site in the following manner: \_\_\_\_\_

Contractors will be required to provide information on any chemicals used at this site as a condition of their contract.

Our company relies on the information contained in MSDSs as permitted by the OSHA Hazard Communication Standard and does not perform independent hazard determinations.

Reviewed and approved:

OHSS \_\_\_\_\_ Date \_\_\_\_\_

**APPENDIX E**

**PERSONAL PROTECTIVE EQUIPMENT PROGRAM**

# APPENDIX E

## HEALTH AND SAFETY STANDARD OPERATING PROCEDURES

Subject

PERSONAL PROTECTIVE EQUIPMENT PROGRAM

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### ATTACHMENTS

- HS2.11-1 Site-Specific Personal Protective Equipment Program

Subject  PERSONAL PROTECTIVE EQUIPMENT PROGRAM	Number HS2.11	Page 2 of 3
	Revision 1	Effective Date 08/01/90

## 1.0 PURPOSE

To establish site-specific requirements for a minimally acceptable personal protective equipment program (PPE) in accordance with OSHA 29 CFR 1910.120.

## 2.0 SCOPE

This procedure covers all HALLIBURTON NUS field activities where PPE is used or available on site, excluding respiratory protection.

## 3.0 DEFINITIONS

- PM - Project Manager
- FTL - Field Team Leader
- PPE - Personal Protective Equipment
- OHSS - Office Health and Safety Supervisor
- HSSO - Health and Safety Site Officer
- HSO - Health and Safety Officer
- OSHA - Occupational Safety and Health Administration
- CPC - Chemical Protective Clothing
- SOP - Standard Operating Procedure

## 4.0 RESPONSIBILITIES

- PM - Is responsible for the development and implementation of a written personal protective equipment program, as required by this procedure, for the projects under his/her control.
- FTL - Is responsible for field implementation of the program.
- HSSO - Is responsible for providing technical assistance to the FTL for field implementation of the program and to audit compliance with the program.

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OHSS - Is responsible for providing technical expertise in the area of program development, at the request of the PM.

HSSO - Is responsible for auditing the overall compliance with this procedure.

## 5.0 PROCEDURES

The written program required as part of this procedure must include all elements specified by 29 CFR 1910.120(g)(5) and must be consistent with the Health and Safety Plan.

### 5.1 AVAILABILITY

The written program must be available on-site and must be available for review by all site employees, their representatives or OSHA inspectors.

#### 5.1.1 Short Duration Projects

For investigation projects where each field task is scheduled for less than one month, a general PPE program developed for corporate use will be sufficient.

#### 5.1.2 Long Duration Project/Remediation Projects

Any investigation project where a field task is scheduled for greater than one month in duration and/or any remediation project must have a completed form HS2.11-1 or equivalent on site. This form is designed to allow the OHSS and HSSO develop a personal protective equipment program which is specific to the site.



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## 1.2 CPC SELECTION

Table HS2.11-1-2 lists the general items and types of CPC selected for use on this project. This equipment was selected based on the substances present, their maximum expected concentrations, and the potential for contact and the resistiveness of available protective clothing, in accordance with Section 7.0 of this HASP.

TABLE HS2.11-1-2

*Item	**Type of Material

<u>*Items Available</u>		<u>**Materials Available</u>	
Outer Gloves	Boot Covers	Nitrile	Natural Rubber
Inner Gloves	Coveralls	Silvershield	Viton
Splash Apron	Others	Tyvek	Neoprene
Face Shield	Coveralls with Hoods	Butyl	Sarnex
Fully-encapsulated Suit		Polyethylene (PE)	Other (Specify)
Chemical Splash Goggles		Polyvinyl Chloride (PVC)	
		Polyvinyl Alcohol (PVA)	

## 1.3 PHYSICAL HAZARDS AND CONTROLS

Table HS2.11-1-3 lists the physical hazards which may be present at this project and the applicable item(s) of PPE which have been selected to protect site workers based on the activities, equipment, environmental conditions, etc. anticipated to be present. Physical hazards which are controlled by means other than PPE are also listed with their respective control measures.

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TABLE HS2.11-1-3

*Physical Hazard	**PPE or Control

\*Hazards to Consider

- Moving, falling or flying objects.
- Work above ground level.
- Pinch-points, nip points, rotating machinery.
- Noise sources.
- Contact with energized sources.
- Heavy objects to lift.
- Uneven, unstable or slippery walking surfaces.
- Handling glass objects.
- Fire/explosion.
- Heat stress/cold stress.
- Biological Factors (poison ivy/oak, insects, snakes, etc.)

