

N60200.AR.003680  
NAS CECIL FIELD, FL  
5090.3a

WORK PLAN ADDENDUM 17 FOR SOIL AND FREE PRODUCT REMOVAL AT BUILDING 846  
NAS CECIL FIELD FL  
8/1/2003  
CH2MHILL CONSTRUCTORS INC

**Work Plan Addendum No. 17  
Soil and Free Product Removal at  
Building 846**

**Former Naval Air Station Cecil Field  
Jacksonville, Florida**

**Revision No. 00**

**Contract No. N62467-98-D-0995  
Contract Task Order No. 0057**

Submitted to:  
**U.S. Naval Facilities  
Engineering Command  
Southern Division**

Prepared by:



115 Perimeter Center Place, N.E.  
Suite 700  
Atlanta, GA 30346

August 2003

**Work Plan Addendum No. 17  
Soil and Free Product Removal at Building 846**

**Former Naval Air Station Cecil Field  
Jacksonville, Florida**

**Revision No. 00**

**Contract No. N62467-98-D-0995  
Contract Task Order No. 0057**

Submitted to:  
**U.S. Naval Facilities  
Engineering Command  
Southern Division**

Prepared by:



115 Perimeter Center Place, N.E.  
Suite 700  
Atlanta, GA 30346

August 2003

**Prepared/Approved By:**

\_\_\_\_\_  
Michael D. Halil, Project Manager

\_\_\_\_\_  
Date

**Approved By:**

\_\_\_\_\_  
Scott M. Smith, Acting Program Manager

\_\_\_\_\_  
Date

**Client Acceptance:**

\_\_\_\_\_  
U.S. Navy Responsible Authority

\_\_\_\_\_  
Date

# Table of Contents

---

<b>1.0</b>	<b>Introduction</b> .....	<b>1-1</b>
1.1	Site Description.....	1-2
1.2	Project Objectives.....	1-3
<b>2.0</b>	<b>Project Execution Plan</b> .....	<b>2-1</b>
2.1	Scope of Work.....	2-1
2.1.1	Mobilization and Site Preparation.....	2-1
2.1.2	Pre-excavation Waste Characterization of Soil.....	2-4
2.1.3	Pre-excavation Survey.....	2-4
2.1.4	Former DT1 Spill Containment Basin.....	2-4
2.1.5	Demolition of Building 846.....	2-5
2.1.6	Soil Excavation of Petroleum-Contaminated Soil, Backfilling, and Site Restoration.....	2-5
2.1.7	Biosparge/SVE Well Abandonment/Re-installation.....	2-6
2.1.8	Monitoring Well Abandonment/Re-installation.....	2-8
2.1.9	Transportation and Disposal of Petroleum-Contaminated Materials.....	2-8
2.1.10	Decontamination.....	2-9
2.1.11	Demobilization.....	2-9
2.1.12	Post Excavation Survey.....	2-9
2.1.13	Source Removal Report.....	2-9
2.2	Project Schedule.....	2-10
2.3	Communications Plan.....	2-10
2.4	Traffic Control Plan.....	2-11
<b>3.0</b>	<b>Sampling and Analysis Plan</b> .....	<b>3-1</b>
3.1	Data Quality Levels for Measurement Data.....	3-1
3.2	Sampling Objectives.....	3-6
3.2.1	Borrow Source Confirmation Sampling.....	3-6
3.3	Former DT1 Spill Containment Basin Sampling.....	3-7
3.4	Free Product Sampling.....	3-7
3.5	Pre-excavation Waste Characterization.....	3-8
3.5.1	Procedure for Collecting Volatile Fractions.....	3-8
3.5.2	Procedure for Collecting Non-Volatile Samples.....	3-8
3.5.3	Other Solid Waste Characterization Sampling.....	3-9
3.5.4	Procedure for Collecting Volatile Fractions.....	3-9
3.5.5	Procedure for Collecting Non-Volatile Samples.....	3-9
3.5.6	Decontamination and Purge Water Sampling.....	3-9
3.6	Sample Documentation.....	3-10
3.7	Field Quality Control.....	3-11
3.8	Analytical Methods.....	3-11
<b>4.0</b>	<b>Waste Management Plan</b> .....	<b>4-1</b>
4.1.1	Waste Characterization.....	4-1
4.2	Waste Management.....	4-2

	4.2.1	Waste Storage Time Limit .....	4-2
	4.2.2	Labels .....	4-2
	4.2.3	General Waste Management Requirements .....	4-3
4.3		Shipping Documentation .....	4-5
4.4		Transportation .....	4-6
	4.4.1	Transporter Responsibilities .....	4-7
	4.4.2	Transportation and Disposal Log .....	4-7
<b>5.0</b>		<b>Environmental Protection Plan.....</b>	<b>5-1</b>
	5.1	Regulatory Drivers .....	5-1
	5.2	Spill Prevention and Control .....	5-1
	5.3	Spill Prevention.....	5-1
	5.4	Spill Containment and Control .....	5-1
	5.5	Spill Clean-up and Removal .....	5-2
	5.6	Endangered Species Protection .....	5-2
	5.7	Erosion Control.....	5-2
<b>6.0</b>		<b>Quality Control Plan.....</b>	<b>6-1</b>
	6.1	Project QC Manager .....	6-1
	6.2	Construction Inspections.....	6-1
	6.3	Mobilization and Site Preparation .....	6-4
	6.3.1	Preparatory Phase .....	6-5
	6.3.2	Initial Phase .....	6-5
	6.3.3	Follow-up Phase .....	6-5
6.4		Excavation, Demolition and Site Restoration.....	6-5
	6.4.1	Preparatory Phase .....	6-5
	6.4.2	Initial Phase .....	6-5
	6.4.3	Follow-up Phase .....	6-5
6.5		Field Sampling .....	6-6
	6.5.1	Sample Collection and Testing .....	6-6
	6.5.2	Preparatory Phase .....	6-6
	6.5.3	Initial Phase .....	6-6
	6.5.4	Follow-up Phase .....	6-6
6.6		Surveying.....	6-7
6.7		Well Abandonment and Re-installation.....	6-7
	6.7.1	Preparatory Phase .....	6-7
	6.7.2	Initial Phase .....	6-7
	6.7.3	Follow-up Phase .....	6-7
6.8		Waste Management.....	6-7
	6.8.1	Preparatory Phase .....	6-7
	6.8.2	Initial Phase .....	6-8
	6.8.3	Follow-up Phase .....	6-8
6.9		Decontamination and Demobilization .....	6-8
	6.9.1	Preparatory Phase .....	6-8
	6.9.2	Initial Phase .....	6-9
	6.9.3	Follow-up Phase .....	6-9
6.10		Testing Requirements .....	6-9
	6.10.1	Identification and Certification of Testing Laboratories.....	6-9
	6.10.2	Construction Testing.....	6-9

6.10.3	Environmental .....	6-9
6.11	CTO Support Organizations .....	6-9

## Tables

2-1	Excavation Specifications .....	2-5
2-2	Biosparge/SVE Well Specifications .....	2-7
2-3	Communications Matrix.....	2-10
2-4	Project Personnel Directory.....	2-10
3-1	Data Quality Levels.....	3-1
3-2	Excavation Area Samples .....	3-2
3-3	Sampling and Analysis.....	3-8
6-1	Roles, Responsibilities, and Authorities of Key Project Personnel.....	6-3

## Figures

2-1	Staked Silt Fence Detail .....	2-2
2-2	Barricade Fence Detail .....	2-3
2-3	Temporary Containment of Excavated Soil Detail .....	2-3

## Appendices

- A Excavation Site Plans
- B Critical Path Method Project Schedule
- C Transportation and Disposal/Quality Control Attachments
  - Transportation and Disposal Log
  - Submittal Register
  - Testing Plan and Log
  - Summary of Field Tests Log
  - Quality Control Manager Appointing Letter
  - Alternate Quality Control Manager Appointing Letter
  - Contractor Daily Production Report
  - Contractor Daily Quality Control Report
  - Preparatory Phase Report
- D Site Specific Health and Safety Plan

# Acronyms and Abbreviations

---

AALA	American Association of Laboratory Accreditation
AASHTO	American Association of State Highway and Transportation Officials
AHA	activity hazard analysis
AFCEE	Air Force Center for Environmental Excellence
ASTM	American Society for Testing and Materials
bls	below land surface
BTEX	benzene, ethylbenzene, toluene, and xylenes
CCI	CH2M HILL Constructors, Inc.
CD	Certificate of Disposal
CFR	Code of Federal Regulations
CO	Contracting Officer
COC	Chain-of-Custody
CTO	Contract Task Order
DOT	Department of Transportation
DT1	Day Tank 1
EISOPQAM	Environmental Investigative Standard Operating Procedure and Quality Assurance Manual
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FL PRO	Florida Petroleum Residual Organic
IRCDQM	Installation Restoration Chemical Data Quality Manual
JPA	Jacksonville Port Authority
LDR	Land Disposal Restriction
MTBE	methyl tert butyl ether
NAD	North American Datum
NAVD	North American Vertical Datum
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NIST	National Institute of Standards and Technology
NTR	Navy Technical Representative
NVLAP	National Voluntary Laboratory Accreditation Program
OVA/FID	organic vapor analyzer with flame ionization detector
PAHs	polynuclear aromatic hydrocarbons
PSI	pounds per square inch
PVC	polyvinyl chloride
QA	Quality assurance
QC	Quality control
QCR	Quality Control Report
ROICC	Resident Officer in Charge of Construction
SAP	Sampling and Analysis Plan
SCTL	Soil Cleanup Target Levels
SOPs	Standard Operating Procedures
SVE	soil vapor extraction
TAT	turnaround time

T&D	transportation and disposal
TRPH	Total Recoverable Petroleum Hydrocarbons
TSSDS	Tri-service Spatial Data Standards
TtNUS	Tetra Tech NUS, Inc.
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UST	Underground Storage Tank
VEW	vapor extraction well
VOC	volatile organic compounds

# 1.0 Introduction

---

CH2M HILL Constructors, Inc. (CCI) has been contracted by the Department of the Navy, Southern Division Naval Facilities Engineering Command (NAVFAC), to prepare this Work Plan Addendum, under Response Action Contract No. N62467-98-D-0995, Contract Task Order (CTO) No. 0057. The purpose of this Work Plan Addendum is to outline the procedures to be used to perform soil and free product removal at Building 846 located at Former Naval Air Station (NAS) Cecil Field, Jacksonville, Florida.

Soil and free product removal activities at Building 846 will include the following;

- Identification and avoidance of all aboveground and underground utilities or other manmade structures
- Removal of the former Day Tank 1 (DT1) spill containment basin from service
- Demolition, transportation, and disposal (T&D) of Building 846
- Excavation and backfill of 10 delineated areas of petroleum-contaminated soil
- Removal and T&D of any encountered free product
- Abandonment and re-installation of two soil vapor extraction (SVE) wells and three biosparge wells
- Abandonment and re-installation of one monitoring well
- Site restoration

The petroleum-contaminated soil and liquids will be transported by a licensed transporter and disposed of at a facility permitted to accept the waste.

This Work Plan Addendum is organized into six sections of text and four appendices as follows.

**Section 1.0 Introduction** includes the site history and project objectives.

**Section 2.0 Project Execution Plan** details the required scope of work, the project schedule, the communications plan, and the traffic control plan. A detailed project schedule is provided in Appendix B of this Work Plan Addendum. The NAS Cecil Field Basewide Work Plan (CCI, November 1998) provides a brief description of the reporting requirements under this Contract.

**Section 3.0 Sampling and Analysis Plan (SAP)** provides project sample locations, sample collection frequency, and the required laboratory analyses for samples collected during project activities. The NAS Cecil Field Basewide Work Plan and Florida Department of Environmental Protection (FDEP) Standard Operating Procedures (SOPs) outline the sample collection methodology including sample handling, labeling, and required collection of quality assurance (QA) and quality control (QC) samples.

**Section 4.0 Waste Management Plan** discusses the characterization, disposal, onsite management, and transportation of wastes (i.e., petroleum-contaminated soil) encountered or generated during project activities. Waste management forms are provided in Appendix C.

**Section 5.0 Environmental Protection Plan** contains site-specific environmental provisions and references the NAS Cecil Field Basewide Work Plan, which contains the Environmental Protection Plan for all work completed at Former NAS Cecil Field.

**Section 6.0 Quality Control Plan** includes the testing requirements for work described in this Work Plan Addendum. The site-specific project organization for this CTO is also included in this section. The QC attachments (i.e., the submittal register, testing plan and log, etc.) are provided in Appendix C. All other QC information is contained in the NAS Cecil Field Basewide Work Plan (CCI, November 1998), including information on the quality administrators, the project organization for the work to be completed at Former NAS Cecil Field, and the definable features of work for each project site.

The site-specific health and safety plan included in Appendix D addresses the work described in this Work Plan Addendum. Section 5.0 Site Health and Safety Plan of the NAS Cecil Field Basewide Work Plan (CCI, November 1998) addresses project-specific health and safety issues for the remedial activities to be completed at Former NAS Cecil Field.

## 1.1 Site Description

Building 846 is located east of Flightline Road and south of Lake Newman Street. The Building 846 site is located within Jacksonville Port Authority (JPA) property in the area of former DT1. Building 846 served as a Navy storage facility for equipment associated with daily flight line activities. JPA and Air Kemen are currently utilizing the facility to store vehicles, machines, and various materials.

DT1 was a 200,000-gallon, earth-mounded aboveground tank that stored JP-5 jet fuel. The tank was installed in 1956 and was demolished in 1999. A lined spill containment basin is located to the north of DT1. When the tank was demolished, contaminated soil and associated free product were also excavated and disposed offsite. Approximately 24,000 tons of soil was removed and replaced with clean fill.

A biosparge and SVE system was installed in 2000 near the southwestern corner of Building 846. In 2000, free product was identified in two of the SVE wells. The free product was routinely removed from the wells but returned in one well (VEW-1) after removal. The free product thickness observed in VEW-1 has varied from 1 to 4 feet.

In 2002, it was determined that contaminated soil and free product remained at the DT1 site and that the extent of soil contamination that exceeded FDEP Direct Exposure-Residential Soil Cleanup Target Levels (SCTLs) extended into Site 57 and under Building 846.

The contaminants of concern at the Building 846 site are volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and total recoverable petroleum hydrocarbons (TRPH). Contaminant concentrations and excavation areas are shown on the Excavation Plan provided in Appendix A.

## 1.2 Project Objectives

The project objectives are to excavate petroleum-contaminated soil to the delineated limits; remove any encountered free product; transport and dispose of the petroleum-contaminated soil/liquids at facilities permitted to accept the waste; and backfill and restore the excavated areas to remediate the soil at the DT1 and Building 846 site to FDEP Direct Exposure-Residential SCTLs.

# 2.0 Project Execution Plan

---

The scope of work, project schedule, communications plan and traffic control plan are described in this section.

## 2.1 Scope of Work

The activities associated with the scope of work at Building 846 are as follows:

- Mobilization and Site Preparation
- Backfill Material Certification
- Pre-excavation Survey
- Removal of the Former DT1 Spill Containment Basin from Service
- Demolition and T&D of Building 846
- Biosparge/SVE Well Abandonment/Re-installation
- Monitoring Well Abandonment/Re-installation
- Excavation of Petroleum-Contaminated Soil to Prescribed Limits and Backfilling
- Removal of any Encountered Free Product
- Waste Characterization
- T&D of Petroleum-Contaminated Waste
- Site Restoration
- Decontamination
- Post Excavation Survey
- Demobilization
- Preparation and Submittal of a Source Removal Report

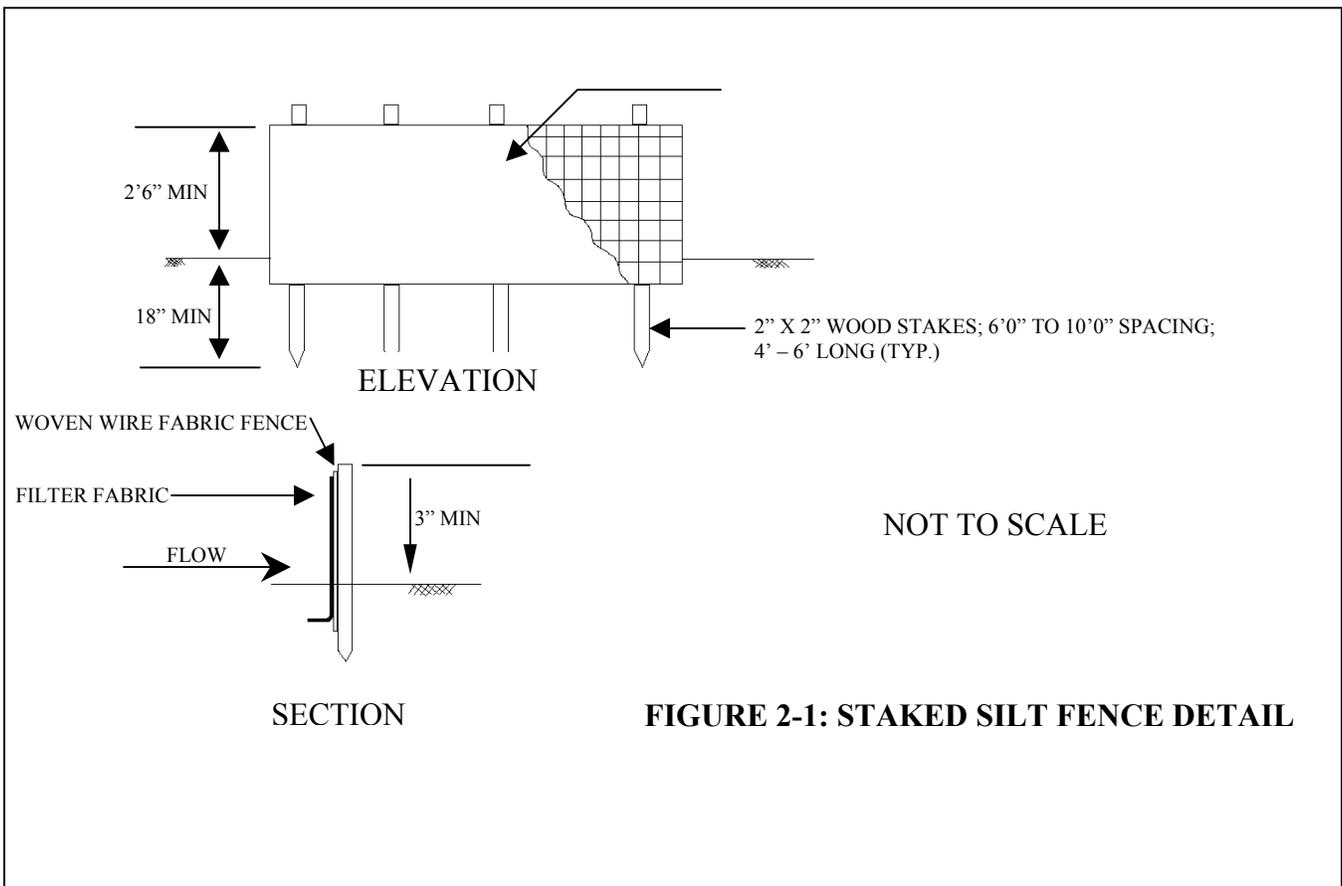
### 2.1.1 Mobilization and Site Preparation

This task will consist of the mobilization of personnel and equipment to the work site and the establishment of temporary facilities, consisting of portable sanitary facilities, a decontamination area, site refuge area, and equipment laydown area. Project management and scheduling activities, including contractor coordination, will be achieved from the CCI office located at Former NAS Cecil Field.

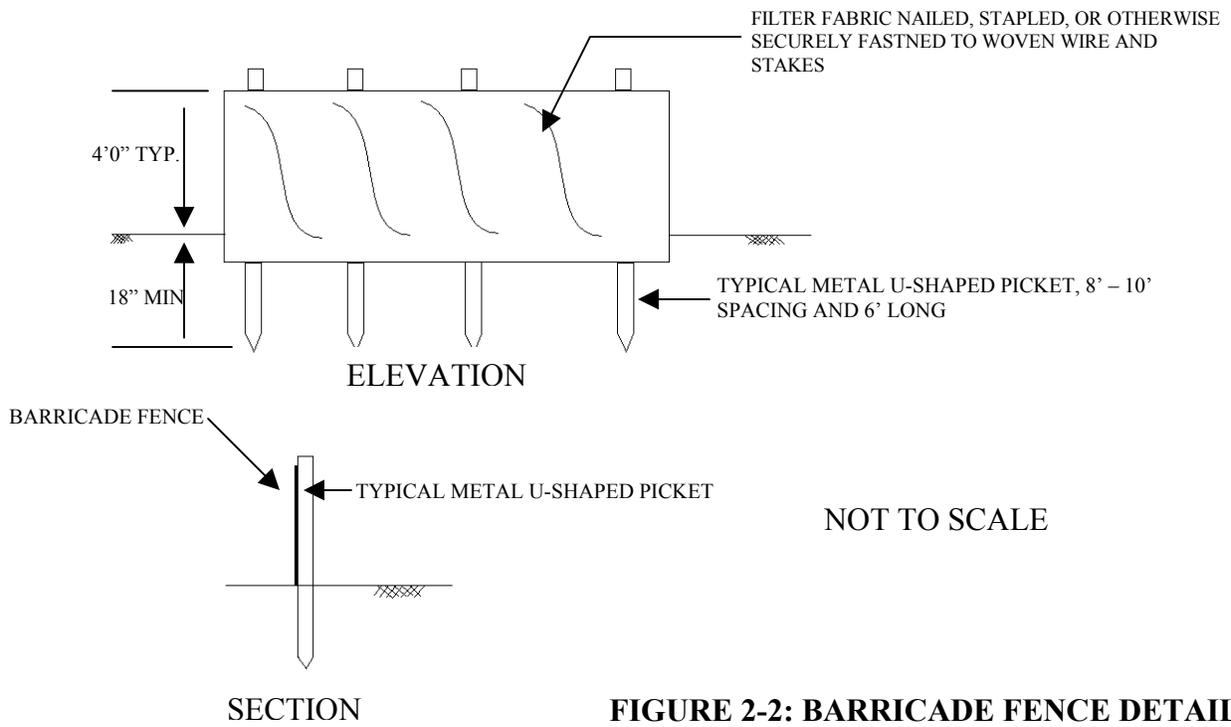
Prior to the commencement of work at the site, site controls including construction barricades and security fencing will be installed and the decontamination area and equipment laydown area will be prepared. CCI will coordinate with Sunshine State One Call of Florida, J.A. Jones Global Services, and JPA to complete a site utility survey, acquire utility layout plans of the area, and complete the excavation permit. Utilities in the work areas will be marked with paint and stakes, as appropriate. All marked utility lines in construction areas will be uncovered with hand tools. In addition, the progress of subsurface work will be continuously monitored for evidence of obstructions.

Any damage to underground utilities or subsurface structures will be immediately reported to the Resident Officer in Charge of Construction (ROICC) and subsequently repaired by CCI via methods approved by the ROICC.

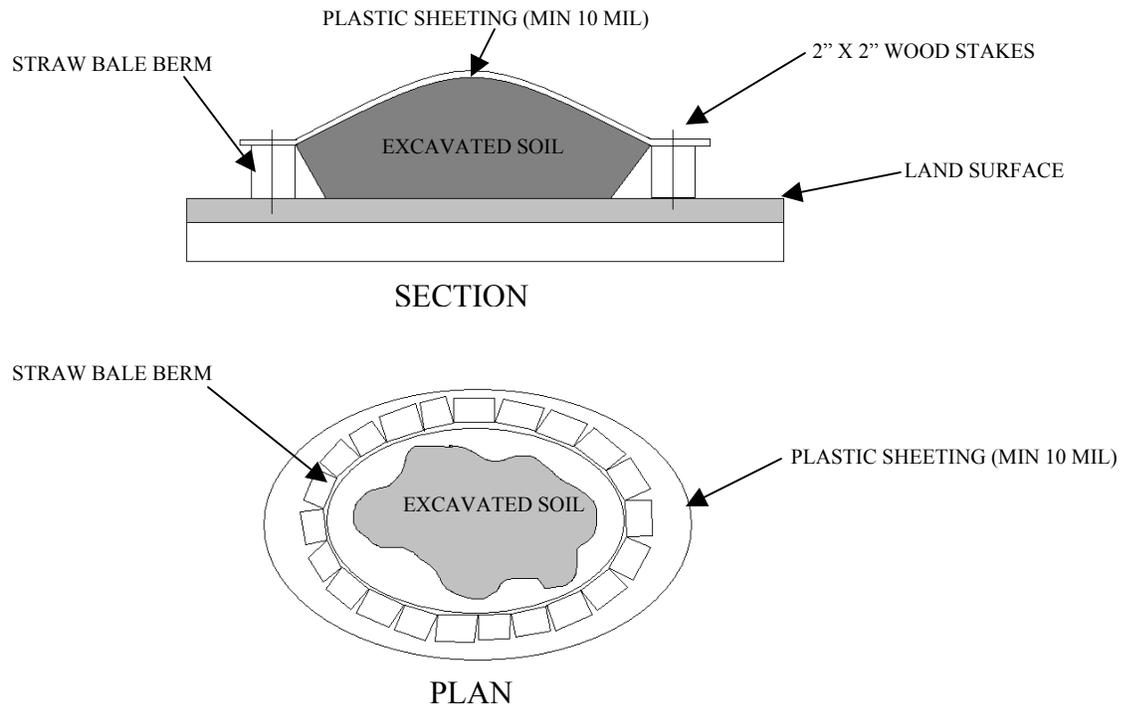
Erosion control measures will be implemented if soil is stockpiled or an excavation remains open overnight. Plastic sheeting, silt fencing, and hay bales will be available on site should weather conditions warrant covering and berming stockpiled material to control runoff or dust emissions. Figure 2-1 provides a detail of the staked silt fencing that will be installed around the perimeter of any open excavation and drainage feature. Figure 2-2 shows a detail of the temporary barricade fencing to be placed around any excavations that remain open overnight. Figure 2-3 presents a detail of the temporary containment of excavated soil in the event soil is staged at the site overnight. This temporary containment will consist of straw bales around the perimeter of the staging area and a polyethylene liner and cover.



**FIGURE 2-1: STAKED SILT FENCE DETAIL**



**FIGURE 2-2: BARRICADE FENCE DETAIL**



**FIGURE 2-3: TEMPORARY CONTAINMENT OF EXCAVATED SOIL DETAIL**

### **2.1.2 Pre-excavation Waste Characterization of Soil**

Pre-excavation soil characterization sampling and analysis will be performed in accordance with Section 3.0 Sampling and Analysis Plan of this Work Plan Addendum prior to excavation to determine the necessary handling and T&D requirements for the petroleum-contaminated soil. One sample per 300 tons of soil within each excavation area will be collected for characterization.

### **2.1.3 Pre-excavation Survey**

The Building 846 site will be surveyed by a Florida-registered professional land surveyor and pre-excavation drawings for the Building 846 site prepared. The pre-excavation drawing will document surface structure locations; locations of buried utilities; monitoring well locations; biosparge/SVE well, system, and piping locations; and excavation limits.

All survey data will conform to the Tri-Service Spatial Data Standards. Horizontal controls for graphic and non-graphic information are Mercator Projection, GRS 80, State Plan Coordinate System, North American Datum (NAD) 1983, Lambert Zones 1 through 6 (or appropriate zone for region to be mapped). Vertical controls are Mean Sea Level, North American Vertical Datum (NAVD), 1988.

### **2.1.4 Former DT1 Spill Containment Basin**

Excavation areas B, C, and D extend very close to the former DT1 spill containment basin. This basin will be removed from service prior to excavation to eliminate the possibility of the basin being breached during excavation. This basin is lined and was designed to capture spills from DT1. The basin is surrounded with a berm to prevent runoff from entering the basin and is equipped with overflow catch basins and a 10-inch polyvinyl chloride (PVC) pipe that extends from the containment area to a 15-inch PVC storm drain line. The drain valve is currently closed and the basin has accumulated water. Removing the basin from service will include the following tasks:

- Collect water sample from the basin for laboratory analysis for benzene, ethylbenzene, toluene, xylenes (BTEX) and methyl tert butyl ether (MTBE) by U.S. Environmental Protection Agency (USEPA) Method 8260B; 16-listed PAHs with 1- and 2-methylnaphthalene by USEPA Method 8310; and TRPH by the Florida Petroleum Residual Organic (FL PRO) Method in accordance with Section 3.0 of this Work Plan Addendum.
- If analytical results meet freshwater surface water criteria, the basin will be drained by opening the drain valve. After draining, the valve will be left open.
- If analytical results exceed surface water criteria, the water will be sampled for disposal in accordance with Section 3.0 of this Work Plan Addendum and managed, transported and disposed of in accordance with Section 4.0 of this Work Plan Addendum.
- After the basin is drained, a backhoe or trackhoe excavator will be used to breach the basin lining in numerous locations so water will no longer accumulate.

## 2.1.5 Demolition of Building 846

Building 846 is a three-sided building with steel columns and roof supports. Concrete block is used on the north, south, and west walls with the east wall essentially open. To facilitate soil and free product removal, the building and concrete slab floor will be demolished and transported and disposed of in accordance with Section 4.0 of this Work Plan Addendum. During demolition, extra care will be utilized to minimize the generation of small debris due to the building's close proximity to the flight line. After the concrete floor is demolished the concrete debris will be pressure washed within the excavation area to remove any soil and gross contamination prior to T&D.

Prior to demolition, the electrical system for Building 1848 will be re-routed outside of the demolition/excavation area by a licensed electrician. Every attempt will be made to minimize the outage time for Building 1848 while the electrical system is being installed. The secondary transformer and electrical system for Building 846 will be removed and disposed of during excavation activities.

## 2.1.6 Soil Excavation of Petroleum-Contaminated Soil, Backfilling, and Site Restoration

### Petroleum-contaminated Soil Excavation

The horizontal and vertical extents of petroleum-contaminated soil excavation at the Building 846 site will be based on the limits established by Tetra Tech NUS, Inc. (TtNUS) and are provided on the Excavation Plan in Appendix A. Approximately 5,752 cubic yards of soil will be excavated from the 10 delineated areas. The excavation depths, clean overburden soil volume, and contaminated soil volume and tonnage for each excavation area are listed in Table 2-1. The clean overburden will be removed from each excavation area and will be stockpiled for use as "clean" fill. The amount of overburden removed for each excavation area is shown on the Excavation Plan in Appendix A. Following the removal and stockpiling of overburden, each excavation area will be excavated to a depth of 1 foot into the water table (approximately 10 feet below land surface [bls]), except Area H (4 feet bls). Due to the prior delineation by TtNUS, the excavated clean overburden soil will be utilized as backfill, and will not require additional sampling and analysis to certify as "clean". Excavated petroleum-contaminated soil will be managed, transported, and disposed of in accordance with Section 4.0 of this Work Plan Addendum.

**TABLE 2-1**  
Excavation Specifications

<b>Excavation Area</b>	<b>Excavation Depth (feet bls)</b>	<b>Overburden Soil Volume (cy)</b>	<b>Contaminated Soil Volume (cy)</b>	<b>Contaminated Soil Tonnage (ton)</b>
A	10	27	40	60
B	10	116	270	405
C	10	193	289	434
D	10	188	282	423
E.1	10	435	652	978
E.2	10	217	1,953	2,930
E.3	10	193	290	435
F	10	102	152	228
G	10	139	208	312
H	4	0	6	9

Any free product encountered during excavation will be removed utilizing a vacuum truck, sampled in accordance with Section 3.0 of this Work Plan Addendum, and managed, transported, and disposed of in accordance with Section 4.0 of this Work Plan Addendum.

### **Backfilling**

Each excavated area will be backfilled to original grade in an even distribution with No. 57 stone and clean overburden soil or certified "Clean" granular fill material from an offsite source. No. 57 stone will be used to bridge the groundwater table and will be placed in a 2-foot thick lift. Fill materials will be placed in maximum of 1-foot lifts and machine-compacted.

Approved-laboratory analytical results from a representative sample of each fill material are required to certify clean fill furnished from an off-site source(s). One sample from each fill source is required and the required analyses are specified in Section 3.0 Sampling and Analysis Plan of this Work Plan Addendum.

### **Site Restoration**

Any disturbed areas of asphalt or concrete caused by excavation operations will be restored to match pre-excavation conditions. Existing asphalt edges will be saw cut to ensure even straight edge before paving takes place. This will include the placement and compaction of 8 inches of road base fill followed by the replacement of like-material asphalt or concrete. At a minimum, one compaction test for every 250 square feet of disturbed area will be required with a minimum compaction result of 95 percent of American Society for Testing and Materials (ASTM) D698.

Any disturbed areas of vegetation caused by the excavation operations will be restored to match pre-excavation conditions. This will include grading to provide drainage, then fertilizing and seeding with landscape grasses (i.e., bahia) commonly used in the area. The area will then be covered with mulch to retain moisture and to allow the seed to germinate.

The Building 846 concrete floor slab removed during excavation activities will be restored by backfilling to grade, grading to provide drainage, then fertilizing and seeding with landscape grasses (i.e., bahia) commonly used in the area. The area will be covered with mulch to retain moisture and to allow the seed to germinate.

Security fencing currently in place at the Building 846 site will not be removed during excavation activities. Any damage to the existing security fence during construction will be repaired or replaced.

### **2.1.7 Biosparge/SVE Well Abandonment/Re-installation**

Three biosparge wells, BP1, BP2, BP3 and two SVE wells, VEW1 and VEW2, of the existing DT1 Biosparge/SVE system are within excavation area E.1. Prior to excavation of Area E.1, the existing biosparge and SVE wells listed in Table 2-2 will be abandoned by a Florida-certified well driller by sealing and filling each well with Portland cement grout from the bottom of the well to the ground surface using a tremie pipe. The biosparge and SVE wells will be abandoned in accordance with all applicable State of Florida and local regulations. The concrete vaults, pads, and other surface completions will be removed.

**TABLE 2-2**  
Biosparge/SVE Well Specification

<b>Monitoring Well Specifications</b>	<b>Diameter</b>	<b>Depth</b>	<b>Screen Interval</b>
BP1	2-inch (inside Diameter)	35 feet bls	32 –35 feet bls
VEW1	2-inch (inside Diameter)	18 feet bls	3 –18 feet bls
BP2	2-inch (inside Diameter)	35 feet bls	32 –35 feet bls
VEW2	2-inch (inside Diameter)	18 feet bls	3 –18 feet bls
BP3	2-inch (inside Diameter)	35 feet bls	32 –35 feet bls

Prior to the abandonment of the biosparge and SVE wells, all piping, valves, gauges, etc. will be removed taking care to recover any materials for re-use. The piping will be capped and sealed in such manner to allow the biosparge/SVE system to continue operations during excavation activities. A site plan showing the layout of the biosparge/SVE system is provided in Appendix A.

Following excavation activities, each of the biosparge and SVE wells listed in Table 2-2 will be re-installed by a Florida-certified well driller.

SVE wells VEW1 and VEW2 will be installed to 18 feet bls and will be constructed of 2-inch Schedule 80 PVC pipe with a 15-foot section of 0.02-inch slotted Schedule 80 PVC well screen with a screen interval from 3 to 18 feet bls. The wells will be installed with a typical sand pack consisting of 20/30-grade silica sand at 18 feet bls to 3 feet bls, a pure sodium bentonite seal from 3 feet bls to 2.5 feet bls, and a grouted annulus consisting of Type 1 Portland Cement grout.

Biosparge wells BP1, BP2, and BP3 will be installed to 35 feet bls and will be constructed of 2-inch Schedule 80 PVC pipe with a 3-foot section of 0.01-inch slotted Schedule 80 PVC well screen with a screen interval from 32 to 35 feet bls. The wells will be installed with a typical sand pack consisting of 20/30-grade silica sand at 35 feet bls to 31 feet bls, a pure sodium bentonite seal from 31 feet bls to 29 feet bls, and a grouted annulus consisting of Type 1 Portland Cement grout.

Biosparge/SVE wells will be installed and developed by a Florida-registered/certified well driller. Each Biosparge/SVE well will be developed until the water is relatively free of sediment with a minimum of five well volumes of purge water. Drill cuttings and fluids (decontamination and development water) generated during well installation activities will be containerized in 55-gallon drums or portable tanks; sampled in accordance with Section 3.0 of this Work Plan Addendum; and managed, transported, and disposed in accordance with Section 4.0 of this Work Plan Addendum.

Following installation of the SVE and biosparge wells, all piping, valves, gauges, etc., will be replaced. The maximum depth of pipe trench excavation will be 30 inches with a width of 24 inches. The trench is within the overburden; therefore, spoils will be returned to the trench excavation. The biosparge header piping will be constructed of 2-inch diameter Schedule 80 PVC pipe. The biosparge lateral piping will be constructed of ¾-inch diameter Schedule 80 PVC pipe. All piping in vault boxes will be constructed of ¾-inch galvanized steel and 3/8-inch compressed air hose. A pressure regulator, pressure gauge, and a flow indicator will be re-installed at each biosparge well. The SVE header piping will be

constructed of 2-inch diameter Schedule 80 PVC pipe. The SVE lateral piping will be constructed of 1-inch diameter Schedule 80 PVC pipe. Following piping installation, all biosparge system piping will be pressure tested by applying a test pressure of 100 pounds per square inch (psi) for 1 hour.

Wellheads and covers for the biosparge/SVE wells capable of supporting an H-20 live load as defined by the American Association of State Highway and Transportation Officials (AASHTO) will be re-installed. The vaults for the biosparge/SVE wells will be 3-foot by 2-foot by 2-foot boxes of galvanized steel with locking covers. All vault boxes will be encased in 6-inch thick, 3,000 psi concrete on all sides and 2-inch thick, 3,000-psi concrete on the bottom.

### **2.1.8 Monitoring Well Abandonment/Re-installation**

Monitoring well CEF-293-1 will be abandoned prior to excavation in accordance with all applicable State of Florida and local regulations by sealing and filling with grout from the bottom of the well to the ground surface using a tremie pipe. A Florida registered/certified well driller will abandon the well. The monitoring well concrete vault, pad, or other surface completion will be removed and disposed offsite in accordance with Section 4.0 of this Work Plan Addendum. Upon completion of monitoring well abandonment, the well location will be marked for replacement once the excavation is complete. A Well Abandonment Record will be completed and submitted for the abandoned monitoring well.

Monitoring wells CEF-293-1 will be re-installed following excavation. The well will be constructed of 2-inch inside diameter flush threaded, Schedule 40 PVC solid riser and 0.010-inch slot well screen with a silt trap and well bottom cap. Monitoring well CEF-293-1 will be installed to approximately 15 feet bls with a 10-foot section of screen. The annulus will be filled to approximately 2 feet above the well screen with US standard sieve size 10/30 silica sand. The 10/30 sand will be capped to approximately 1-foot bls with 30/65 sand. The remainder of the annulus will be grouted to the surface with a cement/bentonite grout. The monitoring well will be secured with a locking, watertight cap within an 8-inch diameter steel manhole. The manhole will be set within a 24-inch square concrete apron finished slightly above grade. A name plate with the well name, total depth of well, screen interval, date of installation, and well driller name will be attached to the well apron or placed inside the manhole cover.

Monitoring well CEF-293-1 will be installed and developed by a Florida-registered/certified well driller. The monitoring well will be developed until the water is relatively free of sediment with a minimum of five well volumes of purge water. Drill cuttings and fluids (decontamination and development water) generated during well installation activities will be containerized in 55-gallon drums; sampled in accordance with Section 3.0 of this Work Plan Addendum; and managed, transported, and disposed in accordance with Section 4.0 of this Work Plan Addendum.

### **2.1.9 Transportation and Disposal of Petroleum-Contaminated Materials**

Excavated soils will be direct-loaded into dump trucks for transportation and disposal or, if necessary, staged in a lined and bermed stockpile area before being loaded into dump

trucks for transportation and disposal as outlined in Section 4.0 of this Work Plan Addendum.

Encountered free product will be removed by vacuum truck; containerized in a portable tank; sampled in accordance with Section 3.0 of this Work Plan Addendum; and managed, transported, and disposed in accordance with Section 4.0 of this Work Plan Addendum.

Decontamination water, development water, and drill cuttings will be containerized in 55-gallon drums or portable tanks; sampled in accordance with Section 3.0 of this Work Plan Addendum; and managed, transported, and disposed in accordance with Section 4.0 of this Work Plan Addendum.

### **2.1.10 Decontamination**

Personnel and equipment will be properly decontaminated to remove all contamination that may be adhering to personnel or equipment as a result of remedial activities. Any water accumulated during the decontamination process will be containerized in 55-gallon drums or portable tanks, sampled in accordance with Section 3.0 Sampling and Analysis Plan of this Work Plan Addendum, and managed, transported, and disposed in accordance with Section 4.0 Waste Management Plan of this Work Plan Addendum. Decontamination of personnel and equipment will be performed in accordance with the site-specific Health and Safety Plan provided in Appendix D and the applicable provisions of 29 Code of Federal Regulations (CFR) 1910.120.

### **2.1.11 Demobilization**

During demobilization, temporary facilities, utilities, and equipment will be removed from the site. In addition, any debris or solid waste material remaining from construction activities will be removed and properly disposed of offsite in accordance with Section 4.0 Waste Management Plan of this Work Plan Addendum.

### **2.1.12 Post Excavation Survey**

On completion of the project, the Building 846 site will be surveyed by a Florida-registered professional land surveyor and post-excavation as-built construction drawings prepared. The post-excavation drawings will document surface structure locations; the limits of excavation; locations of buried utilities; monitoring well locations; biosparge/SVE well, system, and piping locations; and any deviations encountered.

All survey data will conform to the Tri-Service Spatial Data Standards. Horizontal controls for graphic and non-graphic information are Mercator Projection, GRS 80, State Plan Coordinate System, NAD 1983, Lambert Zones 1 through 6 (or appropriate zone for region to be mapped). Vertical controls are Mean Sea Level, NAVD, 1988.

### **2.1.13 Source Removal Report**

A Source Removal Report will be prepared to document the activities performed to complete the scope of work and will include an excavation summary, as-built construction drawings, site photographs, approved waste disposal profiles and associated laboratory analytical, copies of the final manifests and weight tickets; certificate of disposal; the

laboratory analytical results for confirmatory sampling, and the laboratory analytical results certifying clean fill.

## 2.2 Project Schedule

The major project activities and estimated durations for each are outlined below.

- Pre-construction meeting/Submittal Preparation/Reviews 4 weeks
- Pre-excavation Soil Characterization 3 weeks
- Demolition/T&D of Building 846 2 weeks
- Excavation, T&D, Backfilling, and Site Restoration of Petroleum Contaminated Soil 8 weeks
- Source Removal Report 8 weeks

CCI anticipates the total project duration (from pre-construction conference through submittal of the final completion report) will be approximately 25 weeks. This proposed schedule might vary depending on the actual conditions encountered in the field. Appendix B provides a schedule for the work to be performed.

## 2.3 Communications Plan

A communication matrix outlining the lines of communications for Southern Division, NAVFAC and CCI is presented in Table 2-3. Table 2-4 provides a project personnel directory.

**TABLE 2-3**  
Communications Matrix

CCI Position	Navy Direct Report
Ray Tyler, Executive Sponsor	Eva Clement, CO
Scott Smith, Acting Program Manager	Jimmy Jones, COTR Richard Stanley, ACO
Steve Tsangaris, Acting Senior Project Manager	Jimmy Jones, COTR Richard Stanley, ACO
Michael Halil, CTO Project Manager	Mark Davidson, RPM Larry Blackburn, NTR/ROICC

CO – Contracting Officer  
 ACO – Administrative Contracting Officer  
 NTR – Navy Technical Representative  
 RPM – Remedial Project Manager  
 COTR – Contracting Officer’s Technical Representative

**TABLE 2-4**  
Project Personnel Directory

Contact	Company
Scott Smith, Acting Program Manager	CH2M HILL Constructors, Inc
Joe Giandonato, Contracts Administration Manager	115 Perimeter Center Place, N.E.
Richard Rathnow, Health and Safety Manager	Suite 700
Theresa Rojas, QA/QC Manager	Atlanta, GA 30346-1278 770/604-9095

**TABLE 2-4**  
Project Personnel Directory

<b>Contact</b>	<b>Company</b>
Steve Tsangaris, Acting Senior Project Manager	CH2M HILL Constructors, Inc. 4350 W. Cypress Street, Suite 600 Tampa, FL 33607-4155 813/874-0777
Michael Halil, Project Manager	J.A. Jones Environmental Services Company 6219 Authority Avenue Jacksonville, FL 32221 904/777-4812 x. 233
Eva Clement, CO	Southern Division NAVFAC P.O. Box 190010 North Charleston, SC 29419-9010 843/820-5518
Richard Stanley, ACO	As above 843/820-5939
Jimmy Jones, COTR	As above 843/820-5544
Mark Davidson, RPM	As above 843/820-5526
Larry Blackburn, NTR/ROICC	Southern Division NAVFAC Resident Officer in Charge of Construction P. O. Box 139, Building 13 NAS Jacksonville, FL 32212-0139 904/542-5571, ext. 260

## 2.4 Traffic Control Plan

Traffic control will be the responsibility of the CCI Project Superintendent. CCI will minimize disturbance to NAS Cecil Field traffic patterns during project activities. CCI will consult with onsite JPA personnel to evaluate site access, placement of equipment, and traffic flow to minimize the impact of this work to JPA operations.

# 3.0 Sampling and Analysis Plan

---

This SAP describes the tasks and responsibilities of CCI with respect to the sampling and analysis associated with the work effort described in Section 2.0. CCI intends this document to be a site-specific guide for use by the field team while performing the project-required sampling and analysis. Any changes to the activities described in this SAP must be documented as a revision to this SAP and approved by the Project Manager and Project Chemist.

Samples will be collected in accordance with the USEPA Region IV Environmental Investigative Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), 1996, and 1997 revisions and the current revision of FDPEP SOPs. Where requirements differ, the more stringent will apply.

The sampling team will be qualified under the Navy Installation Restoration Chemical Data Quality Manual (IRCDQM), 1999 sampling requirements.

A Navy, U.S. Army Corps of Engineers (USACE)-, or Air Force Center for Environmental Excellence (AFCEE)- and FDEP-approved laboratory will be used for all sample analyses.

## 3.1 Data Quality Levels for Measurement Data

The data quality levels for each sampling task described above are listed in Table 3-1. The sampling events, the sampling and analytical requirements, along with the required level of quality and data packages are listed in Table 3-2. The quantitation, project action, accuracy, precision, and completeness limits by which the data will be evaluated will be provided by the selected laboratory and approved by CCI's Project Chemist.

**TABLE 3-1**  
Data Quality Levels

<b>Sampling Activity</b>	<b>Data Quality Level Category</b>
Former DT1 Spill Containment Basin Water Sampling (offsite laboratory analyses)	Definitive
Free Product Sampling (offsite laboratory analyses)	Definitive
Backfill characterization (offsite laboratory analyses)	Definitive
Pre-excavation Waste characterization (offsite laboratory analyses)	Definitive
Post-Waste and characterization (offsite laboratory analyses)	Definitive

Backfill data will be evaluated against FDEP Direct Exposure-Residential Soil Cleanup Target Levels (SCTLs). Spill Containment Basin water will be evaluated against FDEP freshwater surface water criteria.

**TABLE 3-2**  
Sampling and Analytical Summary

Sample Task	Sample Point	Matrix	Sampling Frequency	Approx Sample No	Sampling Method	Sampling Equipment	TAT <sup>1</sup>	Data Package Reqmnt	Required Analysis	Analytical Method	Holding Time	Sample Preservtn	Containers
<b>Backfill</b>													
Characterization of Backfill Material	Once per Off-Site Source, Offsite backfill material; 1 rock 1 soil	Soil/Rock	As needed	2	Composite 5 random grabs into 1 sample  (1 grab for volatiles)	SS spoon, SS bowl, Disposable syringes, (3) Prepared 40 ml vials	7 day	CCI Level C	TRPH	FL-PRO	14 day extr; 40 day analysis	Cool to 4°C	(1) 4 oz amber glass
									TCL Volatiles	5035/8260B	14 day	Methanaol, water, Cool to 4oC	Disposable syringes, (3) Prepared 40 ml vials and 4 or 8 oz jar for stone
									TCL Semi-Volatiles	8270C	14 day extr; 40 day analysis	Cool to 4°C	(4) 8 oz glass
									PAHs (including 1- and 2-Methylnaphthalene)	8310	14 day extr; 40 day analysis		
									TCL Pesticides	8081A	14 day extr; 40 day analysis		
									TCL Herbicides	8151A	14 day extr; 40 day analysis		
									PCBs	8082	14 day extr; 40 day analysis		
									TAL Metals	6010B/7471	6 month; Hg 28 days		
									pH	9045B	ASAP		
Trip Blank	Water	1 Per cooler containing volatile samples	1	Prepared by Lab	(2) 40 mL vials	14 days	CCI Level C	TCL Volatiles	8260B	14 day	HCl pH< 2; Cool to 4°C	(2) 40 mL vials	

**TABLE 3-2**  
Sampling and Analytical Summary

Sample Task	Sample Point	Matrix	Sampling Frequency	Approx Sample No	Sampling Method	Sampling Equipment	TAT <sup>1</sup>	Data Package Reqmnt	Required Analysis	Analytical Method	Holding Time	Sample Preservtn	Containers
<b>Spill Containment Basin Sampling</b>													
Water Sampling from Containment Basin	Former DT1 Spill Containment Basin	Water	As Required	1 + 1 dup + 1 MS + 1 MSD = 4 Total	Grab	Drum thief or dip jar	3 days	CCI Level C	BTEX and MTBE	8260B	14 days	HCl pH< 2; Cool to 4°C	(2) 40 ml vial
									PAHs (including 1- and 2- Methyl-naphthalene)	8310	7 day extr; 40 day analysis	Cool to 4°C	(1) L amber glass
									TRPH	FL-PRO	7 day extr; 40 day analysis	HCl pH< 2; Cool to 4°C	(1) L amber glass
Trip Blank	Water	1 Per cooler containing volatile samples	1	Prepared by Lab	(2) 40 mL vials	14 days	CCI Level C	BTEX and MTBE	8260B	14 day	HCl pH< 2; Cool to 4°C	(2) 40 mL vials	
<b>Soil Pre-excavation Characterization Sampling</b>													
Excavation Area Pre-characterization sampling and solid disposal sampling	Excavation Areas	Soil	1 per 300 tons or 1 per 6 drums	26	Composite grabs from 5 Borings into 1 sample (VOCs collected from a single grab from the boring with highest OVA reading) (1 grab for volatile solid disposal, composite for grabs for semivolatiles and metals)	Hand Auger SS spoon, SS bowl	7 day	CCI Level B	TCLP Volatiles	1311/8260B	14 day TCLP extr; 14 day analysis	Cool to 4°C	(1) 4 oz amber glass
									TCLP Semi-Volatiles	1311/8270C	14 day TCLP extr; 7 day extr; 40 day analysis	Cool to 4°C	(4) 8 oz amber glass

ATLWP\NAVY RACINAS CECIL FIELD\IADD17\CTO 57 SAP Table 3-3rev3.xls

Notes:

1. Calendar days

**TABLE 3-2**  
Sampling and Analytical Summary

Sample Task	Sample Point	Matrix	Sampling Frequency	Approx Sample No	Sampling Method	Sampling Equipment	TAT <sup>1</sup>	Data Package Reqmnt	Required Analysis	Analytical Method	Holding Time	Sample Preservtn	Containers
									TCLP Metals	1311/6010B/7470A	6 month TCLP extr; 6 month analysis Hg: 28 day TCLP extr; 28 day analysis		
									TCLP Pesticides	1311/8081A	14 day TCLP extr; 7 day extr; 40 day analysis		
									TCLP Herbicides	1311/8151A	14 day TCLP extr; 7 day extr; 40 day analysis		
									PCBs	8082	14 day extr; 40 day analysis		
									Corrosivity	9045a	ASAP		
									Ignitability	1010/1020	ASAP		
									TPH	FL-PRO	14 day extr; 40 day analysis		
<b>Free Product Sampling</b>													
Free Product Encountered in Excavated Areas	Excavation Areas	Free Product	As Required	1 (or as needed for disposal)	Grab	Drum thief or dip jar	7 days	CCI Level B	TCL Volatiles	8260B	14 days	HCl pH< 2; Cool to 4°C	(2) 40 ml vial *
									PCBs	8082	14 day extr; 40 day analysis	Cool to 4°C	(1) L amber glass*
									TOX	9020	28 Days	H2SO4 pH< 2; Cool to 4°C	(1) L amber glass*
									TAL Metals	6010B/7470A	180 days; Hg = 28 days	HNO3 pH< 2; Cool to 4°C	(1) 500ml HDPE*
									TSS	160.2	7 Days	Cool to 4°C	(1) 500ml HDPE*

**TABLE 3-2**  
Sampling and Analytical Summary

Sample Task	Sample Point	Matrix	Sampling Frequency	Approx Sample No	Sampling Method	Sampling Equipment	TAT <sup>1</sup>	Data Package Reqmnt	Required Analysis	Analytical Method	Holding Time	Sample Preservtn	Containers
<i>Water Characterization Sampling</i>													
Characterization of Decontamination Water, excavation water contacted with product, purge water, or Spill containment water that fails original sampling criteria	Aqueous disposal material	Water	As Required	1 (or as needed for disposal)	Grab	Drum thief or dip jar	7 days	CCI Level B	TCL Volatiles	8260B	14 days	HCl pH< 2; Cool to 4°C	(2) 40 ml vial
									TCL Semi-volatiles	8270C	14 days ext; 40 days analysis	Cool to 4°C	(3) 1L amber glass
									TCL Pesticides	8081A	14 days ext; 40 days analysis		
									TCL Herbicides	8151A	7 day extr; 40 day analysis		
									PCBs	8082	14 day extr; 40 day analysis	Cool to 4°C	(1) L amber glass
									TRPH	FL-PRO	7 day extr; 40 day analysis	HCl pH< 2; Cool to 4°C	(1) L amber glass
									TAL Metals	6010B/7470A	180 days; Hg = 28 days	HNO3 pH< 2; Cool to 4°C	(1) 500ml HDPE
									Ignitability	9040B	ASAP	Cool to 4°C	(1) 250 mL amber glass
Corrosivity	Chapter 7.3	ASAP	Cool to 4°C	(1) L amber glass									

\*Check with lab prior to collecting product samples. Volume of sample required may be reduced from listed containers above.

## 3.2 Sampling Objectives

The sampling objectives for this project will be as follows:

- Collect a sample from the borrow source(s).
- Collect a sample from the former DT1 Spill Containment Basin.
- Collect samples using hand auguring techniques from the excavation sites to perform pre-characterization of the waste soils.
- Collect free product/water mixture samples from the excavation for disposal.
- Collect samples for waste characterization of drummed well cuttings.
- Collect samples for water used in equipment decontamination, or well development as necessary.

### 3.2.1 Borrow Source Confirmation Sampling

In order to certify borrow source materials "clean" for use, one sample will be collected from each site and source used to provide borrow materials. It is estimated that one soil and one with No. 57 stone sample will be required. The samples will be collected in the following manner and analyzed in accordance with Table 3-2. Upon receipt of preliminary results the sample will be compared to FDEP Direct Exposure-Residential SCTLs.

#### *Procedure for Collecting Volatile Fractions for Soil*

1. Using an auger, split spoon, or other device retrieve a core from the stockpile or borrow source area to be tested.
2. Remove the core from the auger, split spoon, or other device.
3. Open one of the disposable syringes.
4. Push the syringe directly into the center of the core, and fill to the 5-cc mark.
5. Take the syringe and push the contents into one of the three vials received from the laboratory.
6. Immediately cap the vial (note: ideally the entire operation; filling the syringe, pushing it into the vial, and capping the vial should not take more than one minute).
7. Repeat the process for the other two vials.
8. Label the vials.
9. Place in cooler for shipment to the laboratory.

#### *Procedure for Collecting Volatile Fractions for No. 57 Stone*

1. Select an area of the stone that has pieces that will fit into a 4 or 8 ounce jar.
2. Uncover stone in that area and select a piece that will fit into the sample jar from the freshly exposed material.

3. Using the stainless steel spoon, or a clean unused pair of sample gloves place the material in the jar and cap it.
4. Label and package the samples for shipment to the laboratory.

#### *Procedure for Collecting Non-Volatile Samples*

1. From four additional randomly selected sample locations, collect several spoonfuls of the soil into a stainless steel bowl.
2. Homogenize the fifth grab sample by the quartering techniques using the stainless steel spoon.
3. Fill the appropriate sample jars approximately  $\frac{3}{4}$  full with the homogenized sample, close the jar, label, and package the sample for shipment to the laboratory.

### **3.3 Former DT1 Spill Containment Basin Sampling**

In order to determine disposal characterization at the former DT1 spill containment basin, one water sample will be collected from the basin. The sample will be analyzed for BTEX and MTBE by USEPA Method 8260B; 16-listed PAHs with 1- and 2-methylnaphthalene by USEPA Method 8310; and TRPH by the FL PRO Method. Upon receipt of preliminary results the sample will be compared to FDEP Groundwater and Surface Water Cleanup Target Levels for freshwater surface water criteria. If the preliminary data is below the criteria, no further samples will be collected from the basin. If data is above criteria, another sample will be collected for waste characterization. The sample will be collected using the following procedure and analyzed in accordance with Table 3-2.

1. Using a bailer or dip jar, collect a water sample from its containment.
2. The sample containers for volatile analyses will be filled first. The 40-ml vials will be filled so that there is no headspace in each vial.
3. The sample containers for the remaining analyses will then be filled.
4. Label and package the samples for shipment to the laboratory.