\*\*PPE and Controls to Consider

- Hard Hats
- Puncture Resistant Gloves
- Steel Toe/Hard Sole Workboots
- Leather Work Gloves
- Safety Glasses/Goggles/Face-shields
- Work/Rest Regime
- Electrolyte Drinks
- Hearing Protection
- Fall Protection
- Life-lines/Retrieval-lines
- Shin Guards
- Explosion Shields
- Life-vests
- Lineman Insulated Gloves
- Fire Extinguishers (Specify Type)

**2.0 PPE USE AND DONNING PROCEDURES**

**2.1 USE**

Table HS2.11-1-4 lists the specific work activities for the Bethpage site and the required PPE to be used for each task in accordance with the items selected previously in Section 7.0 of this HASP.



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All persons shall be deemed medically qualified to wear PPE prior to use. Medical Approval Forms will be maintained by \_\_\_\_\_ at the \_\_\_\_\_.

**3.0 WORK MISSION DURATION AND LIMITATIONS DURING TEMPERATURE EXTREMES**

Chemical degradation or permeation of CPC and worker heat/cold stress can significantly affect the length of time a person can work in CPC. Based on the chemicals and concentrations anticipated to be encountered and the anticipated ambient air temperatures, the following restrictions shall apply to this project.

Activity	Restriction

Modifications to these restrictions shall be based on the findings of the in-use monitoring as outlined in Section 8.0 "PPE In-Use Monitoring" of this program.

**4.0 MAINTENANCE AND STORAGE**

PPE will be maintained and stored in accordance with the manufacturers' recommendations.

PPE maintenance at this project will be performed by \_\_\_\_\_ or \_\_\_\_\_.

PPE at this project will be stored in/at the \_\_\_\_\_. The person responsible for storage and issuing PPE is \_\_\_\_\_. Reusable PPE which is potentially contaminated shall be stored at/in the \_\_\_\_\_.

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**5.0 PPE DECONTAMINATION AND DOFFING PROCEDURES**

PPE decontamination shall be performed in accordance with Section 9.0 of this HASP. The following decontamination requirements shall apply to this project (✓ all that apply):

- Contaminant Removal from Outer Surfaces of Reusable PPE
- Contaminant Removal from Outer Surfaces of Disposable PPE
- Doffing (removal) of PPE
- Disposal of Contaminated PPE
- Disposal of Decontaminated PPE
- Personal Hygiene Procedures
- On Site Laundering of Potentially Contaminated Work Clothes
- Off Site Laundering of Potentially Contaminated Work Clothes
- Other \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

The following describes, in detail, all decontamination requirements which have been selected (✓) for this project, including the two minimum requirements of doffing procedures and personal hygiene:

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**6.0 PPE TRAINING AND FITTING**

All site personnel will be given site-specific PPE training as part of the site-specific health and safety training required by OSHA 29 CFR 1910.120. Personnel will receive training on each item of PPE required by Section 2.1 of this program. Minimum requirements shall include the need for PPE, proper use, and limitations. Other requirements are as follows:

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PPE training shall be conducted by \_\_\_\_\_ prior to the worker using the item of PPE.

All site personnel shall be properly fitted for each item of PPE required by the "Use" section of this program.

PPE fitting (other than respiratory protection) shall be conducted by the person responsible for PPE storage and distribution, namely \_\_\_\_\_, who will maintain a record of sizes as described below:

**PPE FIT RECORDS**

Worker	Item (Size)
Example: John Doe	Nitrile Gloves (11), Boot Covers (12), Tyvek (XLG)



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interference with vision or communication, restrictions of movement, or any signs or symptoms of heat stress such as rapid pulse, nausea, or chest pains.

Additional in-use monitoring shall be conducted by \_\_\_\_\_ as described below:

Degradation/Permeation Monitoring:

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Heat/Cold Stress Monitoring (ARCS III SOP Nos. HS1.09 and HS1.10):

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#### 9.0 PROGRAM EVALUATION

This program shall be evaluated by \_\_\_\_\_ at a frequency of \_\_\_\_\_ in accordance with the following guidelines:

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These evaluations shall be documented in the field health and safety logbook.