### **3.4 Free Product Sampling**

During the excavations if any free product is encountered, a sample will be collected and sent to the laboratory for analysis. If water is mixed with the free product and is miscible with the water, only one sample per excavation will be required. If water and free product exist in separate layers, separate samples should be collected for both the water and the free product within that excavation area. Water samples should be analyzed per water characterization in Table 3-2. The sample will be collected using the following procedure and analyzed in accordance with Table 3-2.

1. Using a bailer or dip jar collect a free product or water sample from its excavation.
2. The sample containers for volatile analyses will be filled first. The 40-ml vials will be filled so that there is no headspace in each vial.

3. The sample containers for the remaining analyses will then be filled.
4. Label and package the samples for shipment to the laboratory.

### 3.5 Pre-excavation Waste Characterization

The excavation sites will be pre-characterized for disposal determination, using hand augers. One sample will be collected per 300 tons of contaminated material. Table 3-3 lists the number of samples of contaminated material to be collected from each site.

**TABLE 3-3**  
Excavation Area Samples

Excavation Area	Contaminated Soil Tonnage	No. of Samples Required
A	60	1
B	405	2
C	434	2
D	423	2
E.1	978	4
E.2	2,930	10
E.3	435	2
F	228	1
G	312	1
H	9	1

The sample will be collected in the following manner and analyzed in accordance with Table 3-2.

Using a hand auger, five borings will be performed at each sample location within each area. Boring locations may be chosen using existing delineation data. The depths of the five borings should be varied, to represent the entire strata of contaminated material to be sampled. In addition, the borings should be spread about each sample area, to provide adequate representation of the area being sampled. **In no case should borings be taken from the clean overburden.** An organic vapor analyzer with a flame ionization detector (OVA/FID) should be used to determine the highest reading from each of the five borings, and the volatile grab should be collected from that boring. The five borings will then be composited for the rest of the analyses required. The procedures for collecting the samples are outlined below.

#### 3.5.1 Procedure for Collecting Volatile Fractions

1. Each of the five borings should be screened with an OVA/FID, and using a stainless steel spoon, remove a grab from the boring that provided the highest reading.
2. Fill the appropriate sample jars completely full with the sample grab.
3. Close the jar, label, and package the sample for shipment to the laboratory.

#### 3.5.2 Procedure for Collecting Non-Volatile Samples

1. From each of the five borings, collect several spoonfuls of the soil into a stainless steel bowl.

2. Homogenize the four samples by the quartering techniques using the stainless steel spoon.
3. Fill the appropriate sample jars completely full with the homogenized sample.
4. Close the jar, label, and package the sample for shipment to the laboratory.

### **3.5.3 Other Solid Waste Characterization Sampling**

Solid waste from the site will be in the form of drummed drill cuttings, from the installation of biosparge wells, SVE wells and a monitoring well, petroleum contaminated soil from the excavation, debris, and sampling-related waste including, but not limited to sampling equipment, gloves, and protective clothing. One sample should be collected for approximately every six drums. The samples will be collected in the following manner and analyzed in accordance with Table 3-2.

### **3.5.4 Procedure for Collecting Volatile Fractions**

1. At the selected sample location, and appropriate depth, using an auger, split spoon, or other similar device retrieve a core.
2. Fill the appropriate sample jars completely full with the sample from the core.
3. Close the jar, label, and package the sample for shipment to the laboratory.

### **3.5.5 Procedure for Collecting Non-Volatile Samples**

1. From four additional randomly selected sample locations, collect several spoonfuls of the soil into a stainless steel bowl.
2. Homogenize the five samples by the quartering techniques using the stainless steel spoon.
3. Fill the appropriate sample jars completely full with the homogenized sample.
4. Close the jar, label, and package the sample for shipment to the laboratory.

### **3.5.6 Decontamination and Purge Water Sampling**

Decontamination water and any water from well development, will be contained in drums or frac tanks. The samples will be collected using the following procedure and analyzed in accordance with Table 3-2.

1. Using a bailer or dip jar collect a water sample from its containment.
2. The sample containers for volatile analyses will be filled first. The 40-ml vials will be filled so that there is no headspace in each vial.
3. The sample containers for the remaining analyses will then be filled.
4. Label and package the samples for shipment to the laboratory.

## 3.6 Sample Documentation

Sampling documentation will include the following:

- Numbered Chain-of-Custody (COC) Reports
- Sample Log Book which includes the following information:
  - Name of laboratories and contacts to which the samples were sent, turnaround time (TAT) requested, and data results, when possible
  - Termination of a sample point or parameter and reasons
  - Unusual appearance or odor of a sample
  - Measurements, volume of flow, temperature, and weather conditions
  - Additional samples and reasons for obtaining them
  - Levels of protection used (with justification)
  - Meetings and telephone conversations held with the Southern Division, Navy Technical Representative (NTR), regulatory agencies, project manager, or supervisor
  - Details of QC samples obtained
  - Sample collection equipment and containers, including their serial or lot numbers  
Details of QC samples obtained
  - Field analytical equipment, and equipment utilized to make physical measurements will be identified
  - Calculations, results, and calibration data for field sampling, field analytical, and field physical measurement equipment
  - Property numbers of any sampling equipment used, if available
  - Sampling station identification
  - Date and Time of sample collection
  - Description of the sample location
  - Description of the sample
  - Sampler(s)' name(s) and company
  - How the sample was collected
  - Diagrams of processes
  - Maps/sketches of sampling locations
  - Weather conditions that may affect the sample (e.g., rain, extreme heat or cold, wind, etc.)
  - Sample Labels
  - Custody Seals (minimum of two on each shipping container)

### 3.7 Field Quality Control

Field quality control samples are not required for disposal characterization samples. Backfill samples and the DT1 Basin sample require one trip blank sample, at a frequency of one per sample cooler containing volatile samples. Quantity and frequency are detailed in Table 3-2.

### 3.8 Analytical Methods

Samples will be collected for analytical methods summarized in Table 3-2.

Preliminary analytical results will be faxed to Bonnie Hogue at the following fax number per the turn-around-times listed in Table 3-2 from day of sample receipt. The final hardcopy data and electronic file will be delivered to Melissa Aycock within 14 days of sample receipt.

**Bonnie J. Hogue**

Laboratory Coordinator  
CCI  
115 Perimeter Center Place, Suite 700  
Atlanta, GA 30346  
770-604-9182 ext 263  
EFax: 678-579-8106  
[bhogue@ch2m.com](mailto:bhogue@ch2m.com)

**Melissa Aycock**

CCI  
115 Perimeter Center Place, Suite 700  
Atlanta, GA 30346  
(770) 604-9182 ext 614  
EFax: (678) 579-8135  
[maycock@ch2m.com](mailto:maycock@ch2m.com)

# 4.0 Waste Management Plan

---

The scope of this Waste Management Plan addresses the management and disposal requirements for wastes generated during soil excavation and demolition activities. It is anticipated that the following wastes will be generated during these activities:

- Petroleum contaminated soil from the excavation at Building 846
- Drill cuttings from the installation of biosparge wells, SVE wells and a monitoring well
- Free product from excavation areas
- Wastewater from monitoring well development/purging and decontamination activities.
- Debris, including discarded materials generally considered to be not water-soluble. Debris includes, but is not limited to, concrete slab and block, metal, piping from well abandonment, and materials used in decontamination (e.g., plastic sheeting, sampling materials and personal protective clothing).
- Sampling-related waste including, but not limited to sampling equipment, gloves, and protective clothing.

## 4.1 Waste Characterization

Wastes will be characterized according to the SAP in Section 3.0 of this Work Plan Addendum. Waste characterization information typically will be included on a waste profile form provided by the offsite facility. CCI will provide analytical data from the pre-characterization sampling and analysis event.

It is assumed that petroleum-contaminated soil that fail the Toxicity Characteristic test for the organic compounds associated with the D018 through D038 waste codes is not hazardous waste because it is a result of petroleum cleanup activities (40 CFR 261.4(b)(10)). However, petroleum contaminated soil that exhibits the Toxicity Characteristic for metals (D004 - D0011) or pesticides (D012 - D017) would still be managed as hazardous wastes.

Waste characterization information for wastes will be documented on a waste profile form provided by the offsite treatment or disposal facility as part of the waste acceptance process. The profile will be reviewed and approved by the CCI Waste Coordinator prior to submission to the Navy for generator signature. Where generator certification and/or signature are required, Navy personnel will provide. Signed profile will then be submitted to the disposal facility for acceptance approval.

The profile typically requires the following information including but not limited to:

- Generator (Navy) information including name, address, contact, and phone number
- Site name including street/ mailing address
- Process generating waste (e.g., soil removal and well installation)
- Source of contamination (e.g., JP5 tank)

- Historical use for area
- Waste composition (e.g., 95% soil, 5% debris)
- Physical state of waste (e.g., solid, liquid, etc.)
- Applicable hazardous waste codes

A facility approved copy of the waste profile will be received prior to scheduling of offsite transportation of the waste.

## 4.2 Waste Management

### 4.2.1 Waste Storage Time Limit

Hazardous wastes will be removed from the site within 90 days from generation. Additionally, as required under FAC 62-770, petroleum-contaminated soil (including excessively contaminated soil) will not be stored or stockpiled on-site for more than 60 days. However, petroleum-contaminated soil (including excessively contaminated soil) may be containerized in watertight drums and stored onsite for 90 days, after which time proper treatment or proper disposal of the contaminated soil will occur. Other wastes will be removed from the site as soon as possible.

Petroleum contaminated soil from Building 846 will be pre-characterized and direct loaded into trucks while excavating or staged in a lined bermed stockpile area before being loaded into dump trucks and delivered to the disposal facility.

The debris (well abandonment debris, concrete, building scrap) is considered non-hazardous and will be removed from the site as soon as possible but before 90 days has expired.

### 4.2.2 Labels

The labeling of waste containers will be in accordance with 49 CFR 172, 173 and 178. Labels will include the type of waste, location from which the waste was generated, and accumulation start date. Containers, and tanks used to store/accumulate waste (including soil and groundwater) will include one of the following labels:

- “Analysis Pending” or “Waste Material” - Temporary or handwritten label until analytical results are received and reviewed. This label will include the accumulation start date.
- “Hazardous Waste” - Pre-printed hazardous waste labels with the following information:
  - Accumulation start date
  - Generator Name
  - USEPA ID number
  - Waste codes
  - Prior to transport the Manifest number must be added (for containers of less than 110-gallon capacity)

- “Non-Hazardous Waste” - Preprinted labels with the following information:
  - Accumulation start date
  - Generator name
  - USEPA ID number
  - Waste-specific information (e.g., contaminated soil)

Where applicable, the major hazards (e.g., flammable, oxidizer, and carcinogen) will be included on the label.

It is expected labels required at Building 846 will be the “Analysis Pending” and/or the “Non-Hazardous Waste” label.

### **4.2.3 General Waste Management Requirements**

It is assumed that "clean" soil will be returned to the excavation. Clean soil means soil that contains less than 10 ppm total volatile organic compounds, as detected by an OVA/FID. Contaminated soil will be contained in 55-gallon drums, in stockpiles or direct loaded onto waiting trucks. Liquid wastes will be contained in drums or tanks for offsite disposal at an approved wastewater treatment facility.

Hazardous wastes will be segregated from non-hazardous wastes. Additionally, incompatible wastes (e.g., flammable and corrosive wastes) will be segregated. Wastes of the same matrix, contamination, and the same source may be aggregated to facilitate storage and disposal.

Wastes will be accumulated in an area identified or approved by the Navy. If an accumulation area is not designated, CCI will accumulate hazardous wastes in an area that is not accessible to the general public, and that can be secured.

Waste accumulation areas will contain appropriate emergency response equipment. The Health and Safety Plan in Appendix D identifies the specific emergency response procedures and equipment. Hazardous waste accumulation areas will include fire extinguishers (in areas where wastes are known or suspected to be flammable or ignitable), decontamination equipment, and an alarm system (if radio equipment is not available to all staff working in accumulation area). Spill control equipment (e.g., sorbent pads) will be available in the waste accumulation areas, and where liquids are transferred from one vessel to another.

All containers will be inspected upon arrival at the site for equipment in disrepair and any contamination or contents. If container contains waste upon arrival or is in disrepair, it will be immediately rejected and documented.

#### **Drums/Small Containers**

The following guidelines relate to drums and small containers:

- Drums and small containers will be transported to the temporary accumulation areas on wood pallets and will be secured together with non-metallic banding.
- Drums will be inspected and inventoried upon arrival onsite for signs of contamination and/or deterioration.

- Adequate aisle space (e.g., 30 inches) will be provided for containers such as 55-gallon drums to allow the unobstructed movement of personnel and equipment. A row of drums should be no more than two drums wide.
- Each drum will be provided with its own label, and labels will be visible.
- Drums will remain covered except when removing or adding waste to the drum. Covers will be properly secured at the end of each workday.
- Drums will be disposed of with the contents. If the contents are removed from the drums for offsite transportation and treatment or disposal, the drums will be decontaminated prior to re-use or before leaving the site.
- Drums containing liquids or hazardous waste will be provided with secondary containment.

### **Tanks**

- Tanks will be inspected upon arrival onsite for signs of deterioration and contamination. Any tank arriving onsite with contents or in poor condition will be rejected.
- Tanks will be provided with covers and secondary containment.
- Only non-stationary tanks (such as a cargo tank or other wheeled tank) will be used to accumulate hazardous waste.
- Each tank will be labeled as discussed above.

### **Soil Stockpiles**

- Stockpiles of contaminated soil will be located near the excavation areas and within an area of existing contamination.
- Stockpiles will be provided with liner, cover, and perimeter berm to prevent release or infiltration of liquids.
  - Minimum 10- and 6-mil polyethylene sheeting will be used for liners and covers, respectively.
  - The perimeter berm will be constructed of clean materials (e.g., hay bales under the liner) and allow for collection of any free liquids draining from the stockpile.
  - Accumulated free liquids will be pumped-out to a container or tank.
- Covers and perimeter berms will be secured in-place when not in use and at the end of each workday, or as necessary to prevent wind dispersion or run-off from major precipitation events.
- Construction materials for the stockpiles that contact contaminated soil will be disposed of as contaminated debris.
- Accumulation start dates will be recorded on a log or a sign located at the stockpile.

## **Waste/Debris Stockpiles**

Where appropriate, debris and waste, or scrap equipment may be accumulated in stockpiles. These stockpiles will be managed in such a manner as to maintain good housekeeping, and to prevent the spread of contamination.

- Contaminated debris stockpiles will be provided with containment as indicated for soil stockpiles. Damaged or leaking equipment will be placed in containers, and may not be stored in storage piles.
- Uncontaminated or decontaminated debris stockpiles, or intact equipment should be placed on a liner. These piles will be covered as necessary to prevent stormwater run-on and run-off.

## **Inspection of Waste Storage Areas**

Waste accumulation areas will be inspected for malfunctions, deterioration, discharges, and leaks that could result in a release. The following inspection schedule will be followed:

- At least weekly inspection of containers, tanks and roll-off containers (for leaks, signs of corrosion, or signs of general deterioration).
- At least weekly inspection of stockpiles (for liner and berm integrity).

If operations will be suspended for more than 7-days, contact the regulatory compliance manager and alternate inspection arrangements will be made. Prior to demobilization, all hazardous wastes will be removed from the site.

Inspections will be recorded in the daily Quality Control Report (QCR) and include any deficiencies and how issue was rectified. Copies of the report will be maintained onsite, and available for review.

Any deficiencies observed or noted during inspection will be rectified immediately. Appropriate measures may include transfer of waste from leaking container to new container, replacement of liner or cover, or repair of containment berm.

## **4.3 Shipping Documentation**

Prior to offsite disposal of any waste, CCI will provide the Navy with a waste approval package for each waste stream. This package will include a waste profile naming the U.S. Navy as the generator of the waste, analytical summary table(s) applicable to the waste, letter of approval from the proposed waste disposal facility to accept the waste, LDR notification for any hazardous wastes, a completed waste manifest, and any other applicable information necessary for the Navy to complete its review of the disposal package and signature as the generator.

The signed profile will then be submitted to the disposal facility for acceptance approval. Once the approval letter is received from the disposal facility, transportation can be scheduled.

Each load of waste material will be manifested prior to leaving the site. At a minimum, the manifest form will include the following information:

- Generator information including name, address, contact, and phone number, USEPA ID number
- Transporter information including name, address, contact and phone number, USEPA ID number
- Facility information including name, address, phone number, USEPA ID number
- Site name including street/ mailing address
- U.S. Department of Transportation (DOT) Proper Shipping Name (e.g., Hazardous Waste Solid, n.o.s., 9, UN 3077, PG III (D008))
- Type and number of container
- Quantity of waste (volumetric estimate)
- CTO or job number
- Profile number
- 24-hour Emergency phone number

Additionally, each shipment of waste will also have a haul ticket. A Land Disposal Restriction (LDR) Notification/Certification is also required for **hazardous wastes**. This form also requires the generator signature and submission to the disposal facility.

The generator (Navy) and the transporter must sign the manifest prior to the load of waste leaving the site. A copy of the manifest will be retained on site and included with the daily QCR. The original signed manifest will be returned to the address of the generator. The facility will provide a copy of this signed manifest to CCI for the final report. The final report will include copies of the facility signed manifest, haul ticket, LDR (if applicable), and the Certificate of Disposal/Destruction/Recycle.

If the signed hazardous waste manifest from the designated offsite facility is not received within 35 days, CCI will contact the transporter or the designated facility to determine the status of the waste. If the signed hazardous waste manifest has not been received within 45 days, CCI, in coordination with the Navy, will issue an "Exception Report" to the state of Florida, as required under 40 CFR 262.42.

## 4.4 Transportation

Each transportation vehicle and load of waste will be inspected before leaving the site and documented. The quantities of waste leaving the site will be recorded, at a minimum documented on the T&D Log. A contractor licensed for commercial transportation will transport non-hazardous wastes. In the event that wastes are hazardous, the transporter will have a USEPA Identification number, and will comply with transportation requirements outlined in 49 CFR 171-179 (Department of Transportation) and 40 CFR 263.11 and 263.31 (Hazardous Waste Transportation). A copy of the documentation indicating that the selected transporter has appropriate licenses will be received and approved by CCI prior to transport of any waste.

#### **4.4.1 Transporter Responsibilities**

The transporter will be responsible for weighing loads at a certified scale. For each load of material, weight measurements will be obtained for each full and empty container, dump truck, or tanker truck. Disposal quantities will be based on the difference of weight measurements between the full and empty container, dump truck, or tanker truck. Weights will be recorded on the waste manifest. The transporter will provide copies of weight tickets to CCI.

The transporter will observe the following practices when hauling and transporting wastes offsite:

- Minimize impacts to general public traffic.
- Repair road damage caused by construction and/or hauling traffic.
- Cleanup waste spilled in transit.
- Line and cover trucks/trailers used for hauling contaminated waste to prevent releases and contamination.
- Decontaminate vehicles prior to re-use, other than hauling contaminated waste.
- Seal trucks transporting liquids.
- All personnel involved in offsite disposal activities will follow safety and spill response procedures outlined in the Health and Safety Plan.
- No materials from other projects will be combined with materials from Former NAS Cecil Field.

#### **4.4.2 Transportation and Disposal Log**

The T&D Log is used to track waste from generation to final disposition. Wastes will be logged into the T&D Log the day waste is generated and placed into containers. Transportation of wastes will be inventoried the day of transportation from the site using the T&D Log. Final disposal will be documented on the T&D Log using the Certificate of Disposal. The blank T&D Log is attached in Appendix C.

# 5.0 Environmental Protection Plan

---

The Environmental Protection Plan of the Basewide Work Plan addresses general procedures that will be implemented to prevent pollution and protect the environment. The purpose of this plan is to provide specific requirements/procedures to protect the environment during soil and free product removal activities at former NAS Cecil Field.

## 5.1 Regulatory Drivers

Building 846 excavation activities are regulated under the State of Florida's Petroleum Program. All solid/hazardous waste and media will be characterized and managed according to the requirements of FAC Chapter 62-730, Hazardous Waste regulations. Management of petroleum contaminated wastes and excavation activities will comply with the provisions of FAC Chapter 62-770, Petroleum Contamination Site Cleanup Criteria, as appropriate.

## 5.2 Spill Prevention and Control

The provisions for spill prevention and control establishes minimum site requirements. Subcontractors are responsible for spill prevention and control related to their operations. Subcontractors written spill prevention and control procedures must be consistent with this plan. All spills will be reported to the CCI site supervisor and/or project manager. Refer to the Health and Safety Plan for emergency response procedures and further reporting requirements.

## 5.3 Spill Prevention

All fuel, chemical, and waste storage areas will be properly protected from on- and offsite vehicle traffic. All tanks (including fuel storage and waste storage) must be equipped with secondary containment. These tanks must be inspected daily for signs of leaks.

Accumulated water must be inspected for signs of contamination (e.g., product sheen, discoloration, and odor) before being discarded. Fire protection provisions outlined in the health and safety plan and in subcontractor plans must be adhered to.

Chemical products must be properly stored, transferred, and used. Should chemical product use occur outside areas equipped with spill control materials, adequate spill control materials must be maintained at the local work area.

## 5.4 Spill Containment and Control

Spill control materials will be maintained in the support zone, at fuel storage and dispensing locations, and at waste storage areas. Incidental spills will be contained with sorbent and

disposed of properly. Spilled materials must be immediately contained and controlled. Spill response procedures include:

- Immediately warn any nearby workers and notify supervisor.
- Assess the spill area to ensure that it is safe to respond.
- Evacuate area if spill presents an emergency.
- Ensure any nearby ignition sources are immediately eliminated.
- Stop source of spill.
- Establish site control for spill area.
- Contain and control spilled material through use of sorbent booms, pads, or other material.
- Use proper personal protective equipment in responding to spills.

## **5.5 Spill Clean-up and Removal**

All spilled material, contaminated sorbent, and contaminated media will be cleaned up and removed as soon as possible. Contaminated spill material will be drummed, labeled, and properly stored until material is disposed of. Contaminated spill material will be managed as waste (see Waste Management Plan) and disposed of according to applicable, federal, state, and local requirements.

## **5.6 Endangered Species Protection**

A threatened/endangered species survey was conducted for the Building 846 site by reviewing the USACE's Conceptual Permit No. 199801374 (IP-BL), (June 2002). The permit indicated that a protection plan is in place for the Eastern Indigo Snake. The terrain around Building 846 is not a suitable habitat for this species and is not of concern.

## **5.7 Erosion Control**

During those excavation activities that have the potential to disturb the land, CCI will adhere to the following practices:

- The smallest practical area will be disturbed.
- Trees outside the excavation area will be protected from any construction activity. No ropes, cables, or guy lines will be fastened or attached to any existing trees.
- Temporary erosion and sediment controls will be used to prevent sediment from discharging to any ponds or wetland areas. Structural controls may include the use of straw bales, silt fences, earth dikes, drainage swales, sediment traps, and sediment basins (see Figure 2-3).

Material staging areas will be properly barricaded for containment and to control run-off.

# 6.0 Quality Control Plan

---

This Quality Control Plan details the quality administrators and the project organization for the work to be completed at the Former NAS Cecil Field. Additionally, this plan discusses the construction inspections associated with the definable features of work for soil and free product removal at Building 846.

The Submittal Register, included in Appendix C, documents submittals in accordance with CCI's Contract Management Plan (dated July 1998). CCI, the Navy, or others will approve submittals as identified in the Submittal Register. All approved submittals will be distributed by CCI to the appropriate Navy personnel (Contracting Officer [CO], ROICC (in duplicate), etc.), the project site, and to the project file.

The project organization chart (Figure 6-1) depicts the chain-of-command for this CTO and the individuals responsible for executing the work as indicated. Individual roles and responsibilities of CTO personnel are summarized in Table 6-1.

## 6.1 Project QC Manager

The Project QC Manager for this project is David Keul. The alternate Project QC Manager is Bruce Johnson. The appointing letters for Mr. Keul and Mr. Johnson are attached in Appendix C.

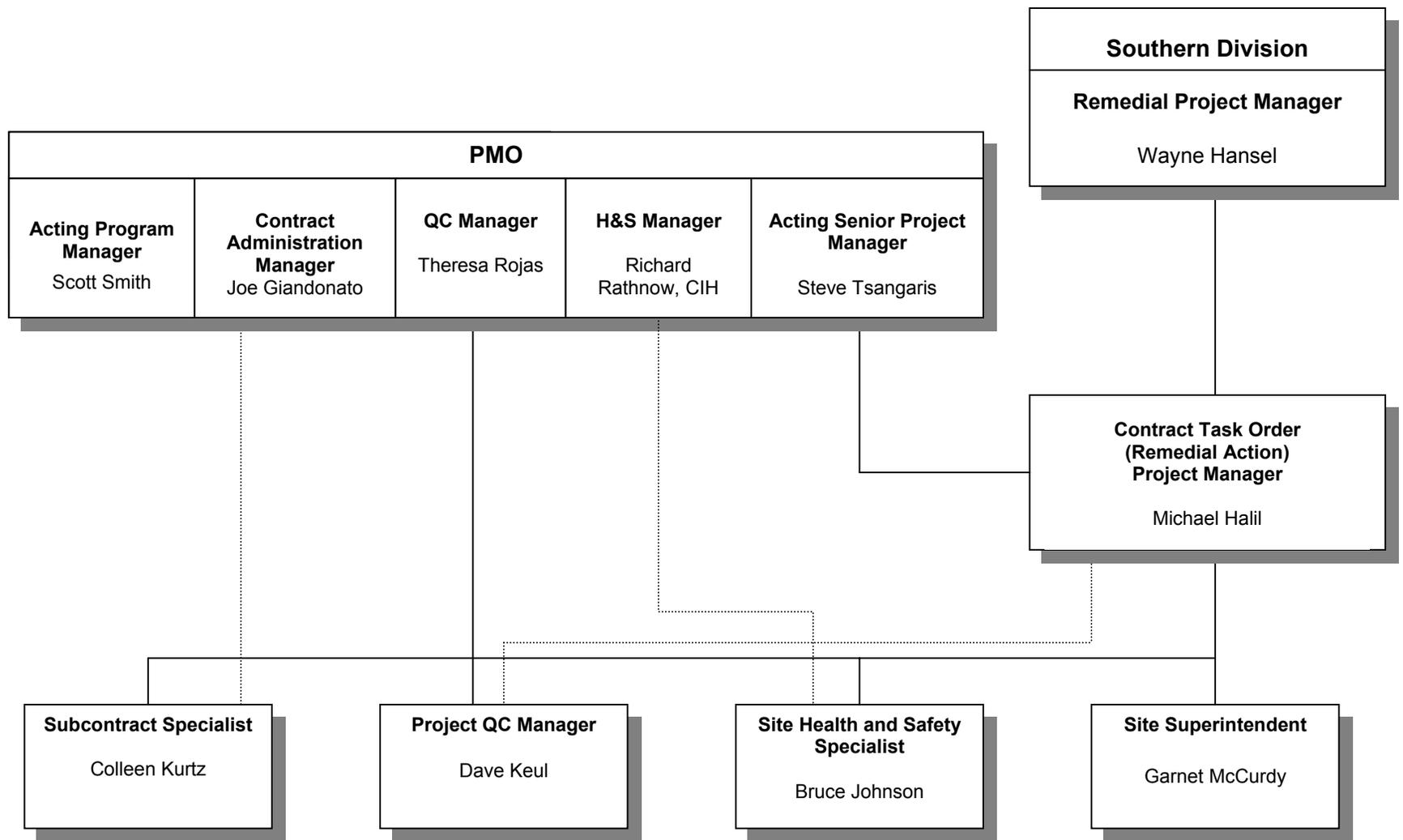
## 6.2 Construction Inspections

The project QC manager will perform final inspections of the materials and overall work activities. The inspections are performed to ensure safe, efficient, high quality work is performed, while meeting the objectives and requirements of the plans and specifications.

The project tasks for this CTO project are grouped into definable features of work; which are work activities that are significant enough to warrant distinct plans and specifications. The definable features of work for this project are:

- Mobilization and Site Preparation
- Excavation, Demolition and Site Restoration
- Field Sampling
- Surveying
- Well (monitoring/biosparge/SVE) Abandonment and Re-installation
- Waste Management
- Decontamination and Demobilization

The definable features of work will be inspected in accordance with the three phases of control. The three phases include Preparatory, Initial, and Follow-up. An overview of the inspection provisions is outlined in the subsections that follow.



- Subcontractors
- T&D Coordinator (as needed)
- Project Assistant (as needed)

**TABLE 6-1**  
Roles, Responsibilities, and Authorities of Key Project Personnel

<b>Role</b>	<b>Responsibility</b>	<b>Authority</b>
Project Manager	<ul style="list-style-type: none"> <li>• Management and Technical Direction of work</li> <li>• Communication with Southern Division RPM and NTR</li> <li>• Overview subcontractor performance</li> <li>• Select CTO staff</li> <li>• Develop CTO Work Plan and supporting plans</li> <li>• Meet CTO Performance Objectives</li> <li>• Prepare status reports</li> </ul>	<ul style="list-style-type: none"> <li>• Approve subcontractor selection</li> <li>• Approve invoices to Southern Division</li> <li>• Approve CTO baseline schedule</li> <li>• Stop work at the site for any reason</li> <li>• Approve payment to vendors and suppliers</li> <li>• Approve payment to subcontractors</li> </ul>
Site Superintendent	<ul style="list-style-type: none"> <li>• Responsible for all site activities</li> <li>• Provide direction to subcontractors</li> <li>• Act for Project Manager</li> <li>• Provide daily status reports</li> <li>• Prepare CTO Work Plan</li> <li>• Conduct daily safety meetings</li> <li>• Review subcontractor qualifications</li> <li>• Stop work for unsafe conditions or practices</li> </ul>	<ul style="list-style-type: none"> <li>• Stop work for subcontractors</li> <li>• Approve corrective action for site work-arounds</li> <li>• Approve materials and labor costs for site operations</li> <li>• Resolve subcontractor interface issues</li> <li>• Approve daily and weekly status reports</li> </ul>
Engineering Manager	<ul style="list-style-type: none"> <li>• Monitor and oversee subcontractor compliance with scope of work</li> <li>• Review requests for changes in scope of work</li> <li>• Review technical qualifications of subcontractors</li> <li>• Prepare Field Change Requests</li> <li>• Respond to Design Change Notices</li> <li>• Recommend improvements in work techniques or metrics</li> <li>• Recommend work-around to Site Superintendent</li> </ul>	<ul style="list-style-type: none"> <li>• Approve Field Change Requests below ceiling amount</li> <li>• Complete daily compliance report</li> </ul>
Field Accountant	<ul style="list-style-type: none"> <li>• Provide project scheduling coordination</li> <li>• Responsible for site cost tracking and reporting</li> <li>• Maintain record of site purchases</li> <li>• Maintain government property records</li> </ul>	<ul style="list-style-type: none"> <li>• Approve payables for disposable items</li> </ul>
Transportation and Disposal Coordinator	<ul style="list-style-type: none"> <li>• Develop site specific procedures for transport and disposal practices</li> <li>• Plan and coordinate the transport and disposal of waste</li> <li>• Review subcontractor qualifications</li> </ul>	<ul style="list-style-type: none"> <li>• Approve subcontractors daily report of waste material removed from the site</li> <li>• Approve corrective action plans</li> </ul>

**TABLE 6-1**  
Roles, Responsibilities, and Authorities of Key Project Personnel

<b>Role</b>	<b>Responsibility</b>	<b>Authority</b>
	<ul style="list-style-type: none"> <li>• Audit T&amp;D subcontractors compliance with contract requirements</li> </ul>	from T&D subcontractor
Project Assistant	<ul style="list-style-type: none"> <li>• Maintain CTO files and correspondence</li> <li>• Coordinate CTO schedule and monitor deliverables</li> <li>• Maintain change management records</li> <li>• Maintain Action Tracking System log</li> </ul>	<ul style="list-style-type: none"> <li>• Submit Action Tracking System log</li> <li>• Assign correspondence log numbers</li> </ul>
Project QC Manager/ QC Inspector(s)	<ul style="list-style-type: none"> <li>• Monitor and report on subcontractor quality and quantities</li> <li>• Audit subcontractors offsite fabrication</li> <li>• Maintain Submittal Register</li> <li>• Participate in Continuous Improvement Team</li> <li>• Stop work for non-compliant operations</li> <li>• Maintain Lessons Learned Log</li> </ul>	<ul style="list-style-type: none"> <li>• Stop work for non-compliant operations</li> <li>• File daily quantities report</li> <li>• File Lessons Learned Log Sheet</li> <li>• Approve resumption of work for resolved quality issues</li> </ul>
Site Health and Safety Specialist	<ul style="list-style-type: none"> <li>• Monitor and report on subcontractor safety and health performance</li> <li>• Record and report safety statistics</li> <li>• Conduct needed site safety and health orientation</li> <li>• Maintain Environmental Log</li> <li>• Stop work for unsafe practices or conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Stop work for unsafe practices or conditions</li> <li>• Approve subcontractor site specific health and safety plan</li> <li>• Set weekly safety objectives</li> <li>• Approve resumption of work for resolved safety issues</li> </ul>
Subcontract Specialist	<ul style="list-style-type: none"> <li>• Prepare bid packages</li> <li>• Purchase disposable materials</li> <li>• Maintain subcontract log</li> </ul>	

## 6.3 Mobilization and Site Preparation

As part of the mobilization activity, a pre-construction meeting will be held to review the preparedness to begin the project, the overall project scope and schedule, communications and reporting. The preparedness check will verify that site preparation provisions such as permitting/approvals, utility clearances, demarcating the work zones, and staging of equipment and material, as necessary, are in place to begin the intrusive work activities. Additionally, equipment and materials will be verified functional and in good working condition prior to starting the project.

### **6.3.1 Preparatory Phase**

The preparatory phase will include a review of the relevant activity hazard analyses (AHAs), the project Work Plan Addendum, communications matrix, project schedule, submittal status, and confirmation of appropriate materials and equipment.

### **6.3.2 Initial Phase**

Inspections will be made as necessary to ensure construction limits are defined, utilities marked, and material staged in the designated areas.

### **6.3.3 Follow-up Phase**

The project QC manager will provide continuous oversight of the site preparation activities to verify that the work is completed in accordance with the requirements provided in this Work Plan Addendum. Deficiencies will be noted and corrected.

## **6.4 Excavation, Demolition and Site Restoration**

### **6.4.1 Preparatory Phase**

The preparatory phase will include a review of the relevant AHAs, the requirements provided in the Work Plan Addendum and the site specific Health and Safety Plan, verifying acceptance and approval of the utility clearance; determine status of borrow source for use as backfill, confirmation that appropriate equipment (excavator, roll-off containers, etc.) and craftsmen are available to complete the work. The excavation competent person will be identified and the logistical approach for conducting the excavations, Building 846 demolition, DT1 basin removal and site restorations will be discussed. Prior to the commencement of excavation activity, site controls including construction barricades, and roadway signs will be staged for installation as necessary. In addition, coordination of the pre- and post excavation surveys, compaction testing requirements and status of submittals will be reviewed. Roll-off containers and waste staging areas will be prepared and managed in accordance with the protocols of the Waste Management Plan.

### **6.4.2 Initial Phase**

As the excavation and demolition activities precede, the Project QC Manager will conduct initial inspections and monitor the work completed to verify conformity with this Work Plan Addendum. Deficiencies will be documented and corrected as necessary.

### **6.4.3 Follow-up Phase**

The project QC manager will be responsible for the ongoing inspection of the excavation, demolition and site restoration activities. Daily surveillance will verify that the work is being completed according to the Work Plan Addendum provisions. The following quality checks will be completed:

- Measure and record horizontal and vertical boundaries to obtain average excavation depth and width.

- Maintain chronological journal of visual observations while work activities progress.
- Verify approval to backfill completed excavations and determine adequate soil compactive effort during backfill.
- Coordinate soil compaction testing and select locations for testing.
- Coordinate post excavation surveying.
- Review and approve submittals (compaction test results, waste disposal records, surveyors notes, seeding blend, etc.).
- Inspect installation and maintenance of erosion controls.

## **6.5 Field Sampling**

### **6.5.1 Sample Collection and Testing**

Representative samples of borrow soil and rock, in situ soil within proposed excavation areas, drill cuttings and accumulated aqueous wastes will be collected. Environmental samples will be collected in accordance with USEPA and FDEP SOPs. Other controls will include, but are not limited to, maintaining a chain of custody; proper handling, packing, and shipping; sampling performed by qualified persons, and the use of certified laboratories.

### **6.5.2 Preparatory Phase**

The preparatory phase for sample collection activities includes a review the relevant AHAs, sampling procedures provided in the sampling and analysis plan, verifying acceptance of the selected laboratory, and confirming that the appropriate equipment and materials are available to perform the sampling activities.

### **6.5.3 Initial Phase**

Confirmation and waste characterization samples will be collected and subsequently analyzed at an approved laboratory in accordance with requirements outlined in the SAP (Section 3.0). Sample collection activities, including proper chain-of-custody documentation, will follow the protocols outlined in the project specific sampling and analysis plan. Samples will be collected of excavated material and aqueous wastes (well development and decontamination wastewater).

### **6.5.4 Follow-up Phase**

The Project QC Manager will observe sample collection activities and the associated documentation records throughout each sampling event. Analytical reports from the approved laboratory will be reviewed for accuracy and quality. If required, data validation information from the laboratory will be reviewed to resolve discrepancies in the analytical data. CCI quality assurance personnel will validate laboratory data and field sampling results.

## **6.6 Surveying**

All lines and grades will be established from existing baselines or benchmarks. The site superintendent is responsible for verifying conformance of final lines and grades with the project documents, and coordinating confirmation with the Project QC Manager. All survey data must conform to the Tri-Service Spatial Data Standards (TSSDS). Horizontal controls for graphic and non-graphic information are Mercator Projection, GRS 80, State Plane Coordinate System, NAD 1983, Lambert Zones 1 through 6 (or appropriate zone for region to be mapped), feet. Vertical controls are Mean Sea Level, NAVD 1988. Surveying will be performed by a Florida-registered land surveyor.

## **6.7 Well Abandonment and Re-installation**

Construction details for the abandonment and installation of the wells (biosparge, SVE and monitoring) are provided in Section 2.0 of this Work Plan Addendum. This work activity will be performed by a Florida-certified well driller. Submittals representing the installed equipment will be provided.

### **6.7.1 Preparatory Phase**

The preparatory phase will include review of the required submittals, the installation and testing details, schedule, and relevant AHAs. No work will be performed without review and acceptance of the respective well materials submittals.

### **6.7.2 Initial Phase**

The well abandonment and installation activities will be monitored to assess the quality of the workmanship and conformity with the Work Plan Addendum specifications.

### **6.7.3 Follow-up Phase**

The Project QC Manager will provide ongoing inspections of the construction activities to verify that the work is completed in accordance with the requirements provided in the Work Plan Addendum. Pressure test results will be recorded in the field logs and daily quality control report. The associated report forms (well abandonment record and well completion record) will be reviewed for accuracy and completeness. Deficiencies will be noted and corrected.

## **6.8 Waste Management**

### **6.8.1 Preparatory Phase**

The preparatory phase for transportation and disposal of contaminated soil and aqueous wastewater includes a review of the waste management plan included in this CTO Work Plan Addendum, disposal, recycling or treatment facility qualifications, transportation schedule for hauling material offsite, and confirming that the appropriate equipment and materials, such as waste manifests, are available to commence the work activity. Review and acceptance of the waste disposal package by the CCI waste coordinator is required prior to

submitting the package to the Navy for approval. Prior to any work, the relevant AHAs will be reviewed and discussed. All temporary storage containers will be inspected prior to acceptance onto the project and labeled.

### **6.8.2 Initial Phase**

This phase includes inspecting the waste transport vehicles (roll-off containers, end-dumps, transports, etc.) prior to accepting on the job. Containers used for soil transport will be lined prior to loading. Containers used for transporting liquids will be free of liquids or other foreign materials prior to filling. Information provided on the waste manifest must be verified as complete and accurate including, but not limited to, generator name, address and signature, date, type of material being hauled, designated recycling or treatment facility, and volume and/or weight of material. Any discrepancies on waste manifest documents will be corrected.

### **6.8.3 Follow-up Phase**

This phase includes verifying the recycling or treatment facility has accepted and treated the waste material at their facility and has sent the required completed manifest to the generator or the generator's technical representative. Receipt of the certificate of recycling or disposal from the designated facility must be verified, as well as that the invoice is complete and accurate. A field logbook and an electronic log of all transportation and disposal shipments will be maintained. Containers, tanks, and roll-off containers will be routinely inspected for integrity and inventoried. Waste storage areas (including areas with stockpiles, containers, tanks, roll-off containers) visually inspected on a daily basis for releases or signs of corrosion, deterioration or other conditions that could result in a release. These results of all inspections will be recorded.

## **6.9 Decontamination and Demobilization**

Equipment utilized to perform intrusive work will be decontaminated in accordance with the provisions of the site specific Health and Safety Plan. Pre-final inspection of cleanliness will be performed by the site superintendent and the Site Safety and Health Specialist. Final equipment inspections will be performed and documented by the Project QC Manager, or his/her designee.

Equipment and personnel will demobilize from the site following the completion of the work activities identified in this Work Plan Addendum. The Project QC Manager will verify that the objectives of associated remedial activities have been met. A final inspection will be conducted to verify completion of all project activities. Findings, should any be identified, will be tracked, resolved and documented during a final-final site walk through inspection.

### **6.9.1 Preparatory Phase**

The preparatory phase will include a review of decontamination procedures, the site specific health and safety plan, the waste management plan, and relevant AHAs.

## **6.9.2 Initial Phase**

The site superintendent will perform inspections to confirm that the objectives of the decontamination activities have been met and that the rework items, if any, have been completed to the satisfaction of CCI and the Navy.

## **6.9.3 Follow-up Phase**

The Project QC Manager will provide continuous oversight of the decontamination and demobilization to verify that the work is completed in accordance with the requirements provided in the Work Plan Addendum. Deficiencies will be noted and corrected.

# **6.10 Testing Requirements**

## **6.10.1 Identification and Certification of Testing Laboratories**

The environmental testing laboratories utilized for this CTO project will function as a subcontractor or a lower tier subcontractor. Kemron Environmental Laboratories has been contracted to perform analysis of environmental samples.

## **6.10.2 Construction Testing**

Soil density testing is required for the final subgrade of disturbed areas of asphalt or concrete. The final 8 inches of subgrade will consist of road base fill followed by the replacement of like-material asphalt or concrete. Compaction testing is required at a frequency of one per 250 square feet of disturbed area. The minimum required soil density is 95 percent of ASTM D698.

Laboratories that are certified by the National Institute of Standards and Technology (NIST), National Voluntary Laboratory Accreditation Program (NVLAP), American Association of State Highway and Transportation Officials (AASHTO), or American Association for Laboratory Accreditation (AALA) will be used to perform construction testing. The Testing Plan and Log provided in Appendix C will be used to record the results of field testing.

## **6.10.3 Environmental**

Laboratories performing analysis of environmental samples will be Navy-, USACE-, or AFCEE- and FDEP-approved.

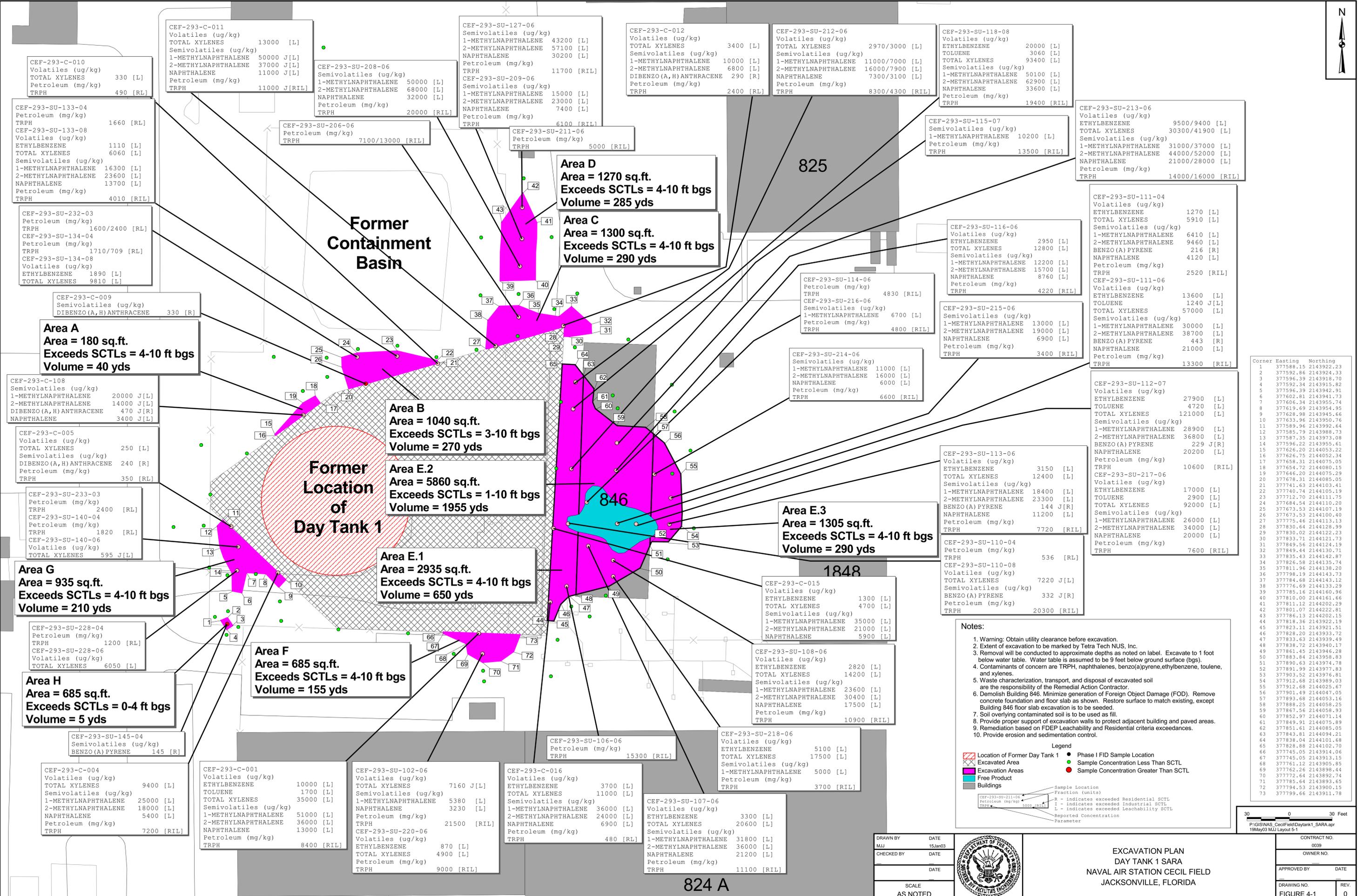
# **6.11 CTO Support Organizations**

The supporting organizations for this project are:

- Kingston Environmental Services
- Republic Services of Georgia
- L.D. Bradley Land Surveyors
- Partridge Well Drilling Company
- Kemron Environmental Laboratories

# **Appendix A**

## **Site Plans**



**Area D**  
Area = 1270 sq.ft.  
Exceeds SCTLs = 4-10 ft bgs  
Volume = 285 yds

**Area C**  
Area = 1300 sq.ft.  
Exceeds SCTLs = 4-10 ft bgs  
Volume = 290 yds

**Area A**  
Area = 180 sq.ft.  
Exceeds SCTLs = 4-10 ft bgs  
Volume = 40 yds

**Area B**  
Area = 1040 sq.ft.  
Exceeds SCTLs = 3-10 ft bgs  
Volume = 270 yds

**Area E.2**  
Area = 5860 sq.ft.  
Exceeds SCTLs = 1-10 ft bgs  
Volume = 1955 yds

**Area E.3**  
Area = 1305 sq.ft.  
Exceeds SCTLs = 4-10 ft bgs  
Volume = 290 yds

**Area G**  
Area = 935 sq.ft.  
Exceeds SCTLs = 4-10 ft bgs  
Volume = 210 yds

**Area F**  
Area = 685 sq.ft.  
Exceeds SCTLs = 4-10 ft bgs  
Volume = 155 yds

**Area H**  
Area = 685 sq.ft.  
Exceeds SCTLs = 0-4 ft bgs  
Volume = 5 yds

CEF-293-C-001

Volatiles (ug/kg)	
ETHYLBENZENE	10000 [L]
TOLUENE	1700 [L]
TOTAL XYLENES	35000 [L]
Semivolatiles (ug/kg)	
1-METHYLNAPHTHALENE	51000 [L]
2-METHYLNAPHTHALENE	36000 [L]
NAPHTHALENE	13000 [L]
Petroleum (mg/kg)	
TRPH	8400 [RIL]

CEF-293-SU-102-06

Volatiles (ug/kg)	
TOTAL XYLENES	7160 J[L]
Semivolatiles (ug/kg)	
1-METHYLNAPHTHALENE	5380 [L]
NAPHTHALENE	3230 [L]
Petroleum (mg/kg)	
TRPH	21500 [RIL]

CEF-293-C-016

Volatiles (ug/kg)	
ETHYLBENZENE	3700 [L]
TOTAL XYLENES	11000 [L]
Semivolatiles (ug/kg)	
1-METHYLNAPHTHALENE	36000 [L]
2-METHYLNAPHTHALENE	24000 [L]
NAPHTHALENE	6900 [L]
Petroleum (mg/kg)	
TRPH	480 [RL]

CEF-293-SU-107-06

Volatiles (ug/kg)	
ETHYLBENZENE	3300 [L]
TOTAL XYLENES	20600 [L]
Semivolatiles (ug/kg)	
1-METHYLNAPHTHALENE	31800 [L]
2-METHYLNAPHTHALENE	36000 [L]
NAPHTHALENE	21200 [L]
Petroleum (mg/kg)	
TRPH	11100 [RIL]

CEF-293-C-004

Volatiles (ug/kg)	
TOTAL XYLENES	9400 [L]
Semivolatiles (ug/kg)	
1-METHYLNAPHTHALENE	25000 [L]
2-METHYLNAPHTHALENE	18000 [L]
NAPHTHALENE	5400 [L]
Petroleum (mg/kg)	
TRPH	7200 [RIL]

CEF-293-SU-145-04

Semivolatiles (ug/kg)	
BENZO (A) PYRENE	145 [R]

CEF-293-SU-106-06

Petroleum (mg/kg)	
TRPH	15300 [RIL]

CEF-293-SU-218-06

Volatiles (ug/kg)	
ETHYLBENZENE	5100 [L]
TOTAL XYLENES	17500 [L]
Semivolatiles (ug/kg)	
1-METHYLNAPHTHALENE	5000 [L]
2-METHYLNAPHTHALENE	3700 [RIL]

CEF-293-SU-108-06

Volatiles (ug/kg)	
ETHYLBENZENE	1300 [L]
TOTAL XYLENES	4700 [L]
Semivolatiles (ug/kg)	
1-METHYLNAPHTHALENE	18400 [L]
2-METHYLNAPHTHALENE	23300 [L]
NAPHTHALENE	11200 [L]
Petroleum (mg/kg)	
TRPH	7720 [RIL]

CEF-293-SU-110-04

Petroleum (mg/kg)	
TRPH	536 [RL]

CEF-293-SU-110-08

Volatiles (ug/kg)	
TOTAL XYLENES	7220 J[L]
Semivolatiles (ug/kg)	
BENZO (A) PYRENE	332 J[R]
Petroleum (mg/kg)	
TRPH	20300 [RIL]

CEF-293-SU-111-06

Volatiles (ug/kg)	
ETHYLBENZENE	1270 [L]
TOTAL XYLENES	5910 [L]
Semivolatiles (ug/kg)	
1-METHYLNAPHTHALENE	6410 [L]
2-METHYLNAPHTHALENE	9460 [L]
NAPHTHALENE	4120 [L]
Petroleum (mg/kg)	
TRPH	2520 [RIL]

CEF-293-SU-111-06

Volatiles (ug/kg)	
ETHYLBENZENE	13600 [L]
TOLUENE	1240 J[L]
TOTAL XYLENES	57000 [L]
Semivolatiles (ug/kg)	
1-METHYLNAPHTHALENE	30000 [L]
2-METHYLNAPHTHALENE	38700 [L]
BENZO (A) PYRENE	443 [R]
NAPHTHALENE	21000 [L]
Petroleum (mg/kg)	
TRPH	13300 [RIL]

- Notes:**
- Warning: Obtain utility clearance before excavation.
  - Extent of excavation to be marked by Tetra Tech NUS, Inc.
  - Removal will be conducted to approximate depths as noted on label. Excavate to 1 foot below water table. Water table is assumed to be 9 feet below ground surface (bgs).
  - Contaminants of concern are TRPH, naphthalenes, benzo(a)pyrene, ethylbenzene, toluene, and xylene.
  - Waste characterization, transport, and disposal of excavated soil are the responsibility of the Remedial Action Contractor.
  - Demolish Building 846. Minimize generation of Foreign Object Damage (FOD). Remove concrete foundation and floor slab as shown. Restore surface to match existing, except Building 846 floor slab excavation is to be seeded.
  - Soil overlying contaminated soil is to be used as fill.
  - Provide proper support of excavation walls to protect adjacent building and paved areas.
  - Remediation based on FDEP Leachability and Residential criteria exceedances.
  - Provide erosion and sedimentation control.

**Legend**

- Location of Former Day Tank 1
- Excavated Area
- Excavation Areas
- Free Product
- Buildings
- Phase I FID Sample Location
- Sample Concentration Less Than SCTL
- Sample Concentration Greater Than SCTL

**Sample Location Fraction (units)**

- R - Indicates exceeded Residential SCTL
- I - Indicates exceeded Industrial SCTL
- L - Indicates exceeded Leachability SCTL
- Reported Concentration Parameter

Corner	Easting	Northing
1	377588.15	2143922.23
2	377592.86	2143924.33
3	377596.39	2143918.70
4	377592.34	2143915.82
5	377596.39	2143942.91
6	377602.81	2143941.73
7	377606.34	2143955.74
8	377619.69	2143954.95
9	377628.98	2143945.66
10	377633.96	2143950.76
11	377589.96	2143992.64
12	377585.79	2143988.73
13	377587.35	2143973.08
14	377596.22	2143955.61
15	377626.00	2144053.22
16	377626.75	2144052.34
17	377658.31	2144075.05
18	377654.72	2144080.15
19	377646.20	2144075.29
20	377678.31	2144088.05
21	377740.74	2144103.41
22	377740.74	2144105.19
23	377712.70	2144111.75
24	377684.54	2144110.20
25	377673.53	2144107.19
26	377673.53	2144100.40
27	377775.46	2144113.13
28	377830.64	2144128.99
29	377830.02	2144122.23
30	377833.71	2144121.73
31	377849.56	2144124.19
32	377849.44	2144130.71
33	377835.43	2144142.87
34	377826.58	2144135.74
35	377811.96	2144138.20
36	377798.19	2144143.73
37	377784.68	2144143.12
38	377776.69	2144133.29
39	377785.16	2144160.96
40	377810.00	2144161.66
41	377811.12	2144202.29
42	377801.07	2144222.81
43	377786.13	2144202.15
44	377818.36	2144322.19
45	377823.11	2143921.51
46	377828.20	2143933.72
47	377833.63	2143939.49
48	377838.72	2143940.17
49	377861.45	2143946.28
50	377883.84	2143958.83
51	377890.63	2143974.78
52	377891.99	2143977.83
53	377903.52	2143976.81
54	377912.68	2143989.03
55	377912.68	2144025.67
56	377901.49	2144047.05
57	377893.68	2144053.16
58	377888.25	2144058.25
59	377867.56	2144058.93
60	377852.97	2144071.14
61	377849.91	2144075.89
62	377851.61	2144085.05
63	377843.81	2144094.21
64	377838.04	2144101.68
65	377828.88	2144102.70
66	377745.05	2143914.06
67	377745.05	2143913.15
68	377761.12	2143905.85
69	377762.26	2143898.44
70	377772.64	2143892.74
71	377785.64	2143893.65
72	377794.53	2143900.15
73	377799.66	2143911.78

DRAWN BY: MJJ DATE: 15Jan03  
 CHECKED BY: DATE:  
 SCALE: AS NOTED

**EXCAVATION PLAN**  
**DAY TANK 1 SARA**  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA

CONTRACT NO.	0039
OWNER NO.	
APPROVED BY	DATE
DRAWING NO.	REV.
FIGURE 4-1	0

824 A

## **Appendix B**

### **Critical Path Method Project Schedule**

Activity ID	WBS CHARGE #	% Comp	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	2003							2004						
								J	A	S	O	N	D	J	F	M	A	M	J	J	A
<b>CTO #0057 - NAS CECIL FIELD</b>																					
Subtotal		47		888	254	26JAN01A	23JUL04														
<b>+ PHASE 1</b>																					
		100		28	0	26JAN01A	07MAR01A														
<b>+ PHASE 2, TASK 1</b>																					
		100		81	0	26JAN01A	21MAY01A														
<b>PHASE 2, TASK 2</b>																					
Subtotal		78		602	21	12APR01A	22AUG03														
<b>PHASE 2</b>																					
<b>PROJECT MANAGEMENT</b>																					
BU21010399	21.01.03.99	96	Project Management (Phase 2)	475	21	12APR01A	22AUG03														
<b>COST PROPOSAL PREPARATION</b>																					
BU21010326	21.01.03.26	100	Develop Cost Estimate/Schedule	9	0	12APR01A	24APR01A														
BU20199		100	Submit Final Cost Proposal to Client	0	0		24APR01A														
BU21010327		100	Submit Cost Proposal to Client	0	0		24APR01A														
BU2000001		100	Phase 3 Award	0	0		21MAY01A														
BU20192		100	Submit Final Revised Cost Proposal	0	0		31OCT01A														
<b>BID PACKAGE PREP/AWARD</b>																					
BU21010391	21.01.03.91	100	Prepare Bid Packages	10	0	09JUN03A	20JUN03A														
BU20212		100	Issue RFB to Subcontractors	0	0		20JUN03A														
BU21010392	21.01.03.92	100	Subcontractor Pre-Bid Meeting/Site Visit	1	0	26JUN03A	26JUN03A														
BU20213		100	Subcontractor Bids Due	1	0	03JUL03A	03JUL03A														
BU21010393	21.01.03.93	100	Evaluate Bid Packages	11	0	07JUL03A	21JUL03A														
BU20188		100	Issue Letter of Intent to Award	0	0		21JUL03A														
BU20181		0	Submit Subcontractor Plans & Submittals	15	15	04AUG03*	22AUG03														
BU20189		0	Review Subcontractor Plans & Submittals	15	15	04AUG03	22AUG03														
BU20180		0	Subcontractor Plans Due	0	0		22AUG03														
BU20210		0	Award Subcontracts	0	0		22AUG03														
BU20211		0	Project Mobilization	0	0	25AUG03															
<b>WORK PLANS PREPARATION</b>																					
BU21010301	21.01.03.01	59	Sampling and Analysis Plan	40	17	23JUN03A	18AUG03														
BU21010304	21.01.03.04	59	Environmental Protection Plan	40	17	23JUN03A	18AUG03														
BU21010306	21.01.03.06	59	Pollution Control Plan	40	17	23JUN03A	18AUG03														
BU21010308	21.01.03.08	59	Site - Specific H&S Plan	40	17	23JUN03A	18AUG03														
BU21010313	21.01.03.13	59	General Site Work Plan	40	17	23JUN03A	18AUG03														

Start Date	26JAN01		Early Bar
Finish Date	23JUL04		Progress Bar
Data Date	25JUL03		Critical Activity
Run Date	13AUG03 13:26		

NFAC - CO57

Sheet 1 of 3

**CTO #0057 - NAS CECIL FIELD  
CTO COMPLETION SCHEDULE  
NAVY RAC SOUTHERN DIVISION**







## **Appendix C**

### **Transportation and Disposal/Quality Control Attachments**

- Transportation and Disposal Log
- Submittal Register
- Testing Plan and Log
- Summary of Field Tests Log
- Quality Control Manager Appointing Letter
- Alternate Quality Control Manager Appointing Letter
- Contractor Daily Production Report
- Contractor Daily Quality Control Report
- Preparatory Phase Report











CH2M HILL  
115 Perimeter Center Place, N.E.  
Suite 700  
Atlanta, GA  
30346-1278  
Tel 770.604.9095  
Fax 770.604.9282

July 16, 2003

Mr. Dave Keul  
J.A. Jones Environmental Services Company  
6219 Authority Avenue  
Jacksonville, Florida 32221

RE: Contract No. N62467-98-D-0995  
Contract Task Order No. 0057  
Naval Air Station (NAS) Cecil Field – Jacksonville, Florida  
Project Quality Control Manager Letter of Appointment

Dear Mr. Keul:

Herein describes the responsibilities and authority delegated to you in your capacity as the Project QC Manager at the NAS Cecil Field site, Contract Task Order (CTO) 0057 under RAC Contract No. N62467-98-D-0995.

In this position, you assist and represent the Program QC Manager in continued implementation and enforcement of the Project QC Plans. Your primary role is to ensure all requirements of the contract are met. Consistent with this responsibility, you will: (i) implement the QC program as described in the Navy RAC contract; (ii) manage the site-specific QC requirements in accordance with the Project QC Plans; (iii) attend the coordination and mutual understanding meeting; (iv) conduct QC meetings; (v) oversee implementation of the three phases of control; (vi) perform submittal review and approval; (vii) ensure testing is performed; (viii) prepare QC certifications and documentation required in the Navy RAC Contract; and, (ix) furnish a Completion Certificate to the Contracting Officer or designated representative, upon completion of work under a contract task order, attesting that "the work has been completed, inspected, and tested, and is in compliance with the contract."

Your responsibilities further include identifying and reporting quality problems, rejecting nonconforming materials, initiating corrective actions, and recommending solutions for nonconforming activities.

You have the authority to control or stop further processing, delivery, or installation activities until satisfactory disposition and implementation of corrective actions are achieved. You have the authority to direct the correction of non-conforming work. All work requiring corrective action will be documented on daily reports, and, in the event non-conforming work is not immediately corrected you are required to submit a non-conformance report to the PM and

copy the Program QC Manager. A status log will be kept of all non-conforming work. You shall immediately notify the Program QC Manager in the event of any stop work order.

It is imperative that you comply with all terms of the basic contract. In particular, Section C, Paragraph 6.5.2, which states:

*"No work or testing may be performed unless the QC Program Manager or Project QC Manager is on the work site."*

In the event that you are not able to be at the work site when work or testing is to be performed, it is your responsibility to inform the Program QC Manager and Project Manager, in advance, so that other arrangements can be made.

Further, if you are requested to perform the duties of the Site Supervisor, it is your responsibility to inform the Program QC Manager so that approval can be obtained in advance from the Contracting Officer or designated representative, in accordance with Section C Paragraph.6.2.1of the contract.

You are a key member of the Project Manager's team. You ensure that work meets the specific requirements and intent of the work plan, the Navy's scope of work and the basic contract. Should you have any questions regarding this role, you should immediately contact the Program QC Manager, Theresa Rojas. Your day-to-day activities on the site should be coordinated with all site personnel and the Project Manager. In event of any deficient items, the Superintendent and Project Manager should be advised immediately so they have opportunity to remedy the situation.

Sincerely,

CH2M HILL Constructors, Inc.

A handwritten signature in black ink, appearing to read "Scott Smith", is written over a vertical line.

Scott Smith  
Acting Program Manager

cc: Mike Halil/J.A. Jones  
Theresa Rojas/ATL  
CCI Project File No. 163231



CH2M HILL  
115 Perimeter Center Place, N.E.  
Suite 700  
Atlanta, GA  
30346-1278  
Tel 770.604.9095  
Fax 770.604.9282

July 16, 2003

Mr. Bruce Johnson  
J.A. Jones Environmental Services Company  
6219 Authority Avenue  
Jacksonville, Florida 32221

RE: Contract No. N62467-98-D-0995  
Contract Task Order No. 0057  
Naval Air Station (NAS) Cecil Field - Jacksonville, Florida  
Alternate Project Quality Control Manager Letter of Appointment

Dear Mr. Johnson:

Herein describes the responsibilities and authority delegated to you in your capacity as the alternate Project QC Manager on the NAS Cecil Field, Contract Task Order (CTO) 0057 under RAC Contract No. N62467-98-D-0995.

In this position, you assist and represent the Project QC Manager in the event that he is not on the project site and the Program QC Manager in continued implementation and enforcement of the Project QC Plans. Your primary role is to ensure all requirements of the contract are met. Consistent with this responsibility, you will: (i) implement the QC program as described in the Navy RAC contract; (ii) manage the site-specific QC requirements in accordance with the Project QC Plans; (iii) attend the coordination and mutual understanding meeting; (iv) conduct QC meetings; (v) oversee implementation of the three phases of control; (vi) perform submittal review and approval; (vii) ensure testing is performed; , (viii) prepare QC certifications and documentation required in the Navy RAC Contract; and, (ix) furnish a Completion Certificate to the Contracting Officer or designated representative, upon completion of work under a contract task order , attesting that "the work has been completed, inspected, and tested, and is in compliance with the contract."

Your responsibilities further include identifying and reporting quality problems, rejecting nonconforming materials, initiating corrective actions, and recommending solutions for nonconforming activities.

You have the authority to control or stop further processing, delivery, or installation activities until satisfactory disposition and implementation of corrective actions are achieved. You have the authority to direct the correction of non-conforming work. All work requiring corrective action will be documented on daily reports, and, in the event non-conforming work is not immediately corrected you are required to submit a non-conformance report to the PM and

copy the Program QC Manager. A status log will be kept of all non-conforming work. You shall immediately notify the Program QC Manager in the event of any stop work order.

It is imperative that you comply with all terms of the basic contract. In particular, Section C, Paragraph 6.5.2, which states:

*"No work or testing may be performed unless the QC Program Manager or Project QC Manager is on the work site."*

In the event that you are not able to be at the work site when work or testing is to be performed, it is your responsibility to inform the Program QC Manager and Project Manager, in advance, so that other arrangements can be made.

Further, if you are requested to perform the duties of the Site Supervisor, it is your responsibility to inform the Program QC Manager so that approval can be obtained in advance from the Contracting Officer or designated representative, in accordance with Section C Paragraph.6.2.1of the contract.

You are a key member of the Project Manager's team and ensure that work meets the specific requirements and intent of the work plan, the Navy's scope of work and the basic contract. Should you have any questions regarding this role, you should immediately contact the Program QC Manager, Theresa Rojas. Your day-to-day activities on the site should be coordinated with all site personnel and the Project Manager. In event of any deficient items, the Superintendent and Project Manager should be advised immediately so they have opportunity to remedy the situation.

**You may be assigned other responsibilities concurrent with this assignment. Regardless of other responsibilities assigned, you shall take your QC and safety responsibilities as primary. Any other assigned responsibilities shall be secondary to your QC and safety responsibilities.**

Sincerely,

CH2M HILL Constructors, Inc.



Scott Smith  
Acting Program Manager

cc: Mike Halil/J.A. Jones  
Theresa Rojas/ATL  
CCI Project File No. 163231

<b>CH2M HILL</b> <b>SOUTH DIV RAC</b> <b>N62467-98-D0995</b>	<b>CONTRACTOR PRODUCTION REPORT</b> (ATTACH ADDITIONAL SHEETS IF NECESSARY)	DATE OF REPORT: REVISION NO: REVISION DATE:			
CTO NO:	PROJECT NAME/LOCATION:	REPORT NO:			
PROJECT NO:	SUPERINTENDENT:	SITE H&S SPECIALIST:			
AM WEATHER:	PM WEATHER:	MAX TEMP: F      MIN TEMP: F			
<b>SUMMARY OF WORK PERFORMED TODAY</b>					
	Was A Job Safety Meeting Held This Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>TOTAL WORK HOURS ON JOB SITE THIS DATE</b> (Including Continuation Sheets)			
	Were there any lost-time accidents this date? (If Yes, attach copy of completed OSHA report) <input type="checkbox"/> Yes <input type="checkbox"/> No	CH2MHILL On-Site Hours			
	Was a Confined Space Entry Permit Administered This Date? (If Yes, attach copy of each permit) <input type="checkbox"/> Yes <input type="checkbox"/> No	JA JONES On-Site Hours			
	Was Crane/Manlift/Trenching/Scaffold/HV Elec/High Work/Hazmat Work Done?? (If Yes, attach statement or checklist showing inspection performed) <input type="checkbox"/> Yes <input type="checkbox"/> No	Subcontractor On-Site Hours			
	Was Hazardous Material/Waste Released into the Environment? (If Yes, attach description of incident and proposed action) <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Total On-Site Hours This Date</b> Cumulative Total of Work Hours From Previous Report Total Work Hours From Start of Construction			
<b>SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED</b> (Include Safety Violations, Corrective Instructions Given, Corrective Actions Taken, and Results of Safety Inspections Conducted):					
<b>EQUIPMENT/MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB</b>					
DESCRIPTION OF EQUIPMENT/MATERIAL RECEIVED	MAKE/ MODEL/ MANUFACTURER	EQUIPMENT/ LOT NUMBER	INSPECTION PERFORMED BY	NUMBER/ VOLUME/ WEIGHT	
<b>EQUIPMENT USED ON JOB SITE TODAY.</b>					
EQUIPMENT DESCRIPTION	EQUIPMENT MAKE/MODEL	SAFETY CHECK PERFORMED BY	NUMBER OF HOURS		
			USED	IDLE	REPAIR
<b>CHANGED CONDITIONS/DELAY/CONFLICTS ENCOUNTERED</b> (List any conflicts with the delivery order [i.e., scope of work and/or drawings], delays to the project attributable to site and weather conditions, etc.):					
<b>VISITORS TO THE SITE:</b>					
<b>LIST OF ATTACHMENTS</b> (OSHA report, confined space entry permit, incident reports, etc.):					
SAFETY REQUIREMENTS HAVE BEEN MET <input type="checkbox"/>					
_____ SUPERINTENDENT'S SIGNATURE			_____ DATE		





<b>CH2M HILL</b> <b>SOUTH DIV RAC</b> <b>N62467-98-D-0995</b>	<b>CONTRACTOR QUALITY CONTROL REPORT</b> (ATTACH ADDITIONAL SHEETS IF NECESSARY)	REPORT DATE: REVISION NO: REVISION DATE:					
CTO NO:	PROJECT NAME/LOCATION:	REPORT NO:					
PROJECT NO:	PROJECT QC MANAGER:	SITE H&S SPECIALIST:					
<b>SAMPLING/TESTING PERFORMED</b>							
SAMPLING/TESTING PERFORMED	SAMPLING/TESTING COMPANY	SAMPLING/TESTING PERSONNEL					
<b>MATERIALS/EQUIPMENT INSPECTION (Materials received and inspected against specifications)</b>							
MATERIAL/EQUIPMENT DESCRIPTION	SPECIFICATION	MATERIAL ACCEPTED?	COMMENT/REASON/ACTION				
		YES <input type="checkbox"/> NO <input type="checkbox"/>					
		YES <input type="checkbox"/> NO <input type="checkbox"/>					
		YES <input type="checkbox"/> NO <input type="checkbox"/>					
		YES <input type="checkbox"/> NO <input type="checkbox"/>					
		YES <input type="checkbox"/> NO <input type="checkbox"/>					
		YES <input type="checkbox"/> NO <input type="checkbox"/>					
<b>SUBMITTALS INSPECTION / REVIEW</b>							
SUBMITTAL NO	SUBMITTAL DESCRIPTION	SPEC/PLAN REFERENCE	SUBMITTAL APPROVED?	COMMENT/REASON/ACTION			
			YES <input type="checkbox"/> NO <input type="checkbox"/>				
			YES <input type="checkbox"/> NO <input type="checkbox"/>				
			YES <input type="checkbox"/> NO <input type="checkbox"/>				
			YES <input type="checkbox"/> NO <input type="checkbox"/>				
<b>OFF-SITE SURVEILLANCE ACTIVITIES, INCLUDING ACTIONS TAKEN:</b>							
<b>ACCUMULATION/STOCKPILE AREA INSPECTION</b>							
INSPECTION PERFORMED BY:		SIGNATURE OF INSPECTOR:					
ACCUMULATION/ STOCKPILE AREA LOCATION							
NO OF CONTAINERS:		NO OF TANKS:		NO OF ROLL-OFF BOXES:		NO OF DRUMS:	
INSPECTION RESULTS:							
<b>TRANSPORTATION AND DISPOSAL ACTIVITIES/SUMMARY/QUANTITIES:</b>							
<b>GENERAL COMMENTS</b> (rework, directives, etc.):							
<b>LIST OF ATTACHMENTS</b> (examples, as applicable: preparatory phase checklist, QC meeting minutes, safety meeting minutes, crane inspections, crane operation checklist, COCs, weight tickets, manifests, profiles, rework item list, testing plan and log, etc.):							
<p><i>On behalf of the contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.</i></p>							
_____						DATE	
PROJECT QC MANAGER'S SIGNATURE							
<p><i>On behalf of the contractor, I attest that the work for which payment is requested, including stored material, is in compliance with contract requirements.</i></p>							
_____						DATE	
PROJECT QC MANAGER'S SIGNATURE							

<b>CH2M HILL</b> SOUTH DIV RAC N62467-98-D-0995	<b>PREPARATORY PHASE REPORT</b>	REPORT NO:	REPORT DATE: REVISION NO: REVISION DATE:	CTO NO:
PROJECT NO:	DEFINABLE FEATURE OF WORK:	SITE/ACTIVITY:		
<b>PERSONNEL PRESENT</b>	GOVERNMENT REP NOTIFIED _____ HOURS IN ADVANCE:      YES <input type="checkbox"/> NO <input type="checkbox"/>			
	NAME	POSITION	COMPANY/GOVERNMENT	
<b>SUBMITTALS</b>	REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER.	HAVE ALL SUBMITTALS BEEN APPROVED?      YES <input type="checkbox"/> NO <input type="checkbox"/>		
	IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED?			
	ARE ALL MATERIALS ON HAND?      YES <input type="checkbox"/> NO <input type="checkbox"/>	IF NO, WHAT ITEMS ARE MISSING?		
CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES).				
COMMENTS:				
<b>MATERIAL STORAGE</b>	ARE MATERIALS STORED PROPERLY?      YES <input type="checkbox"/> NO <input type="checkbox"/>			
	IF NO, WHAT ACTION IS TAKEN?			
<b>SPECIFICATIONS</b>	REVIEW EACH PARAGRAPH OF SPECIFICATIONS.			
	DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK.			
	CLARIFY ANY DIFFERENCES.			
<b>PRELIMINARY WORK &amp; PERMITS</b>	ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.			
	IF NO, WHAT ACTION IS TAKEN?			

<b>CH2M HILL</b> SOUTH DIV RAC N62467-98-D-0995	<b>PREPARATORY PHASE REPORT</b>	REPORT NO:	REPORT DATE: REVISION NO: REVISION DATE:	CTO NO:
PROJECT NO:	DEFINABLE FEATURE OF WORK:	SITE/ACTIVITY:		
<b>TESTING</b>	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM.			
	TEST	FREQUENCY	PERFORMER	
	WHEN REQUIRED?			
	WHERE REQUIRED?			
	REVIEW TESTING PLAN.			
	HAVE TEST FACILITIES BEEN APPROVED?			
	TEST FACILITY	APPROVED?		
	YES <input type="checkbox"/> NO <input type="checkbox"/>			
	YES <input type="checkbox"/> NO <input type="checkbox"/>			
<b>SAFETY</b>	ACTIVITY HAZARD ANALYSIS APPROVED? YES <input type="checkbox"/> NO <input type="checkbox"/>			
	REVIEW APPLICABLE PORTION OF EM 385-1-1.			
<b>MEETING COMMENTS</b>	NAVY/ROICC COMMENTS DURING MEETING.			
<b>OTHER ITEMS OR REMARKS</b>	OTHER ITEMS OR REMARKS:			
PROJECT QC MANAGER NAME		PROJECT QC MANAGER'S SIGNATURE		DATE

## **Appendix D**

### **Site Specific Health and Safety Plan**

**Health and Safety Plan  
Soil and Free Product Removal at Building 846**

**Former Naval Air Station Cecil Field  
Jacksonville, Florida**

**Contract No. N62467-98-D-0995  
Contract Task Order No. 0057**

Revision 00

Submitted to:

**U.S. Naval Facilities  
Engineering Command  
Southern Division**

Prepared by:



115 Perimeter Center Place, N.E.  
Suite 700  
Atlanta, GA 30346

August 2003

# Contents

---

<b>1.0</b>	<b>Project Information and Description.....</b>	<b>1-1</b>
<b>2.0</b>	<b>Tasks to be Performed Under this Plan .....</b>	<b>2-1</b>
2.1	Description of Tasks.....	2-1
2.1.1	Hazwoper-Regulated Tasks.....	2-1
2.1.2	Non-Hazwoper-Regulated Tasks.....	2-1
<b>3.0</b>	<b>Hazard Controls.....</b>	<b>3-1</b>
3.1	Hazards.....	3-1
3.1.1	Working Around Material Handling Equipment.....	3-1
3.1.2	Excavation Activities.....	3-2
3.1.3	Operating Heavy Equipment .....	3-2
3.1.4	Fall Protection Activities .....	3-3
3.1.5	Exposure to Public Vehicular Traffic.....	3-4
3.2	General Hazards.....	3-5
3.2.1	General Practices and Housekeeping.....	3-5
3.2.2	Hazard Communication.....	3-5
3.2.3	Shipping and Transportation of Chemical Products.....	3-6
3.2.4	Lifting.....	3-6
3.2.5	Fire Prevention.....	3-6
3.2.6	Electrical.....	3-7
3.2.7	Stairways and Ladders .....	3-8
3.2.8	Heat Stress .....	3-8
3.2.9	Cold Stress.....	3-10
3.2.10	Compressed Gas Cylinders.....	3-11
3.2.11	Procedures for Locating Buried Utilities.....	3-11
3.3	Biological Hazards and Controls .....	3-12
3.3.1	Snakes.....	3-12
3.3.2	Poison Ivy and Poison Sumac.....	3-12
3.3.3	Ticks.....	3-12
3.3.4	Bees and Other Stinging Insects .....	3-12
3.3.5	Bloodborne Pathogens.....	3-12
3.3.6	Mosquito Bites .....	3-13
3.4	Radiological Hazards and Controls.....	3-13
3.5	Contaminants of Concern .....	3-14
3.6	Potential Routes of Exposure.....	3-14
<b>4.0</b>	<b>Project Organization and Personnel .....</b>	<b>4-1</b>
4.1	CCI Employee Medical Surveillance and Training .....	4-1
4.2	Field Team Chain of Command and Communication Procedures.....	4-1
4.2.1	Client: Southern Division, U.S. Navy Facilities Engineering Command (NAVFAC).....	4-1
4.2.2	CCI.....	4-2
4.2.3	CH2M HILL Subcontractors .....	4-4
<b>5.0</b>	<b>Personal Protective Equipment.....</b>	<b>5-1</b>

<b>6.0</b>	<b>Air Monitoring/Sampling</b> .....	<b>6-1</b>
6.1	Air Monitoring Specifications.....	6-1
6.2	Calibration Specifications.....	6-2
6.3	Air Sampling .....	6-2
<b>7.0</b>	<b>Decontamination</b> .....	<b>7-1</b>
7.1	Decontamination Specifications .....	7-1
7.2	Diagram of Personnel-Decontamination Line.....	7-1
<b>8.0</b>	<b>Spill-Containment Procedures</b> .....	<b>8-1</b>
<b>9.0</b>	<b>Site-Control Plan</b> .....	<b>9-1</b>
9.1	Site-Control Procedures.....	9-1
9.2	Hazwoper Compliance Plan.....	9-1
<b>10.0</b>	<b>Emergency Response Plan</b> .....	<b>10-1</b>
10.1	Pre-Emergency Planning.....	10-1
10.2	Emergency Equipment and Supplies .....	10-2
10.3	Incident Reporting, Investigation and Response .....	10-2
10.4	Emergency Medical Treatment .....	10-3
10.5	Evacuation .....	10-3
10.6	Evacuation Signals .....	10-4
10.7	Incident Notification and Reporting.....	10-4
<b>11.0</b>	<b>Behavior Based Loss Prevention System</b> .....	<b>11-1</b>
11.1	Activity Hazard Analysis .....	11-1
11.2	Pre-Task Safety Plans.....	11-2
11.3	Loss Prevention Observations .....	11-2
11.4	Loss/Near Loss Investigations.....	11-2
<b>12.0</b>	<b>Approval</b> .....	<b>12-1</b>
12.1	Original Plan .....	12-1
12.2	Revisions.....	12-1

## Tables

2-1	Activity Hazard Analysis .....	2-2
3-1	Contaminant of Concern .....	3-15

## Figures

7-1	Personnel Decontamination Line .....	7-2
-----	--------------------------------------	-----

## Attachments

- 1 Employee Signoff Form
- 2 Project-Specific Chemical Product Hazard Communication Form
- 3 Chemical-Specific Training Form
- 4 Emergency Contacts
- 5 Project Activity Self-Assessment Checklist/Permits
- 6 Behavior Based Loss Prevention System Forms
- 7 Applicable Material Safety Data Sheets
- 8 Subcontractor H&S Plans/Procedures

# Acronyms

---

°F	degrees Fahrenheit
AHA	Activity Hazard Analysis
ALARA	as low as reasonably achievable
APR	air-purifying respirator
ATL	Atlanta
CCI	CH2M HILL Constructors, Inc.
CNS	central nervous system
CPR	cardiopulmonary resuscitation
CTO	Contract Task Order
dBA	decibel A-rated
DOT	Department of Transportation
DT1	Day Tank 1
FA	first aid
FDEP	Florida Department of Environmental Protection
FID	flame ionization detector
GFCI	ground fault circuit interrupter
HAZCOM	hazard communication
HR	heart rate
HSM	Health and Safety Manager
HSP	Health and Safety Plan
IDLH	immediately dangerous to life and health
IDW	investigation-derived waste
IRF	Incident Report Form
JPA	Jacksonville Port Authority
lb	pound
LEL	lower explosive limit
LPO	Loss Prevention Observation
mg/m <sup>3</sup>	milligrams per cubic meter
MSDS	Material Safety Data Sheet
mW/cm <sup>2</sup>	milliwatt per square centimeter
NAS	Naval Air Station
NDG	nuclear density gauge
NLI	Near Loss Investigation
NSC	National Safety Council
OSHA	Occupational Safety and Health Administration
PAPR	powered air-purifying respirator
PDF	personal flotation device
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
PTSP	Pre-Task Safety Plan
RMSF	Rocky Mountain Spotted Fever
SAR	supplied-air respirator
SCBA	self-contained breathing apparatus

SCTLs	Soil Cleanup Target Levels
SHSS	Site Health and Safety Specialist
SOP	standard of practice
STEL	short-term exposure limit
SVE	soil vapor extraction
SZ	support zone
TBD	to be determined
TMCC	truck-mounted crash cushion
TSDf	treatment, storage, and disposal facility

This Health and Safety Plan (HSP) will be kept on the site during field activities and will be reviewed as necessary. The plan will be amended or revised as project activities or conditions change or when supplemental information becomes available. The plan adopts, by reference, the Standards of Practice (SOPs) in the CH2M HILL *Corporate Health and Safety Program, Program and Training Manual*, as appropriate. In addition, this plan adopts procedures in the project Work Plan. The Site Health and Safety Specialist (SHSS) is to be familiar with these SOPs and the contents of this plan. CH2M HILL Constructors Inc.'s (CCI's) personnel and subcontractors must sign Attachment 1.

# 1.0 Project Information and Description

---

**CONTRACT TASK ORDER (CTO) No.:** 0057

**CLIENT:** Southern Division, U.S. Navy Facilities Engineering Command (NAVFAC)

**PROJECT/SITE NAME:** Soil and Product Removal at Building 846

**SITE ADDRESS:** Former Naval Air Station Cecil Field Jacksonville FL

**CH2M HILL PROJECT MANAGER:** Mike Halil/J.A. Jones Environmental Services

**CH2M HILL OFFICE:** Atlanta, Georgia (ATL)

**DATE HEALTH AND SAFETY PLAN PREPARED:** July 2003

**DATE(S) OF SITE WORK:** August 2003 – August 2004

**SITE BACKGROUND AND SETTING:** Building 846 is located east of Flightline Road and south of Lake Newman Street. The Building 846 site is located within Jacksonville Port Authority (JPA) property in the area of former Day Tank 1 (DT1). Building 846 served as a Navy storage facility for equipment associated with daily flight line activities. JPA and Air Kemen are currently utilizing the facility to store vehicles, machines, and various materials.

DT1 was a 200,000-gallon earth-mounded aboveground tank that stored JP-5 jet fuel. The tank was installed in 1956 and was demolished in 1999. A lined spill containment basin is located to the north of DT1. When the tank was demolished, contaminated soil and associated free product were also excavated and disposed off site. About 24,000 tons of soil was removed and replaced with clean fill.

A biosparge and soil vapor extraction (SVE) system was installed in 2000 near the southwestern corner of Building 846. In 2000, free product was identified in two of the SVE wells. The free product was routinely removed from the wells but returned in one well (VEW-1) after removal. The free product thickness observed in VEW-1 has varied from 1 to 4 feet.

In 2002, it was determined that contaminated soil and free product remained at the DT1 site and that the extent of soil contamination that exceeded Florida Department of Environmental Protection (FDEP) Direct Exposure-Residential Soil Cleanup Target Levels (SCTLs) extended into Site 57 and under Building 846.

**DESCRIPTION OF SPECIFIC TASKS TO BE PERFORMED:** The project objectives are to excavate petroleum-contaminated soil to the delineated limits; remove any encountered free product; transport and dispose of the petroleum-contaminated soil/liquids at facilities permitted to accept the waste; and backfill and restore the excavated areas to remediate the soil at the DT1 and Building 846 site to FDEP Direct Exposure-Residential SCTLs.

# 2.0 Tasks to be Performed Under this Plan

---

## 2.1 Description of Tasks

(Reference Field Project Start-up Form)

Refer to project documents (i.e., Work Plan) for detailed task information. A health and safety risk analysis (Section 1.2) has been performed for each task and is incorporated in this plan through task-specific hazard controls and requirements for monitoring and protection. Tasks other than those listed below require an approved amendment or revision to this plan before tasks begin. Refer to Section 8.2 for procedures related to “clean” tasks that do not involve hazardous waste operations and emergency response (Hazwoper).

### 2.1.1 Hazwoper-Regulated Tasks

- Excavate contaminated soils
- Remove free product
- Transport and dispose of contaminated soils
- Backfill with clean soil
- Oversight of remediation and construction

### 2.1.2 Non-Hazwoper-Regulated Tasks

Under specific circumstances, the training and medical monitoring requirements of federal or state Hazwoper regulations are not applicable. It must be demonstrated that the tasks can be performed without the possibility of exposure in order to use non-Hazwoper-trained personnel. **Prior approval from the Health and Safety Manager (HSM) is required before these tasks are conducted on regulated hazardous waste sites.**

<b>Tasks</b>	<b>CONTROLS</b>
<ul style="list-style-type: none"><li>• General heavy equipment work (excavation, backfilling, grading, etc.) with clean soils</li><li>• Waste removal/hauling of clean soils</li></ul>	See Activity Hazard Analysis (AHAs) Daily equipment checks Wear seatbelts and proper PPE

**TABLE 2-1**  
Hazard Analysis  
(Refer to Section 3 for hazard controls)

Potential Hazards	Project Activities				
	Excavate contaminated soils	Remove free product	Transport and dispose of contaminated soils	Backfill with clean soil	Oversight of remediation and construction
Manual Lifting (HS-29)	X	X	X	X	X
Fire Prevention (HS-22)	X	X			X
Electrical Safety (HS-23)					
Lockout /Tagout (HS-33)					
Ladders & Stairs(HS-25)	X		X		
Compressed Gas Cylinders (HS-63)					
Buried Utilities	X	X			
Excavations (HS-32)	X	X		X	X
Fall Protection (HS-31)	X		X		
Heavy Equipment ( HS-27)	X	X	X	X	X
Confined Space Entry (HS-17)					
Concrete & Masonry Work (HS-43)					
Cranes and Hoisting (HS-44)					
Demolition (HS-45)					
Scaffolding(HS-73)					
Steel erection (HS-62)					
Welding and cutting (HS-22)					
Aerial Lifts (HS-41)					
Hand & Power Tools (HS-50)	X	X	X	X	X
Forklifts (HS-48)					
Drilling (HS 35)					
Noise (HS-39)	X	X	X	X	X
Pressurized Lines/Equipment					
Pressure Washing/Equip Decon			X		
Vacuum Truck/Pumping Operations					
Suspended Loads					
Vehicle Traffic			X		
Haul Truck Operations	X	X	X	X	X
Visible Lighting	X	X	X	X	X
Mechanical Guarding Hazards			X		
Asbestos Hazard					
Lead Hazard					
Chemical Hazard-Dermal/Inhalation	X	X	X		
Dust Hazard (Silica/Metals)	X	X	X	X	X
Fire/Explosion Hazards			X		

## 3.0 Hazard Controls

---

This section provides safe work practices and control measures used to reduce or eliminate potential hazards. These practices and controls are to be implemented by the party in control of either the site or the particular hazard. CH2M HILL employees and subcontractors must remain aware of the hazards affecting them regardless of who is responsible for controlling the hazards. CH2M HILL employees and subcontractors who do not understand any of these provisions should contact the SHSS for clarification.

The health and safety hazards posed by field activities have been identified for each project activity and is provided in the Hazard Analysis Table (Table 2-1) in this section. Hazard control measures for project-specific and general H&S hazards are provided in 2.1 and 2.2 of this section.

Activity Hazard Analysis will be prepared before beginning each project activity posing H&S hazards to project personnel using the AHA form provided in the HSP Attachments as a guide. The AHA shall identify the work tasks required to perform each activity, along with potential H&S hazards and recommended control measures for each work task. In addition, a listing of the equipment to be used to perform the activity, inspection requirements and training requirements for the safe operation of the equipment listed must be identified. **AHAs shall be submitted to the Navy Technical Representative (NTR) for review at least 15 days prior to the start of each project activity phase.**

In addition to the controls specified in this section, Project-Activity Self-Assessment Checklists are contained in Attachment 5. These checklists are to be used to assess the adequacy of CCI and subcontractor site-specific safety requirements. The objective of the self-assessment process is to identify gaps in project safety performance, and prompt for corrective actions in addressing these gaps. Self-assessment checklists should be completed early in the project, when tasks or conditions change, or when otherwise specified by the HSM. The self-assessment checklists, including documented corrective actions, should be made part of the permanent project records.

Project-activity self-assessments checklist shall be completed weekly by the SHSS during the course of the project, completing the applicable checklist depending on the work performed at the time on the project.

### 3.1 Hazards

#### 3.1.1 Working Around Material Handling Equipment

- Never approach operating equipment from the rear. Always make positive contact with the operator, and confirm that the operator has stopped the motion of the equipment.
- Never approach the side of operating equipment; remain outside of the swing and turning radius.

- Maintain distance from pinch points of operating equipment.
- Because heavy equipment may not be equipped with properly functioning reverse signal alarms, never turn your back on any operating equipment.
- Never climb onto operating equipment or operate contractor/subcontractor equipment.
- Never ride contractor/subcontractor equipment unless it is designed to accommodate passengers; equipped with firmly attached passenger seat.
- Never work or walk under a suspended load.
- Never use equipment as a personnel lift; do not ride excavator buckets or crane hooks.
- Always stay alert and maintain a safe distance from operating equipment, especially equipment on cross slopes and unstable terrain.
- No personnel shall be permitted under the load at any time.

### **3.1.2 Excavation Activities**

(Reference CH2M HILL, SOP HS-32, *Excavation and Trenching*)

- CH2M HILL personnel must notify and be granted authorization from the excavation competent person prior to entering any excavation. CH2M HILL personnel must follow all excavation requirements established by the competent person.
- The competent person must inspect the trench and/or excavation everyday and after everyday hazard increasing event. Documentation of this inspection must be maintained onsite at all times.
- Excavations must be protected from cave-ins by adequate protective systems unless the excavation is less than 5 feet in depth and a competent person determines there is no indication of cave-in or the excavation is made entirely in stable rock that is not fractured.
- Prior to excavating at a location, buried utilities in the area must be identified; refer to Section 2.2.8 "Procedures for locating buried utilities".
- CH2M HILL personnel must not enter any excavation where protective systems are deficient at any time, for any reason. The competent person must be notified of such conditions.
- Refer to CH2M HILL SOP HS-32 "Excavations and Trenching" for more specific details on excavation requirements.

### **3.1.3 Operating Heavy Equipment**

(Reference CH2M HILL, SOP HS-27, *Earthmoving Equipment*)

- CH2M HILL authorizes only those employees qualified by training or previous experience to operate material handling equipment.
- Equipment must be checked at the beginning of each shift to ensure the equipment is in safe operating condition and free of apparent damage. The check should include: service brakes, parking brakes, emergency brakes, tires, horn, back-up alarm, steering mechanism, coupling devices, seat belts and operating controls. All defects shall be

corrected before the equipment is placed in service. Documentation of this inspection must be maintained onsite at all times.

- Equipment must be on a stable foundation such as solid ground or cribbing; outriggers are to be fully extended.
- Equipment must not be used to lift personnel; loads must not be lifted over the heads of personnel.
- Equipment, or parts thereof, which are suspended must be substantially blocked or cribbed to prevent shifting before personnel are permitted to work under or between them. All controls shall be in a neutral position, with the motors stopped and brakes set.
- Equipment which is operating in reverse must have a reverse signal alarm distinguishable from the surrounding noise or a signal person when the operators view is obstructed.
- When equipment is used near energized powerlines, the closest part of the equipment must be at least 10' from the powerlines < 50 kV. Provide an additional 4' for every 10 kV over 50 kV. A person must be designated to observe clearances and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means. All overhead powerlines must be considered to be an energized until the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded.
- Underground utility lines must be located before excavation begins; refer to Section 2.2.8 "Procedures for locating buried utilities".
- Operators loading/unloading from vehicles are responsible for seeing that vehicle drivers are in the vehicle cab or in a safe area.
- The parking brake shall be set whenever equipment is parked, wheels must be chocked when parked on inclines.
- When not in operation, the blade/bucket must be blocked or grounded; the master clutch must be disengaged when the operator leaves the cab. When equipment is unattended, power must be shut off, brakes set, blades/buckets landed and shift lever in neutral.

### **3.1.4 Fall Protection Activities**

(Reference CH2M HILL, SOP HS-31, *Fall Protection*)

- CH2M HILL personnel exposed to fall hazards must complete the Fall Protection training course in the Basic Program and receive project-specific fall protection training. Personnel may not use fall protection systems on which they have not been trained.
- The CH2M HILL Site Health and Safety Specialist (SHSS) must complete the Project Fall Protection Evaluation Form and provide project-specific fall protection training to all CH2M HILL personnel exposed to fall hazards. The Project Fall Protection Evaluation Form is provided in Attachment 5.

- Fall protection systems must be used to eliminate fall hazards of 6 feet or greater.
- All components of the personal fall arrest system must be inspected for proper working condition prior to each use.
- Personal fall arrest system anchorages must be capable of supporting 5000 pounds per individual.
- Refer to CH2M HILL SOP HS-31 "Fall Protection" for more specific details on fall protection requirements.

### **3.1.5 Exposure to Public Vehicular Traffic**

The following precautions must be taken when working around traffic, and in or near an area where traffic controls have been established by a contractor.

- Exercise caution when exiting traveled way or parking along street – avoid sudden stops, use flashers, etc.
- Park in a manner that will allow for safe exit from vehicle, and where practicable, park vehicle so that it can serve as a barrier.
- All staff working adjacent to traveled way or within work area must wear reflective/high-visibility safety vests.
- Eye protection should be worn to protect from flying debris.
- Remain aware of factors that influence traffic related hazards and required controls – sun glare, rain, wind, flash flooding, limited sight-distance, hills, curves, guardrails, width of shoulder (i.e., breakdown lane), etc.
- Always remain aware of an escape route -- behind an established barrier, parked vehicle, guardrail, etc.
- Always pay attention to moving traffic – never assume drivers are looking out for you
- Work as far from traveled way as possible to avoid creating confusion for drivers.
- When workers must face away from traffic, a "buddy system" should be used, where one worker is looking towards traffic.
- When working on highway projects, obtain a copy of the contractor's traffic control plan.
- Work area should be protected by a physical barrier – such as a K-rail or Jersey barrier.
- Review traffic control devices to ensure that they are adequate to protect your work area. Traffic control devices should: 1) convey a clear meaning, 2) command respect of road users, and 3) give adequate time for proper traffic response. The adequacy of these devices are dependent on limited sight distance, proximity to ramps or intersections, restrictive width, duration of job, and traffic volume, speed, and proximity.
- Either a barrier or shadow vehicle should be positioned a considerable distance ahead of the work area. The vehicle should be equipped with a flashing arrow sign and truck-

mounted crash cushion (TMCC). All vehicles within 40 feet of traffic should have an orange flashing hazard light atop the vehicle.

- Except on highways, flaggers should be used when 1) two-way traffic is reduced to using one common lane, 2) driver visibility is impaired or limited, 3) project vehicles enter or exit traffic in an unexpected manner, or 4) the use of a flagger enhances established traffic warning systems.
- Lookouts should be used when physical barriers are not available or practical. The lookout continually watches approaching traffic for signs of erratic driver behavior and warns workers. Vehicles should be parked at least 40 feet away from the work zone and traffic. Minimize the amount of time that you will have your back to oncoming traffic.

## 3.2 General Hazards

### 3.2.1 General Practices and Housekeeping

(Reference CH2M HILL- SOP HS-20, *General Practices*)

- Site work should be performed during daylight hours whenever possible. Work conducted during hours of darkness require enough illumination intensity to read a newspaper without difficulty.
- Good housekeeping must be maintained at all times in all project work areas.
- Common paths of travel should be established and kept free from the accumulation of materials.
- Keep access to aisles, exits, ladders, stairways, scaffolding, and emergency equipment free from obstructions.
- Provide slip-resistant surfaces, ropes, and/or other devices to be used.
- Specific areas should be designated for the proper storage of materials.
- Tools, equipment, materials, and supplies shall be stored in an orderly manner.
- As work progresses, scrap and unessential materials must be neatly stored or removed from the work area.
- Containers should be provided for collecting trash and other debris and shall be removed at regular intervals.
- All spills shall be quickly cleaned up. Oil and grease shall be cleaned from walking and working surfaces.

### 3.2.2 Hazard Communication

(Reference CH2M HILL-SOP HS-05, *Hazard Communication*)

The SHSS is to perform the following:

- Complete an inventory of chemicals brought on site by CH2M HILL using Attachment 2.

- Confirm that an inventory of chemicals brought on site by CH2M HILL subcontractors is available.
- Request or confirm locations of Material Safety Data Sheets (MSDSs) from the client, contractors, and subcontractors for chemicals to which CH2M HILL employees potentially are exposed.
- Before or as the chemicals arrive on site, obtain an MSDS for each hazardous chemical.
- Label chemical containers with the identity of the chemical and with hazard warnings, and store properly.
- Give employees required chemical-specific HAZCOM training using Attachment 3.
- Store all materials properly, giving consideration to compatibility, quantity limits, secondary containment, fire prevention, and environmental conditions.

### **3.2.3 Shipping and Transportation of Chemical Products**

(Reference CH2M HILL's *Procedures for Shipping and Transporting Dangerous Goods*)

Chemicals brought to the site might be defined as hazardous materials by the U.S. Department of Transportation (DOT). All staff who ship the materials or transport them by road must receive CH2M HILL training in shipping dangerous goods. All hazardous materials that are shipped (e.g., via Federal Express) or are transported by road must be properly identified, labeled, packed, and documented by trained staff. Contact the HSM or the Equipment Coordinator for additional information.

### **3.2.4 Lifting**

(Reference CH2M HILL-SOP HS-29, *Lifting*)

- Proper lifting techniques must be used when lifting any object.
  - Plan storage and staging to minimize lifting or carrying distances.
  - Split heavy loads into smaller loads.
  - Use mechanical lifting aids whenever possible.
  - Have someone assist with the lift -- especially for heavy or awkward loads.
  - Make sure the path of travel is clear prior to the lift.

### **3.2.5 Fire Prevention**

(Reference CH2M HILL- SOP HS-22, *Fire Prevention*)

- Fire extinguishers shall be provided so that the travel distance from any work area to the nearest extinguisher is less than 100 feet. When 5 gallons or more of a flammable or combustible liquid is being used, an extinguisher must be within 50 feet. Extinguishers must:
  - be maintained in a fully charged and operable condition,
  - be visually inspected each month, and
  - undergo a maintenance check each year.
- The area in front of extinguishers must be kept clear.

- Post “Exit” signs over exiting doors, and post “Fire Extinguisher” signs over extinguisher locations.
- Combustible materials stored outside should be at least 10 feet from any building.
- Solvent waste and oily rags must be kept in a fire resistant, covered container until removed from the site.
- Flammable/combustible liquids must be kept in approved containers, and must be stored in an approved storage cabinet.

### **3.2.6 Electrical**

(Reference CH2M HILL-SOP HS-23, *Electrical*)

- Only qualified personnel are permitted to work on unprotected energized electrical systems.
- Only authorized personnel are permitted to enter high-voltage areas.
- Do not tamper with electrical wiring and equipment unless qualified to do so. All electrical wiring and equipment must be considered energized until lockout/tagout procedures are implemented.
- Inspect electrical equipment, power tools, and extension cords for damage prior to use. Do not use defective electrical equipment, remove from service.
- All temporary wiring, including extension cords and electrical power tools, must have ground fault circuit interrupters (GFCIs) installed.
- Extension cords must be:
  - equipped with third-wire grounding.
  - covered, elevated, or protected from damage when passing through work areas.
  - protected from pinching if routed through doorways.
  - not fastened with staples, hung from nails, or suspended with wire.
- Electrical power tools and equipment must be effectively grounded or double-insulated UL approved.
- Operate and maintain electric power tools and equipment according to manufacturers' instructions.
- Maintain safe clearance distances between overhead power lines and any electrical conducting material unless the power lines have been de-energized and grounded, or where insulating barriers have been installed to prevent physical contact. Maintain at least 10 feet from overhead power lines for voltages of 50 kV or less, and 10 feet plus ½ inch for every 1 kV over 50 kV.
- Temporary lights shall not be suspended by their electric cord unless designed for suspension. Lights shall be protected from accidental contact or breakage.
- Protect all electrical equipment, tools, switches, and outlets from environmental elements.

### **3.2.7 Stairways and Ladders**

(Reference CH2M HILL-SOP HS-25, *Stairways and Ladders*)

- Stairway or ladder is generally required when a break in elevation of 19 inches or greater exists.
- Personnel should avoid using both hands to carry objects while on stairways; if unavoidable, use extra precautions.
- Personnel must not use pan and skeleton metal stairs until permanent or temporary treads and landings are provided the full width and depth of each step and landing.
- Ladders must be inspected by a competent person for visible defects prior to each day's use. Defective ladders must be tagged and removed from service.
- Ladders must be used only for the purpose for which they were designed and shall not be loaded beyond their rated capacity.
- Only one person at a time shall climb on or work from an individual ladder.
- User must face the ladder when climbing; keep belt buckle between side rails
- Ladders shall not be moved, shifted, or extended while in use.
- User must use both hands to climb; use rope to raise and lower equipment and materials
- Straight and extension ladders must be tied off to prevent displacement
- Ladders that may be displaced by work activities or traffic must be secured or barricaded
- Portable ladders must extend at least 3 feet above landing surface
- Straight and extension ladders must be positioned at such an angle that the ladder base to the wall is one-fourth of the working length of the ladder
- Stepladders are to be used in the fully opened and locked position
- Users are not to stand on the top two steps of a stepladder; nor are users to sit on top or straddle a stepladder
- Fixed ladders > 24 feet in height must be provided with fall protection devices.
- Fall protection should be considered when working from extension, straight, or fixed ladders greater than six feet from lower levels and both hands are needed to perform the work, or when reaching or working outside of the plane of ladder side rails.

### **3.2.8 Heat Stress**

(Reference CH2M HILL- SOP HS-09, *Heat and Cold Stress*)

- Drink 16 ounces of water before beginning work. Disposable cups and water maintained at 50°F to 60°F should be available. Under severe conditions, drink 1 to 2 cups every 20

minutes, for a total of 1 to 2 gallons per day. Do not use alcohol in place of water or other nonalcoholic fluids. Decrease your intake of coffee and caffeinated soft drinks during working hours.

- Acclimate yourself by slowly increasing workloads (e.g., do not begin with extremely demanding activities).
- Use cooling devices, such as cooling vests, to aid natural body ventilation. These devices add weight, so their use should be balanced against efficiency.
- Use mobile showers or hose-down facilities to reduce body temperature and cool protective clothing.
- Conduct field activities in the early morning or evening and rotate shifts of workers, if possible.
- Avoid direct sun whenever possible, which can decrease physical efficiency and increase the probability of heat stress. Take regular breaks in a cool, shaded area. Use a wide-brim hat or an umbrella when working under direct sun for extended periods.
- Provide adequate shelter/shade to protect personnel against radiant heat (sun, flames, hot metal).
- Maintain good hygiene standards by frequently changing clothing and showering.
- Observe one another for signs of heat stress. Persons who experience signs of heat syncope, heat rash, or heat cramps should consult the SHSS to avoid progression of heat-related illness.

<b>SYMPTOMS AND TREATMENT OF HEAT STRESS</b>					
	<b>Heat Syncope</b>	<b>Heat Rash</b>	<b>Heat Cramps</b>	<b>Heat Exhaustion</b>	<b>Heat Stroke</b>
Signs and Symptoms	Sluggishness or fainting while standing erect or immobile in heat.	Profuse tiny raised red blister-like vesicles on affected areas, along with pricking sensations during heat exposure.	Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours.	Fatigue, nausea, headache, giddiness; skin clammy and moist; complexion pale, muddy, or flushed; may faint on standing; rapid thready pulse and low blood pressure; oral temperature normal or low	Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature.
Treatment	Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.	Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.	Remove to cooler area. Rest lying down. Increase fluid intake.	Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.	Cool rapidly by soaking in cool—but not cold—water. Call ambulance, and get medical attention immediately!

## Monitoring Heat Stress

These procedures should be considered when the ambient air temperature exceeds 70°F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress.

The heart rate (HR) should be measured by the radial pulse for 30 seconds, as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 100 beats/minute, or 20 beats/minute above resting pulse. If the HR is higher, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the pulse rate still exceeds 100 beats/minute at the beginning of the next rest period, the work cycle should be further shortened by 33 percent. The procedure is continued until the rate is maintained below 100 beats/minute, or 20 beats/minute above resting pulse.

### 3.2.9 Cold Stress

(Reference CH2M HILL- SOP HS-09, *Heat and Cold Stress*)

- Be aware of the symptoms of cold-related disorders, and wear proper, layered clothing for the anticipated fieldwork. Appropriate rain gear is a must in cool weather.
- Consider monitoring the work conditions and adjusting the work schedule using guidelines developed by the U.S. Army (wind-chill index) and the National Safety Council (NSC).
- Wind-Chill Index is used to estimate the combined effect of wind and low air temperatures on exposed skin. The wind-chill index does not take into account the body part that is exposed, the level of activity, or the amount or type of clothing worn. For those reasons, it should only be used as a guideline to warn workers when they are in a situation that can cause cold-related illnesses.
- NSC Guidelines for Work and Warm-Up Schedules can be used with the wind-chill index to estimate work and warm-up schedules for fieldwork. The guidelines are not absolute; workers should be monitored for symptoms of cold-related illnesses. If symptoms are not observed, the work duration can be increased.
- Persons who experience initial signs of immersion foot, frostbite, hypothermia should consult the SHSS to avoid progression of cold-related illness.
- Observe one another for initial signs of cold-related disorders.
- Obtain and review weather forecast – be aware of predicted weather systems along with sudden drops in temperature, increase in winds, and precipitation.

SYMPTOMS AND TREATMENT OF COLD STRESS			
	Immersion (Trench) Foot	Frostbite	Hypothermia
Signs and Symptoms	Feet discolored and painful; infection and swelling present.	Blanched, white, waxy skin, but tissue resilient; tissue cold and pale.	Shivering, apathy, sleepiness; rapid drop in body temperature; glassy stare; slow pulse; slow respiration.
Treatment	Seek medical treatment immediately.	Remove victim to a warm place. Re-warm area quickly in warm—but <b>not</b> hot—water. Have victim drink warm fluids, but <b>not</b> coffee or alcohol. Do not break blisters. Elevate the injured area, and get medical attention.	Remove victim to a warm place. Have victim drink warm fluids, but <b>not</b> coffee or alcohol. Get medical attention.

### 3.2.10 Compressed Gas Cylinders

- Valve caps must be in place when cylinders are transported, moved, or stored.
- Cylinder valves must be closed when cylinders are not being used and when cylinders are being moved.
- Cylinders must be secured in an upright position at all times.
- Cylinders must be shielded from welding and cutting operations and positioned to avoid being struck or knocked over; contacting electrical circuits; or exposed to extreme heat sources.
- Cylinders must be secured on a cradle, basket, or pallet when hoisted; they may not be hoisted by choker slings.

### 3.2.11 Procedures for Locating Buried Utilities

#### Local Utility Mark-Out Service

- Where available, obtain utility diagrams for the facility.
- Review locations of sanitary and storm sewers, electrical conduits, water supply lines, natural gas lines, and fuel tanks and lines.
- Review proposed locations of intrusive work with facility personnel knowledgeable of locations of utilities. Check locations against information from utility mark-out service.
- Where necessary (e.g., uncertainty about utility locations), excavation or drilling of the upper depth interval should be performed manually
- Monitor for signs of utilities during advancement of intrusive work (e.g., sudden change in advancement of auger or split spoon).
- When the client or other onsite party is responsible for determining the presence and locations of buried utilities, the SHSS should confirm that arrangement.

## 3.3 Biological Hazards and Controls

### 3.3.1 Snakes

Snakes typically are found in underbrush and tall grassy areas. If you encounter a snake, stay calm and look around; there may be other snakes. Turn around and walk away on the same path you used to approach the area. If a person is bitten by a snake, wash and immobilize the injured area, keeping it lower than the heart if possible. Seek medical attention immediately. **DO NOT** apply ice, cut the wound, or apply a tourniquet. Try to identify the type of snake: note color, size, patterns, and markings.

### 3.3.2 Poison Ivy and Poison Sumac

Poison ivy, poison oak, and poison sumac typically are found in brush or wooded areas. They are more commonly found in moist areas or along the edges of wooded areas. Become familiar with the identity of these plants. Wear protective clothing that covers exposed skin and clothes. Avoid contact with plants and the outside of protective clothing. If skin contacts a plant, wash the area with soap and water immediately. If the reaction is severe or worsens, seek medical attention.

### 3.3.3 Ticks

Ticks typically are in wooded areas, bushes, tall grass, and brush. Ticks are black, black and red, or brown and can be up to one-quarter inch in size. Wear tightly woven light-colored clothing with long sleeves and pant legs tucked into boots; spray **only outside** of clothing with permethrin or permethrin and spray skin with only DEET; and check yourself frequently for ticks.

If bitten by a tick, grasp it at the point of attachment and carefully remove it. After removing the tick, wash your hands and disinfect and press the bite areas. Save the removed tick. Report the bite to human resources. Look for symptoms of Lyme disease or Rocky Mountain spotted fever (RMSF). Lyme: a rash might appear that looks like a bullseye with a small welt in the center. RMSF: a rash of red spots under the skin 3 to 10 days after the tick bite. In both cases, chills, fever, headache, fatigue, stiff neck, and bone pain may develop. If symptoms appear, seek medical attention.

### 3.3.4 Bees and Other Stinging Insects

Bee and other stinging insects may be encountered almost anywhere and may present a serious hazard, particularly to people who are allergic. Watch for and avoid nests. Keep exposed skin to a minimum. Carry a kit if you have had allergic reactions in the past, and inform the SHSS and/or buddy. If a stinger is present, remove it carefully with tweezers. Wash and disinfect the wound, cover it, and apply ice. Watch for allergic reaction; seek medical attention if a reaction develops.

### 3.3.5 Bloodborne Pathogens

(Reference CH2M HILL- SOP HS-36, *Bloodborne Pathogens*)

Exposure to bloodborne pathogens may occur when rendering first aid or CPR, or when coming into contact with landfill waste or waste streams containing potentially infectious

material. Exposure controls and personal protective equipment (PPE) are required as specified in CH2M HILL SOP HS-36, *Bloodborne Pathogens*. Hepatitis B vaccination must be offered before the person participates in a task where exposure is a possibility.

### 3.3.6 Mosquito Bites

Due to the recent detection of the West Nile Virus in the Southeastern United States it is recommended that **preventative measures** be taken to reduce the probability of being bitten by mosquitoes whenever possible. Mosquitoes are believed to be the primary source for exposure to the West Nile Virus as well as several other types of encephalitis. The following guidelines should be followed to reduce the risk of these concerns for working in areas where mosquitoes are prevalent.

- Stay indoors at dawn, dusk, and in the early evening.
- Wear long-sleeved shirts and long pants whenever you are outdoors.
- Spray clothing with repellents containing permethrin or DEET since mosquitoes may bite through thin clothing.
- Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET (N,N-diethyl-meta-toluamide). DEET in high concentrations (greater than 35%) provides no additional protection.
- Repellents may irritate the eyes and mouth, so avoid applying repellent to the hands.
- Whenever you use an insecticide or insect repellent, be sure to read and follow the manufacturer's DIRECTIONS FOR USE, as printed on the product.

Note: Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites.

#### **Symptoms of Exposure to the West Nile Virus**

Most infections are mild, and symptoms include fever, headache, and body aches, occasionally with skin rash and swollen lymph glands. More severe infection may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and, rarely, death.

The West Nile Virus incubation period is from 3-15 days.

If you have any questions or to report any suspicious symptoms, contact the project Health and Safety Manager.

## 3.4 Radiological Hazards and Controls

Refer to CH2M HILL's Corporate Health and Safety Program, Program and Training Manual, and Corporate Health and Safety Program, Radiation Protection Program Manual, for standards of practice in contaminated areas.

## 3.5 Contaminants of Concern

Contaminants of concern are listed in Table 3-1.

## 3.6 Potential Routes of Exposure

**Dermal:** Contact with contaminated media. This route of exposure is minimized through proper use of PPE, as specified in Section 4.

**Inhalation:** Vapors and contaminated particulates. This route of exposure is minimized through proper respiratory protection and monitoring, as specified in Sections 4 and 5, respectively.

**Other:** Inadvertent ingestion of contaminated media. This route should not present a concern if good hygiene practices are followed (e.g., wash hands and face before drinking or smoking).

**TABLE 3-1**

Contaminants of Concern

(Refer to Project Files for more detailed contaminant information)

Contaminant	Location and Maximum <sup>a</sup> Concentration (ppm)	Exposure Limit <sup>b</sup>	IDLH <sup>c</sup>	Symptoms and Effects of Exposure	PIP <sup>d</sup> (eV)
Benzo a Pyrene	CEF-293-SU-11004 SB: .332	0.1 mg/m <sup>3</sup>	80 Ca	Dermatitis and bronchitis	UK
Ethyl Benzene	CEF-293-SU-112-07 SB: 27.9 kg SS:	100 ppm	800	Eye, skin, and mucous membrane irritation; headache; dermatitis; narcotic; coma	8.76
1- Methyl naphthalene	CEF-293-C-11 SB: 11 mg/kg	10 ppm	250	Eye irritation, headache, confusion, excitement, nausea, vomiting, abdominal pain, bladder irritation, profuse sweating, dermatitis, corneal damage, optical neuritis	
2- Methyl naphthalene	CEF-293-SU-11306 SB: 26 mg/kg	10 ppm	250	Eye irritation, headache, confusion, excitement, nausea, vomiting, abdominal pain, bladder irritation, profuse sweating, dermatitis, corneal damage, optical neuritis	
Naphthalene	CEF-293-SU-11808 SB: 33.6 mg/kg	10 ppm	250	Eye irritation, headache, confusion, excitement, nausea, vomiting, abdominal pain, bladder irritation, profuse sweating, dermatitis, corneal damage, optical neuritis	8.12
Toluene	CEF-293-SU-112-07 SB: 4.7 mg/kg SS:	50 ppm	500	Eye and nose irritation, fatigue, weakness, confusion, dizziness, headache, dilated pupils, excessive tearing, nervousness, muscle fatigue, paresthesia, dermatitis, liver and kidney damage	8.82
TRPHs	CEF-293-SU-110-04 SB: 20.3 mg/kg	100 ppm	1000 ppm	Irritation to eyes, skin, nose; light headedness, drowsiness, dermatitis,	?
Xylenes	CEF-293-SU-112-07 SB: 121 mg/kg SS:	100 ppm	900	Irritated eyes, skin, nose, and throat; dizziness; excitement; drowsiness; incoherence; staggering gait; corneal vacuolization; anorexia; nausea; vomiting; abdominal pain; dermatitis	8.56
<p>Footnotes:</p> <p><sup>a</sup> Specify sample-designation and media: SB (Soil Boring), A (Air), D (Drums), GW (Groundwater), L (Lagoon), TK (Tank), S (Surface Soil), SL (Sludge), SW (Surface Water).</p> <p><sup>b</sup> Appropriate value of PEL, REL, or TLV listed.</p> <p><sup>c</sup> IDLH = immediately dangerous to life and health (units are the same as specified "Exposure Limit" units for that contaminant); NL = No limit found in reference materials; CA = Potential occupational carcinogen.</p> <p><sup>d</sup> PIP = photoionization potential; NA = Not applicable; UK = Unknown.</p>					

# 4.0 Project Organization and Personnel

## 4.1 CCI Employee Medical Surveillance and Training

(Reference CH2M HILL- SOPs HS-01, *Medical Surveillance*, and HS-02, *Health and Safety Training*)

The employees listed meet state and federal hazardous waste operations requirements for 40-hour initial training, 3-day on-the-job experience, and 8-hour annual refresher training. Employees designated "SHSS" have completed a 12-hour site safety coordinator course, and have documented requisite field experience. An SHSS with a level designation (D, C, B) equal to or greater than the level of protection being used must be present during all tasks performed in exclusion or decontamination zones. Employees designated "FA-CPR" are currently certified by the American Red Cross, or equivalent, in first aid and CPR. At least one FA-CPR designated employee must be present during all tasks performed in exclusion or decontamination zones. At least two FA-CPR trained employees must be available at each job site/operation. The employees listed below are currently active in a medical surveillance program that meets state and federal regulatory requirements for hazardous waste operations. Certain tasks (e.g., confined-space entry) and contaminants (e.g., lead) may require additional training and medical monitoring.

Pregnant employees are to be informed of and are to follow the procedures in CH2M HILL-SOP HS-04, *Reproduction Protection*, including obtaining a physician's statement of the employee's ability to perform hazardous activities before being assigned fieldwork.

Employee Name	Office	Responsibility	SHSS/FA-CPR
Jeff Marks	JA Jones/JAX	Project Engineer	Level ___ SHSS; FA-CPR
Mike Halil	JA Jones/JAX	Project Manager	Level ___ SHSS; FA-CPR
Bruce Johnson	JA Jones/JAX	Health and Safety Manager	SHSS; SC-C; SC-HW; FA-CPR
Rich Rathnow	CCI/ORO	Health and Safety Manager	SC-HW,C FA-CPR
Garnet McCurdy	JA Jones/JAX	Project Superintendent	FA-CPR
David Keul	JA Jones/JAX	Quality Control	FA-CPR

JAX – Jacksonville, Florida  
ORO – Oak Ridge, Tennessee

## 4.2 Field Team Chain of Command and Communication Procedures

### 1.1.1 Client: Southern Division, U.S. Navy Facilities Engineering Command (NAVFAC)

**Contact Name:** ACO – Eva Clement, COTR – Jimmy Jones

**Phone:** 843/820-5544

## 4.2.2 CCI

**Acting Program Manager:** Scott Smith/ATL

**Project Manager:** Mike Halil/J.A. Jones

**Health and Safety Manager:** Rich Rathnow/ORO

**Site Superintend:** Garnet McCurdy

**Site Health and Safety Specialist:** Bruce A. Johnson

The CCI/CH2M HILL project manager (PM) is responsible for providing adequate resources (budget and staff) for project-specific implementation of the HS&E management process. The PM has overall management responsibility for the tasks listed below. The PM may explicitly delegate specific tasks to other staff, as described in sections that follow, but retains ultimate responsibility for completion of the following in accordance with this SOP:

- Include standard terms and conditions, and contract-specific HS&E roles and responsibilities in contract and subcontract agreements (including flow-down requirements to lower-tier subcontractors)
- Select safe and competent subcontractors by:
  - obtaining, reviewing and accepting or rejecting subcontractor pre-qualification questionnaires
  - ensuring that acceptable certificates of insurance, including CH2M HILL as named additional insured, are secured as a condition of subcontract award
  - including HS&E submittals checklist in subcontract agreements, and ensuring that appropriate site-specific safety procedures, training and medical monitoring records are reviewed and accepted prior to the start of subcontractor's field operations
- Maintain copies of subcontracts and subcontractor certificates of insurance (including CH2M HILL as named additional insured), bond, contractors license, training and medical monitoring records, and site-specific safety procedures in the project file accessible to site personnel
- Provide oversight of subcontractor HS&E practices per the site-specific safety plan
- Manage the site and interfacing with 3rd parties in a manner consistent with our contract and subcontract agreements and the applicable standard of reasonable care
- Ensure that the overall, job-specific, HS&E goals are fully and continuously implemented

The CCI H&S Manager is responsible for:

- Review and accept or reject subcontractor pre-qualification questionnaires that fall outside the performance range delegated to the Contracts Administrator.

- Review and accept or reject subcontractor training records and site-specific safety procedures prior to start of subcontractor’s field operations.
- Support the SHSS's oversight of subcontractor (and lower-tier subcontractors) HS&E practices and interfaces with on-site 3rd parties per the site-specific safety plan.

The SHSS is responsible for verifying that the project is conducted in a safe manner including the following specific obligations:

- Verify this HSP remains current and amended when project activities or conditions change.
- Verify CH2M HILL site personnel and subcontractor personnel read this HSP and sign Attachment 1 “Employee Signoff Form” prior to commencing field activities.
- Verify CH2M HILL site personnel and subcontractor personnel have completed any required specialty training (e.g., fall protection, confined space entry) and medical surveillance as identified in Section 2.
- Verify compliance with the requirements of this HSP and applicable subcontractor health and safety plan(s).
- Act as the project “Hazard Communication Coordinator” and perform those responsibilities.
- Act as the project “Emergency Response Coordinator” and perform those responsibilities.
- Post OSHA job-site poster; the poster is required at sites where project field offices, trailers, or equipment-storage boxes are established; posters can be obtained by calling 800/548-4776 or 800/999-9111.
- Verify that safety meetings are conducted and documented in the project file initially and as needed throughout the course of the project (e.g., as tasks or hazards change).
- Verify that project H&S forms and permits, found in Attachment 5, are being used as outlined in Section 3.
- Perform oversight and/or assessments of subcontractor HS&E practices per the site-specific safety plan and verify that project activity self-assessment checklists, found in Attachment 5, are being used as outlined in Section 2.
- Verify that project files available to site personnel include copies of executed subcontracts and subcontractor certificates of insurance (including CH2M HILL as named additional insured), bond, contractors license, training and medical monitoring records, and site-specific safety procedures prior to start of subcontractor’s field operations.
- Manage the site and interfacing with 3rd parties in a manner consistent with our contract/subcontract agreements and the applicable standard of reasonable care.
- Coordinate with the HS&E manager regarding CH2M HILL and subcontractor operational performance, and 3rd party interfaces.

- Ensure that the overall, job-specific, HS&E goals are fully and continuously implemented.

The training required for the SHSS is as follows:

- SHSS 10-hour course
- OSHA 10-hour course for Construction
- First Aid and CPR
- Relevant Competent Person Courses (excavation, confined space, scaffold, fall protection, etc.)

The SHSS is responsible for contacting the Field Team Leader and Project Manager. In general, the Project Manager will contact the client. The Health and Safety Manager should be contacted as appropriate.

### 4.2.3 CH2M HILL Subcontractors

(Reference CH2M HILL- SOP HS-55, *Subcontractor, Contractor, and Owner*)

Certain subcontractors (drilling, remedial and construction contractors) are required to be pre-qualified for safety by completing the Subcontractor Safety Performance Questionnaire. The subcontractors listed above are covered by this HSP. However, this plan does not address hazards associated with the tasks and equipment that the subcontractor has expertise in (e.g., drilling, excavation work, electrical). Subcontractors are responsible for the health and safety procedures specific to their work, and are required to submit these procedures to CCI for review before the start of field work by following the Subcontractor Safety Procedure Criteria specific to their work.

Subcontractors are also required to prepare Activity Hazard Analysis before beginning each activity posing H&S hazards to their personnel using the AHA form provided in Attachment 6 as a guide. The AHA shall identify the principle steps of the activity, potential H&S hazards for each step and recommended control measures for each identified hazard. In addition, a listing of the equipment to be used to perform the activity, inspection requirements and training requirements for the safe operation of the equipment listed must be identified.

Subcontractors must comply with the established health and safety plan(s). The CCI SHSS should verify that subcontractor employee training, medical clearance, and fit test records are current and must monitor and enforce compliance with the established plan(s). CCI oversight does not relieve subcontractors of their responsibility for effective implementation and compliance with the established plan(s).

CCI should continuously endeavor to observe subcontractors' safety performance. This endeavor should be reasonable, and include observing for hazards or unsafe practices that are both readily observable and occur in common work areas. CCI is not responsible for exhaustive observation for hazards and unsafe practices. In addition to this level of observation, the SHSS is responsible for confirming CCI subcontractor performance against both the subcontractor's safety plan and applicable self-assessment checklists. **Self-assessment checklists** contained in **Attachment 5** are to be used by the SHSS to review subcontractor performance.

Health and safety related communications with CCI subcontractors should be conducted as follows:

- Brief subcontractors on the provisions of this plan, and require them to sign the Employee Signoff Form included in Attachment 1.
- Request subcontractor(s) to brief project team on the hazards and precautions related to their work.
- When apparent non-compliance/unsafe conditions or practices are observed, notify the subcontractor safety representative and require corrective action – the subcontractor is responsible for determining and implementing necessary controls and corrective actions.
- When repeat non-compliance/unsafe conditions are observed, notify the subcontractor safety representative and stop affected work until adequate corrective measures are implemented.
- When an apparent imminent danger exists, immediately remove all affected CH2M HILL employees and subcontractors, notify subcontractor safety representative, and stop affected work until adequate corrective measures are implemented. Notify the Project Manager and HSM as appropriate.
- Document all oral health and safety related communications in project field logbook, daily reports, or other records.

# 5.0 Personal Protective Equipment

(Reference CH2M HILL- SOP HS-07, *Personal Protective Equipment*, HS-08, *Respiratory Protection*)

PPE Specifications <sup>a</sup>				
Task	Level	Body	Head	Respirator <sup>b</sup>
General site entry	D	Work clothes; steel-toe, leather work boots; work glove.	Hardhat <sup>c</sup> Safety glasses Ear protection <sup>d</sup>	None required
Oversight of remediation and construction				
Backfill with clean soil	Modified D	Work clothes or cotton coveralls	Hardhat <sup>c</sup> Safety glasses Ear protection <sup>d</sup>	None required
Transport and dispose of contaminated soils				
Excavate contaminated soils	Modified D	<b>Boots:</b> Steel-toe, chemical-resistant boots OR steel-toe, leather work boots with outer rubber boot covers <b>Gloves:</b> Inner surgical-style nitrile & outer chemical-resistant nitrile gloves.	Hardhat <sup>c</sup> Splash shield <sup>c</sup> Safety glasses Ear protection <sup>d</sup>	None required.
Remove free product				
Tasks requiring upgrade	C	<b>Coveralls:</b> Uncoated Tyvek® <b>Boots:</b> Steel-toe, chemical-resistant boots OR steel-toe, leather work boots with outer rubber boot covers <b>Gloves:</b> Inner surgical-style nitrile & outer chemical-resistant nitrile gloves.	Hardhat <sup>c</sup> Splash shield <sup>c</sup> Ear protection <sup>d</sup> Spectacle inserts	APR, full face, MSA Ultratwin or equivalent; with GME-H cartridges or equivalent <sup>e</sup> .
Tasks requiring upgrade				
Tasks requiring upgrade	B	<b>Coveralls:</b> Polycoated Tyvek® <b>Boots:</b> Steel-toe, chemical-resistant boots OR steel-toe, leather work boots with outer rubber boot covers <b>Gloves:</b> Inner surgical-style nitrile & outer chemical-resistant nitrile gloves.	Hardhat <sup>c</sup> Splash shield <sup>c</sup> Ear protection <sup>d</sup> Spectacle inserts	Positive-pressure demand self-contained breathing apparatus (SCBA); MSA Ultralite, or equivalent.

## Reasons for Upgrading or Downgrading Level of Protection

Upgrade <sup>f</sup>	Downgrade
<ul style="list-style-type: none"> <li>Request from individual performing tasks.</li> <li>Change in work tasks that will increase contact or potential contact with hazardous materials.</li> <li>Occurrence or likely occurrence of gas or vapor emission.</li> <li>Known or suspected presence of dermal hazards.</li> <li>Instrument action levels (Section 5) exceeded.</li> </ul>	<ul style="list-style-type: none"> <li>New information indicating that situation is less hazardous than originally thought.</li> <li>Change in site conditions that decreases the hazard.</li> <li>Change in work task that will reduce contact with hazardous materials.</li> </ul>

<sup>a</sup> Modifications are as indicated. CH2M HILL will provide PPE only to CH2M HILL employees.

<sup>b</sup> No facial hair that would interfere with respirator fit is permitted.

<sup>c</sup> Hardhat and splash-shield areas are to be determined by the SHSS.

<sup>d</sup> Ear protection should be worn when conversations cannot be held at distances of 3 feet or less without shouting.

<sup>e</sup> Cartridge change-out schedule is at least every 8 hours (or one work day), except if relative humidity is > 85%, or if organic vapor measurements are > midpoint of Level C range (refer to Section 5)--then at least every 4 hours. If encountered conditions are different than those anticipated in this HSP, contact the HSM.

<sup>f</sup> Performing a task that requires an upgrade to a higher level of protection (e.g., Level D to Level C) is permitted only when the PPE requirements have been approved by the HSM, and an SHSS qualified at that level is present.

# 6.0 Air Monitoring/Sampling

(Reference CH2M HILL- SOP HS-06, *Air Monitoring*)

## 6.1 Air Monitoring Specifications

Instrument	Tasks	Action Levels <sup>a</sup>		Frequency <sup>b</sup>	Calibration
<b>PID:</b> OVM with 10.6eV lamp or equivalent	All soil intrusive activities	<1 ppm 1-5 ppm  > 5 ppm	Level D Level C Take benzene tube reading or ventilate and wait until level dissipates to <1ppm Contact HSM for direction	Initially and periodically during task	Daily
<b>CGI:</b> MSA model 260 or 261 or equivalent	UST Removal	0-10% : 10-25% LEL: >25% LEL:	No explosion hazard Potential explosion hazard Explosion hazard; evacuate or vent	Continuous during advancement of boring or trench	Daily
<b>O<sub>2</sub> Meter:</b> MSA model 260 or 261 or equivalent	UST Removal	>25% <sup>c</sup> O <sub>2</sub> :  20.9% <sup>c</sup> O <sub>2</sub> : <19.5% <sup>c</sup> O <sub>2</sub> :	Explosion hazard; evacuate or vent Normal O <sub>2</sub> O <sub>2</sub> deficient; vent or use SCBA	Continuous during advancement of boring or trench	Daily
<b>Dust Monitor:</b> Miniram model PDM-3 or equivalent	All soil intrusive and dust generating activities	0-1 mg/m <sup>3</sup> >1 mg/m <sup>3</sup>	Level D Level C	Initially and periodically during tasks	Zero Daily
<b>Detector Tube:</b> Drager benzene specific 0.5/c (0.5 to 10 ppm range) with pre-tube, or equivalent	All soil intrusive activities where PID readings are greater than 1 ppm.	<0.5 ppm 0.5-1 ppm >1 ppm	Level D Level C Level B	Initially and periodically when PID/FIB >1 ppm	Not applicable
<b>Nose-Level Monitor<sup>e</sup>:</b>	Long term noise generating activities	<85 dB(A) 85-120 dB(A)  120 dB(A)	No action required Hearing protection required Stop; re-evaluate	Initially and periodically during task	Daily

<sup>a</sup> Action levels apply to sustained breathing-zone measurements above background.

<sup>b</sup> The exact frequency of monitoring depends on field conditions and is to be determined by the SHSS; generally, every 5 to 15 minutes if acceptable; more frequently may be appropriate. Monitoring results should be recorded. Documentation should include instrument and calibration information, time, measurement results, personnel monitored, and place/location where measurement is taken (e.g., "Breathing Zone/MW-3", "at surface/SB-2", etc.).

<sup>c</sup> If the measured percent of O<sub>2</sub> is less than 10, an accurate LEL reading will not be obtained. Percent LEL and percent O<sub>2</sub> action levels apply only to ambient working atmospheres, and not to confined-space entry. More-stringent percent LEL and O<sub>2</sub> action levels are required for confined-space entry (refer to Section 2).

<sup>d</sup> Refer to SOP HS-10 for instructions and documentation on radiation monitoring and screening.

<sup>e</sup> Noise monitoring and audiometric testing also required.

## 6.2 Calibration Specifications

(Refer to the respective manufacturer's instructions for proper instrument-maintenance procedures)

<b>Instrument</b>	<b>Gas</b>	<b>Span</b>	<b>Reading</b>	<b>Method</b>
<b>PID:</b> OVM, 10.6 or 11.8 eV bulb	100 ppm isobutylene	RF = 1.0	100 ppm	1.5 lpm reg T-tubing
<b>PID:</b> MiniRAE, 10.6 eV bulb	100 ppm isobutylene	CF = 100	100 ppm	1.5 lpm reg T-tubing
<b>PID:</b> TVA 1000	100 ppm isobutylene	CF = 1.0	100 ppm	1.5 lpm reg T-tubing
<b>FID:</b> OVA	100 ppm methane	3.0 ± 1.5	100 ppm	1.5 lpm reg T-tubing
<b>FID:</b> TVA 1000	100 ppm methane	NA	100 ppm	2.5 lpm reg T-tubing
<b>Dust Monitor:</b> Miniram-PDM3	Dust-free air	Not applicable	0.00 mg/m <sup>3</sup> in "Measure" mode	Dust-free area OR Z-bag with HEPA filter
<b>CGI:</b> MSA 260, 261, 360, or 361	0.75% pentane	N/A	50% LEL ± 5% LEL	1.5 lpm reg direct tubing

## 6.3 Air Sampling

Sampling, in addition to real-time monitoring, may be required by other OSHA regulations where there may be exposure to certain contaminants. Air sampling typically is required when site contaminants include lead, cadmium, arsenic, asbestos, and certain volatile organic compounds. Contact the HSM immediately if these contaminants are encountered.

# 7.0 Decontamination

---

(Reference CH2M HILL- SOP HS-13, *Decontamination*)

The SHSS must establish and monitor the decontamination procedures and their effectiveness. Decontamination procedures found to be ineffective will be modified by the SHSS. The SHSS must ensure that procedures are established for disposing of materials generated on the site.

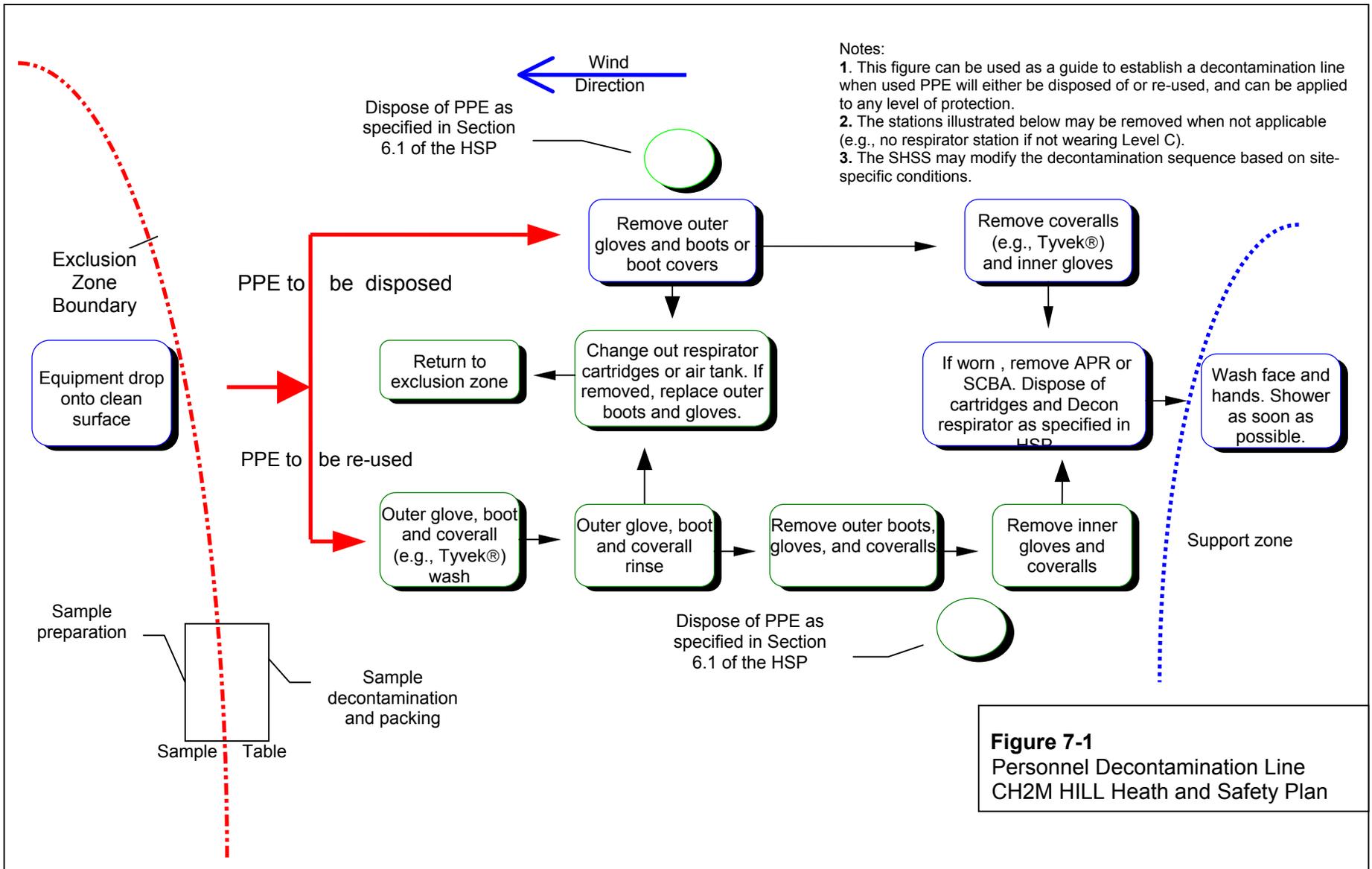
## 7.1 Decontamination Specifications

Personnel	Sample Equipment	Heavy Equipment
<ul style="list-style-type: none"><li>• Boot wash/rinse</li><li>• Glove wash/rinse</li><li>• Outer-glove removal</li><li>• Body-suit removal</li><li>• Inner-glove removal</li><li>• Respirator removal</li><li>• Hand wash/rinse</li><li>• Face wash/rinse</li><li>• Shower ASAP</li><li>• Dispose of PPE in municipal trash, or contain for disposal</li><li>• Dispose of personnel rinse water to facility or sanitary sewer, or contain for offsite disposal</li></ul>	<ul style="list-style-type: none"><li>• Wash/rinse equipment</li><li>• Solvent-rinse equipment</li><li>• Contain solvent waste for offsite disposal</li></ul>	<ul style="list-style-type: none"><li>• Power wash</li><li>• Steam clean</li><li>• Dispose of equipment rinse water to facility or sanitary sewer, or contain for offsite disposal</li></ul>

## 7.2 Diagram of Personnel-Decontamination Line

No eating, drinking, or smoking is permitted in contaminated areas and in exclusion or decontamination zones. The SHSS should establish areas for eating, drinking, and smoking. Contact lenses are not permitted in exclusion or decontamination zones.

Figure 7-1 illustrates a conceptual establishment of work zones, including the decontamination line. Work zones are to be modified by the SHSS to accommodate task-specific requirements.



**Figure 7-1**  
 Personnel Decontamination Line  
 CH2M HILL Health and Safety Plan

## 8.0 Spill-Containment Procedures

---

Sorbent material will be maintained in the support zone. Incidental spills will be contained with sorbent and disposed of properly.

# 9.0 Site-Control Plan

---

## 9.1 Site-Control Procedures

(Reference CH2M HILL- SOP HS-11, *Site Control*)

- The SHSS will conduct a site safety briefing (see below) before starting field activities or as tasks and site conditions change.
- Topics for briefing on site safety: general discussion of Health and Safety Plan, site-specific hazards, locations of work zones, PPE requirements, equipment, special procedures, emergencies.
- The SHSS records attendance at safety briefings in a logbook and documents the topics discussed.
- Post the OSHA job-site poster in a central and conspicuous location in accordance with CH2M HILL- SOP HS-71, *OSHA Postings*.
- Establish support, decontamination, and exclusion zones. Delineate with flags or cones as appropriate. Support zone should be upwind of the site. Use access control at entry and exit from each work zone.
- Establish onsite communication consisting of the following:
  - Line-of-sight and hand signals
  - Air horn
  - Two-way radio or cellular telephone if available
- Establish offsite communication.
- Establish and maintain the “buddy system.”
- Initial air monitoring is conducted by the SHSS in appropriate level of protection.
- The SHSS is to conduct periodic inspections of work practices to determine the effectiveness of this plan – refer to Sections 2 and 3. Deficiencies are to be noted, reported to the HSM, and corrected.

## 9.2 Hazwoper Compliance Plan

(Reference CH2M HILL- SOP HS-19, *Site-Specific Written Safety Plans*)

Certain parts of the site work are covered by state or federal Hazwoper standards and therefore require training and medical monitoring. Anticipated Hazwoper tasks (Section 1.1.1) might occur consecutively or concurrently with respect to non-Hazwoper tasks. This section outlines procedures to be followed when approved activities specified in Section 1.1.2 do not require 24- or 40-hour training. Non-Hazwoper-trained personnel also must be trained in accordance with all other state and federal OSHA requirements.

- In many cases, air sampling, in addition to real-time monitoring, must confirm that there is no exposure to gases or vapors before non-Hazwoper-trained personnel are allowed on the site, or while non-Hazwoper-trained staff are working in proximity to Hazwoper activities. Other data (e.g., soil) also must document that there is no potential for exposure. The HSM must approve the interpretation of these data. Refer to subsections 2.5 and 5.3 for contaminant data and air sampling requirements, respectively.
- When non-Hazwoper-trained personnel are at risk of exposure, the SHSS must post the exclusion zone and inform non-Hazwoper-trained personnel of the:
  - nature of the existing contamination and its locations
  - limitations of their access
  - emergency action plan for the site
- Periodic air monitoring with direct-reading instruments conducted during regulated tasks also should be used to ensure that non-Hazwoper-trained personnel (e.g., in an adjacent area) are not exposed to airborne contaminants.
- When exposure is possible, non-Hazwoper-trained personnel must be removed from the site until it can be demonstrated that there is no longer a potential for exposure to health and safety hazards.
- Remediation treatment system start-ups: Once a treatment system begins to pump and treat contaminated media, the site is, for the purposes of applying the Hazwoper standard, considered a treatment, storage, and disposal facility (TSDF). Therefore, once the system begins operation, only Hazwoper-trained personnel (minimum of 24 hour of training) will be permitted to enter the site. All non-Hazwoper-trained personnel must not enter the TSDF area of the site.

# 10.0 Emergency Response Plan

---

(Reference CH2M HILL- SOP HS-12, *Emergency Response*)

## 10.1 Pre-Emergency Planning

The SHSS performs the applicable pre-emergency planning tasks before starting field activities and coordinates emergency response with CCI onsite parties, the facility, and local emergency-service providers as appropriate.

- Review the facility emergency and contingency plans where applicable.
- Determine what onsite communication equipment is available (e.g., two-way radio, air horn).
- Determine what offsite communication equipment is needed (e.g., nearest telephone, cell phone).
- Confirm and post emergency telephone numbers, evacuation routes, assembly areas, and route to hospital; communicate the information to onsite personnel.
- Field Trailers: Post “Exit” signs above exit doors, and post “Fire Extinguisher” signs above locations of extinguishers. Keep areas near exits and extinguishers clear.
- Review changed site conditions, onsite operations, and personnel availability in relation to emergency response procedures.
- Where appropriate and acceptable to the client, inform emergency room and ambulance and emergency response teams of anticipated types of site emergencies.
- Designate one vehicle as the emergency vehicle; place hospital directions and map inside; keep keys in ignition during field activities.
- Inventory and check site emergency equipment, supplies, and potable water.
- Communicate emergency procedures for personnel injury, exposures, fires, explosions, and releases.
- Rehearse the emergency response plan before site activities begin, including driving route to hospital.
- Brief new workers on the emergency response plan.

The SHSS will evaluate emergency response actions and initiate appropriate follow-up actions.

## 10.2 Emergency Equipment and Supplies

The SHSS should mark the locations of emergency equipment on the site map and post the map.

Emergency Equipment and Supplies	Location
20 LB (or two 10-lb) fire extinguisher (A, B, and C classes)	Support Zone/Heavy Equipment
First aid kit	Support Zone/Field Vehicle
Eye Wash	Support & Decon Zone/Field Vehicle
Potable water	Support & Decon Zone/Field Vehicle
Bloodborne-pathogen kit	Support Zone/Field Vehicle

## 10.3 Incident Reporting, Investigation and Response

For any accident meeting the definition of **Recordable Occupational Injuries or Illnesses or Significant Accidents**, the Southern Division, NAVFAC Contracting Officer and Navy Technical Representative (NTR) shall be notified by the HSM or Program Manager soon as practical, **but not later than four hours after occurrence**. All other incidents must be reported to Southern Division, NAVFAC within 24 hours of incident occurrence.

Therefore in order for the incident to be assessed for reportability purposes it is imperative that according to CCI requirements, **all personal injuries, near-misses, or property damage incidents involving CCI or subcontractor project personnel be reported IMMEDIATELY to the HSM Rich Rathnow/ORO, Program Manager Scott Newman/ATL, or CCI Corporate HSM Angelo Liberatore/ATL at the numbers identified in the emergency contact attachment contained in this plan.**

The Site Manager or designee must report the following incident information to the HSM immediately after incident occurrence:

- Date and time of mishap
- Project name and project number
- Name and worker classification
- Extent of known injuries
- Level of medical attention
- Injury cause

A written incident investigation shall be performed and submitted to the HSM within 24 hours of incident occurrence by the completing the Incident Report, Near Loss Investigation and Root Cause Analysis provided in the HSP Attachments.

In fires, explosions, or chemical releases, actions to be taken include the following:

- Shut down CCI operations and evacuate the immediate work area.
- Notify appropriate response personnel.
- Account for personnel at the designated assembly area(s).

- Assess the need for site evacuation, and evacuate the site as warranted.

Instead of implementing a work-area evacuation, note that small fires or spills posing minimal safety or health hazards may be controlled.

## 10.4 Emergency Medical Treatment

The procedures listed below may also be applied to non-emergency incidents. CH2M HILL employee injuries and illnesses must be reported to the Human Resource contact in Attachment 4. If there is doubt about whether medical treatment is necessary, or if the injured person is reluctant to accept medical treatment, contact the CH2M HILL medical consultant, depending on whose employee is injured. During non-emergencies, follow these procedures as appropriate.

- Notify appropriate emergency response authorities listed in Section 9.8 (e.g., 911).
- The SHSS will assume charge during a medical emergency until the ambulance arrives or until the injured person is admitted to the emergency room.
- Prevent further injury.
- Initiate first aid and CPR where feasible.
- Get medical attention immediately.
- Perform decontamination where feasible; lifesaving and first aid or medical treatment take priority.
- Make certain that the injured person is accompanied to the emergency room.
- When contacting the medical consultant, give your name and telephone number, the name of the injured person, the extent of the injury or exposure, and the name and location of the medical facility where the injured person was taken.
- Report incident as outlined in Section 9.7.

## 10.5 Evacuation

- Evacuation routes and assembly areas (and alternative routes and assembly areas) are specified on the site map.
- Evacuation route(s) and assembly area(s) will be designated by the SHSS before work begins.
- Personnel will assemble at the assembly area(s) upon hearing the emergency signal for evacuation.
- The SHSS and a “buddy” will remain on the site after the site has been evacuated (if safe) to assist local responders and advise them of the nature and location of the incident.
- The SHSS will account for all personnel in the onsite assembly area.

- A designated person will account for personnel at alternate assembly area(s).
- The SHSS will write up the incident as soon as possible after it occurs and submit a report to the Corporate Director of Health and Safety.

## 10.6 Evacuation Signals

Signal	Meaning
Grasping throat with hand	Emergency-help me.
Thumbs up	OK; understood.
Grasping buddy's wrist	Leave area now.
Continuous sounding of horn	Emergency; leave site now.

## 10.7 Incident Notification and Reporting

- Upon any project incident (fire, spill, injury, near miss, death, etc.), immediately notify the PM and HSM. Call emergency beeper number if HSM is unavailable.
- For CH2M HILL work-related injuries or illnesses, contact the respective Human Resources contact listed in Attachment 4. For CH2M HILL incidents the HR administrator completes an Incident Report Form (IRF). IRF must be completed within 24 hours of incident.
- For CH2M HILL subcontractor incidents, complete the Subcontractor Accident/Illness Report Form (Attachment )and submit to the HSM.
- Notify and submit reports to client as required in contract.

# 11.0 Behavior Based Loss Prevention System

---

A Behavior Based Loss Prevention System (BBLPS) is a system to prevent or reduce losses using behavior-based tools and proven management techniques to focus on behaviors or acts that could lead to losses.

The four basic Loss Prevention tools that will be used on EE&S CCI projects to implement the BBLPS include:

- Activity Hazard Analysis (AHA)
- Pre-Task Safety Plans (PTSP)
- Loss Prevention Observations (LPO)
- Loss and Near Loss Investigations (NLI)

The Site Supervisor serves as the Site Health and Safety Specialist (SHSS) and is responsible for implementing the BBLPS on the project site. When a separate individual is assigned as the SHSS, the SHSS is delegated authority from the Site Supervisor to implement the BBLPS on the project site, but the Site Supervisor remains accountable for its implementation. The Site Supervisor/Safety Coordinator shall only oversee the subcontractor's implementation of their AHAs and PTSPs processes on the project.

## 11.1 Activity Hazard Analysis

An Activity Hazard Analysis (AHA) defines the activity being performed, the hazards posed and control measures required to perform the work safely. Workers are briefed on the AHA before doing the work and their input is solicited prior, during and after the performance of work to further identify the hazards posed and control measures required.

Activity Hazard Analysis will be prepared before beginning each project activity posing H&S hazards to project personnel using the AHA form provided in **Attachment 6**. The AHA shall identify the work tasks required to perform each activity, along with potential H&S hazards and recommended control measures for each work task. In addition, a listing of the equipment to be used to perform the activity, inspection requirements and training requirements for the safe operation of the equipment listed must be identified.

An AHA shall be prepared for all field activities performed by CCI and subcontractor during the course of the project by the Site Supervisor/SHSS. The Project-Specific and General Hazards (Sections 2.1 and 2.2, respectively) of the HSP, the Hazard Analysis Table (Table 2.1), and applicable CH2M HILL Standards of Practice (SOPs) should be used as a basis for preparing CCI's AHAs.

CCI subcontractors are required to provide AHA's specific to their scope of work on the project for acceptance by CCI. Each subcontractor shall submit AHAs for their field activities, as defined in their work plan/scope of work, along with their project-specific HSP. Additions or changes in CCI or subcontractor field activities, equipment, tools or material to perform work or additional/different hazard encountered that require

additional/different hazard control measures requires either a new AHA to be prepared or an existing AHA to be revised.

## 11.2 Pre-Task Safety Plans

Daily safety meetings are held with all project personnel in attendance to review the hazards posed and required H&S procedures/AHAs, that apply for each day's project activities. The PTSPs serve the same purpose as these general assembly safety meetings, but the PTSPs are held between the crew supervisor and their work crews to focus on those hazards posed to individual work crews. At the start of each day's activities, the crew supervisor completes the PTSP, provided in **Attachment 6**, with input from the work crew, during their daily safety meeting. The day's tasks, personnel, tools and equipment that will be used to perform these tasks are listed, along with the hazards posed and required H&S procedures, as identified in the JSA. The use of PTSPs, better promotes worker participation in the hazard recognition and control process, while reinforcing the task-specific hazard and required H&S procedures with the crew each day. The use of PTSPs is a common safety practice in the construction industry.

## 11.3 Loss Prevention Observations

Loss Prevention Observations (LPO's) shall be conducted by Site Supervisor/SHSS for specific work tasks or operations comparing the actual work process against established safe work procedures identified in the project-specific HSP and AHAs. LPO's are a tool to be used by supervisors to provide positive reinforcement for work practices performed correctly, while also identifying and eliminating deviations from safe work procedures that could result in a loss. Site Supervisor/SHSS shall perform at least one LPO each week for a tasks/operations addressed in the project-specific HSP or AHA. The Site Supervisor/SHSS shall complete the LPO form in **Attachment 6** for the task/operation being observed.

## 11.4 Loss/Near Loss Investigations

Loss/Near Loss Investigations shall be performed for the all CCI and subcontractor incidents involving:

- Person injuries/illnesses and near miss injuries
- Equipment/property damage
- Spills, leaks, regulatory violations
- Motor vehicle accidents

The cause of loss and near loss incidents are similar, so by identifying and correcting the causes of near loss causes, future loss incidents may be prevented. The following is the Loss/Near Loss Investigation Process:

- Gather all relevant facts, focusing on fact-finding, not fault-finding, while answering the who, what, when, where and how questions.
- Draw conclusions, pitting facts together into a probable scenario.

- Determine incident root cause(s), which are basic causes on why an unsafe act/condition existed.
- Develop and implement solutions, matching all identified root causes with solutions.
- Communicate incident as a Lesson Learned to all project personnel.
- Filed follow-up on implemented corrective active action to confirm solution is appropriate.

Site Supervisors/SHSS shall perform an incident investigation, as soon as practical after incident occurrence during the day of the incident, for all Loss and Near Loss Incidents that occur on the project. Loss and Near Loss incident investigations shall be performed using the following incident investigation forms provided in **Attachment 6**:

- Incident Report Form (IRF)
- Incident Investigation Form
- Root Cause Analysis Form

All Loss and Near Loss incident involving personal injury, property damage in excess of \$1,000 or near loss incidents that could have resulted in serious consequences shall be investigated by completing the incident investigation forms and submitting them to the PM and HSM within 24 hours of incident occurrence. A preliminary Incident Investigation and Root Cause Analysis shall be submitted to the Project Manager and HSM within 24 hours of incident occurs. The final Incident Investigation and Root Cause Analysis shall be submitted after completing a comprehensive investigation of the incident.

# 12.0 Approval

---

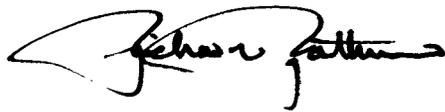
This site-specific Health and Safety Plan has been written for use by CH2M HILL only. CH2M HILL claims no responsibility for its use by others unless that use has been specified and defined in project or contract documents. The plan is written for the specific site conditions, purposes, dates, and personnel specified and must be amended if those conditions change.

## 12.1 Original Plan

Written By: Rich Rathnow Date: 7-24-03

---

Approved By: Rich Rathnow Date: 7-25-03



## 12.2 Revisions

Revisions Made By: Date:

---

Revisions to Plan:

---

Revisions Approved By: Date:

---

# **Attachment 1**

## **Employee Signoff Form**



## **Attachment 2**

### **Project-Specific Chemical Product Hazard Communication Form**



## **Attachment 3**

### **Chemical-Specific Training Form**

## CHEMICAL-SPECIFIC TRAINING FORM

Location:	Project # :
HCC:	Trainer:

**TRAINING PARTICIPANTS:**

NAME	SIGNATURE	NAME	SIGNATURE

**REGULATED PRODUCTS/TASKS COVERED BY THIS TRAINING:**


The HCC shall use the product MSDS to provide the following information concerning each of the products listed above.

- Physical and health hazards
- Control measures that can be used to provide protection (including appropriate work practices, emergency procedures, and personal protective equipment to be used)
- Methods and observations used to detect the presence or release of the regulated product in the workplace (including periodic monitoring, continuous monitoring devices, visual appearance or odor of regulated product when being released, etc.)

Training participants shall have the opportunity to ask questions concerning these products and, upon completion of this training, will understand the product hazards and appropriate control measures available for their protection.

Copies of MSDSs, chemical inventories, and CH2M HILL's written hazard communication program shall be made available for employee review in the facility/project hazard communication file.

## **Attachment 4**

### **Emergency Contacts**

# Emergency Contacts-ATTACHMENT 4

## 24-hour CH2M HILL Emergency Beeper – 888/444-1226

### Medical Emergency – 911

Facility Medical Response #:  
Local Ambulance #:

### CH2M HILL- Medical Consultant

Dr. Jerry H. Berke, M.D., M.P.H.  
Health Resources  
600 West Cummings Park, Suite 3400  
Woburn, MA 01801-6350  
781/938-4653  
800/350-4511  
(After hours calls will be returned within 20 minutes)

### Fire/Spill Emergency -- 911

Facility Fire Response #:  
Local Fire Dept #:

### Local Occupational Physician

### Security & Police – 911

Facility Security #:  
Local Police #:

### Navy RAC Program Manager

Name: Scott Newman/ATL  
Phone: 770/604/9182

### Utilities Emergency

Water:  
Gas:  
Electric:

### Navy RAC Health and Safety Manager (HSM)

Name: Rich Rathnow/ORO  
Phone: 865/483-9005 (Office); 865/607-6734 (Cell)  
865/531-2933 (Home)

### Site Health and Safety Specialist (SHSS)

Name: Bruce Johnson/JA Jones  
904-237-4551

### CCI Human Resources Department

Name: Nancy Orr/COR  
Phone: 303/771-0952

### Project Manager

Name: Jeff Marks/JA Jones  
904-777-4812

### Corporate Human Resources Department

Name: John Monark/COR  
Phone: 303/771-0900

### Federal Express Dangerous Goods Shipping

Phone: 800/238-5355

### Emergency Number for Shipping Dangerous Goods

Phone: 800/255-3924

### CH2M HILL Worker's Compensation and Auto Claims

Sterling Administration Services  
Phone: 800/420-8926 After hours: 800/497-4566

Report fatalities AND report vehicular accidents involving pedestrians, motorcycles, or more than two cars.

Contact the Project Manager. Generally, the Project Manager will contact relevant government agencies.

### Facility Alarms:

### Evacuation Assembly Area(s):

### Facility/Site Evacuation Route(s):

**Hospital Name/Address: St. Vincent's Medical Center  
1800 Barrs St. Jacksonville, FL 32204-4709**

**Hospital Phone #: Hospital  
Phone #: 904.308.7300**

## Directions to Hospital

**Hospital Name/Address:**



### Driving Directions to St. Vincent's Medical Center, 1800 Barrs Street Jacksonville Distance

Start out going North on New World .....	1.5 Miles
East on 103RD ST/FL-134 W toward CHARDON DR. ....	1.09 Miles
Make a U-TURN at CHARDON DR onto 103RD ST/FL-134 E. ....	3.78 Miles
Turn SLIGHT LEFT onto ramp. 0.25 Miles Merge onto I-295 N. ....	4.13 Miles
Merge onto I-10 E via exit number 21A toward JACKSONVILLE. ....	5.02 Miles
Take the STOCKTON ST. exit- exit number 362. ....	0.12 Miles
Turn LEFT onto STOCKTON ST.....	0.69 Miles
Turn RIGHT onto RIVERSIDE AVE/FL-211.....	0.11 Miles
Turn LEFT onto BARRS ST. ....	0.06 Miles

## **Attachment 5**

### **Project Activity Self-Assessment Checklists/Permits**

- **Earthmoving Equipment**
- **Excavations**
- **Fall Protection**
- **Hand and Power Tools**
- **Traffic Control**

# H&S Self-Assessment Checklist - EARTHMOVING EQUIPMENT Page 1 of 3

This checklist shall be used by CH2M HILL personnel **only** and shall be completed at the frequency specified in the project’s HSP/FSI.

This checklist is to be used at locations where: 1) CH2M HILL employees are potentially exposed to hazards associated with earthmoving equipment operations (complete Sections 1 and 3), and/or 2) CH2M HILL oversight of a earthmoving equipment subcontractor is required (complete entire checklist).

SSC/DSC may consult with earthmoving equipment subcontractors when completing this checklist, but shall not direct the means and methods of equipment operations nor direct the details of corrective actions. Earthmoving equipment subcontractors shall determine how to correct deficiencies and we must carefully rely on their expertise. Items considered to be imminently dangerous (possibility of serious injury or death) shall be corrected immediately or all exposed personnel shall be removed from the hazard until corrected.

Completed checklists shall be sent to the health and safety manager for review.

Project Name: _____	Project No.: _____
Location: _____	PM: _____
Auditor: _____	Title: _____ Date: _____
This specific checklist has been completed to:	
<input type="checkbox"/> Evaluate CH2M HILL employee exposures to earthmoving equipment hazards <input type="checkbox"/> Evaluate a CH2M HILL subcontractor’s compliance with earthmoving equipment H&S requirements Subcontractors Name: _____	

- Check “Yes” if an assessment item is complete/correct.
  - Check “No” if an item is incomplete/deficient. Deficiencies shall be brought to the immediate attention of the earthmoving equipment subcontractor. Section 3 must be completed for all items checked “No.”
  - Check “N/A” if an item is not applicable.
  - Check “N/O” if an item is applicable but was not observed during the assessment.
- Numbers in parentheses indicate where a description of this assessment item can be found in Standard of Practice HS-27.

<u>SECTION 1</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>N/O</u>
<b>PERSONNEL SAFE WORK PRACTICES (3.1)</b>				
1. Only authorized personnel operating earthmoving equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Personnel maintaining safe distance from operating equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Personnel and equipment operator in close communication when personnel must be in proximity of operating equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Personnel approach operating equipment safely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Personnel wearing high-visibility and/or reflective vests when close to operating equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Personnel riding only in seats of equipment cab and using seat belts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Personnel not positioned under hoisted loads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Personnel not hoisted by equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Personnel instructed not to approach equipment that has become electrically energized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Personnel wearing appropriate PPE, per HSP/FSI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SECTION 2**

**Yes No N/A N/O**

**GENERAL (3.2.1)**

- 11. Daily safety briefing/meeting conducted with crew  Yes  No  N/A  N/O
- 12. Daily inspection of equipment and equipment accessories conducted before use  Yes  No  N/A  N/O
- 13. At least one fire extinguisher available at the equipment operating area  Yes  No  N/A  N/O

**EARTHMOVING EQUIPMENT COMPONENTS (3.2.2)**

- 14. Backup alarm or spotter used when backing equipment  Yes  No  N/A  N/O
- 15. Operational horn provided on bi-directional equipment  Yes  No  N/A  N/O
- 16. Seat belts are provided and used  Yes  No  N/A  N/O
- 17. Rollover protective structures (ROPS) provided  Yes  No  N/A  N/O
- 18. Braking system capable of stopping full payload  Yes  No  N/A  N/O
- 19. Headlights and taillights operable when additional light required  Yes  No  N/A  N/O
- 20. Brake lights in operable condition  Yes  No  N/A  N/O
- 21. Cab glass provides no visible distortion to the operator  Yes  No  N/A  N/O
- 22. Hauling equipment (dump trucks) provided with cab shield or canopy  Yes  No  N/A  N/O
- 23. Dump truck beds provided with positive means of support during maintenance or inspection  Yes  No  N/A  N/O
- 24. Dump truck operating levers provided with latch to prevent accidental dumping  Yes  No  N/A  N/O

**EARTHMOVING EQUIPMENT PLACEMENT (3.2.3)**

- 25. Location of underground utilities identified  Yes  No  N/A  N/O
- 26. Safe clearance distance maintained while working under overhead powerlines  Yes  No  N/A  N/O
- 27. Safe distance is maintained while traveling under powerlines  Yes  No  N/A  N/O
- 28. Unattended equipment visibly marked at night  Yes  No  N/A  N/O
- 29. Parking brake set when equipment parked and equipment chocked when parked on incline  Yes  No  N/A  N/O

**EARTHMOVING EQUIPMENT OPERATION (3.2.4)**

- 30. Equipment operated on safe roadways and grades  Yes  No  N/A  N/O
- 31. Equipment operated at safe speed  Yes  No  N/A  N/O
- 32. Equipment not operated during inclement weather, lightning storms  Yes  No  N/A  N/O
- 33. Using equipment to lift loads, other than earth, done according to equipment manufacturer specifications  Yes  No  N/A  N/O
- 34. Lifting and hauling capacities are not exceeded  Yes  No  N/A  N/O
- 35. Equipment components lowered when not in use  Yes  No  N/A  N/O
- 36. All machine guards are in place  Yes  No  N/A  N/O
- 37. Air monitoring conducted per HSP/FSI for hazardous atmospheres  Yes  No  N/A  N/O

**EARTHMOVING EQUIPMENT MAINTENANCE (3.2.5)**

- 38. Defective components repaired immediately  Yes  No  N/A  N/O
- 39. Suspended equipment or equipment parts are supported prior to work under or between  Yes  No  N/A  N/O
- 40. Lockout/tagout procedures used prior to maintenance  Yes  No  N/A  N/O
- 41. Tires on split rims removed using safety tire rack or cage  Yes  No  N/A  N/O
- 42. Good housekeeping maintained on and around equipment  Yes  No  N/A  N/O

**EXCAVATING AT HAZARDOUS WASTE SITES (3.2.6)**

- 43. Waste disposed of according to HSP  Yes  No  N/A  N/O
- 44. Appropriate decontamination procedures being followed, per HSP  Yes  No  N/A  N/O



**HS&E Self-Assessment Checklist - EXCAVATIONS**

This checklist shall be used by CH2M HILL personnel **only** and shall be completed at the frequency specified in the project’s HSP/FSI.

This checklist is to be used at locations where: 1) CH2M HILL employees enter excavations (complete Sections 1 and 3), and/or 2) CH2M HILL oversight of an excavation subcontractor is required (complete entire checklist).

SC may consult with excavation subcontractors when completing this checklist, but shall not direct the means and methods of excavation operations nor direct the details of corrective actions. Excavation subcontractors shall determine how to correct deficiencies and we must carefully rely on their expertise. Items considered to be imminently dangerous (possibility of serious injury or death) shall be corrected immediately or all exposed personnel shall be removed from the hazard until corrected.

Completed checklists shall be sent to the health and safety manager for review.

Project Name: _____	Project No.: _____
Location: _____	PM: _____
Auditor: _____	Title: _____ Date: _____
This specific checklist has been completed to:	
<input type="checkbox"/> Evaluate CH2M HILL employee exposures to excavation hazards <input type="checkbox"/> Evaluate a CH2M HILL subcontractor’s compliance with excavation HS&E requirements Subcontractor Name: _____	

Check “Yes” if an assessment item is complete/correct.  
 Check “No” if an item is incomplete/deficient. Deficiencies shall be brought to the immediate attention of the excavation subcontractor. Section 3 must be completed for all items checked “No.”  
 Check “N/A” if an item is not applicable.  
 Check “N/O” if an item is applicable but was not observed during the assessment.  
 Numbers in parentheses indicate where a description of this assessment item can be found in Standard of Practice HS-32.

**SECTION 1**

**Yes    No    N/A    N/O**

**PERSONNEL SAFE WORK PRACTICES (4.1)**

- |   |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. Competent person has completed daily inspection and has authorized entry                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Personnel aware of entry requirements established by competent person                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Protective systems are free from damage and in stable condition                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Surface objects/structures secured from falling into excavation                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Potential hazardous atmospheres have been tested and found to be at safe levels          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Precautions have been taken to prevent cave-in from water accumulation in the excavation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Personnel wearing appropriate PPE, per HSP/FSI   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**SECTION 2**

**Yes No N/A N/O**

**GENERAL (4.2.1)**

- 8. Daily safety briefing/meeting conducted with personnel  Yes  No  N/A  N/O
- 9. Excavation and protective systems adequately inspected by competent person  Yes  No  N/A  N/O
- 10. Defective protective systems or other unsafe conditions corrected before entry  Yes  No  N/A  N/O
- 11. Guardrails provided on walkways over excavation 6' or deeper  Yes  No  N/A  N/O
- 12. Barriers provided at excavations 6' or deeper when not readily visible  Yes  No  N/A  N/O
- 13. Barriers or covers provided for wells, pits, shafts, or similar excavation 6' or deeper  Yes  No  N/A  N/O
- 14. Excavating equipment operated safely (use earthmoving equipment checklist in HS-27)  Yes  No  N/A  N/O

**PRIOR TO EXCAVATING (4.2.2)**

- 15. Location of underground utilities and installations identified  Yes  No  N/A  N/O
- 16. Soils characterized prior to excavation where contamination may be present  Yes  No  N/A  N/O
- 17. Excavation area checked for wetlands, endangered species, cultural/historic resources  Yes  No  N/A  N/O
- 18. Stockpile construction and management plan  Yes  No  N/A  N/O
- 19. ECC consulted and plan established for wastewater disposal from excavation dewatering  Yes  No  N/A  N/O
- 20. SWPPP prepared for construction site 1-5 acres (depending on project location)  Yes  No  N/A  N/O

**EXCAVATING ACTIVITIES (4.2.3)**

- 21. Rocks, trees, and other unstable surface objects removed or supported  Yes  No  N/A  N/O
- 22. Exposed underground utility lines supported  Yes  No  N/A  N/O
- 23. Undermined surface structures supported or determined to be in safe condition  Yes  No  N/A  N/O
- 24. Warning system used to remind equipment operators of excavation edge  Yes  No  N/A  N/O
- 25. Stockpile, excavation covers, liners, silt fences in place, where required  Yes  No  N/A  N/O
- 26. Fugitive dust suppressed  Yes  No  N/A  N/O

**EXCAVATION ENTRY (4.2.4)**

- 27. Trenches > 4' deep provided with safe means of egress within 25'  Yes  No  N/A  N/O
- 28. Structure ramps designed and approved by competent person  Yes  No  N/A  N/O
- 29. Potential hazardous atmospheres tested prior to entry  Yes  No  N/A  N/O
- 30. Rescue equipment provided where potential for hazardous atmospheres exists  Yes  No  N/A  N/O
- 31. Ventilation used to control hazardous atmospheres and air tested frequently  Yes  No  N/A  N/O
- 32. Appropriate respiratory protection used when ventilation does not control hazards  Yes  No  N/A  N/O
- 33. Precautions taken to prevent cave-in from water accumulation in the excavation  Yes  No  N/A  N/O
- 34. Precautions taken to prevent surface water from entering excavation  Yes  No  N/A  N/O
- 35. Protection provided from falling/rolling material from excavation face  Yes  No  N/A  N/O
- 36. Spoil piles, equipment, materials restrained or kept at least 2' from excavation edge  Yes  No  N/A  N/O

**EXCAVATION PROTECTIVE SYSTEMS (4.2.5)**

- 37. Protective systems used for excavations 5' or deeper  Yes  No  N/A  N/O
- 38. Protective systems for excavation deeper than 20' designed by registered PE  Yes  No  N/A  N/O
- 39. If soil unclassified, maximum allowable slope is 34 degrees  Yes  No  N/A  N/O
- 40. Protective systems free from damage  Yes  No  N/A  N/O
- 41. Protective system used according to manufacturer recommendations and not subjected to loads exceeding design limits  Yes  No  N/A  N/O
- 42. Protective system components securely connected to prevent movement or failure  Yes  No  N/A  N/O
- 43. Cave-in protection provided while entering/exiting shielding systems  Yes  No  N/A  N/O
- 44. Personnel removed from shielding systems when installed, removed, or vertical movement  Yes  No  N/A  N/O

**PROTECTIVE SYSTEM REMOVAL (4.2.6)**

- 45. Protective system removal starts and progresses from excavation bottom  Yes  No  N/A  N/O
- 46. Protective systems removed slowly and cautiously  Yes  No  N/A  N/O
- 47. Temporary structure supports used if failure of remaining components observed  Yes  No  N/A  N/O
- 48. Backfilling taking place immediately after protective system removal  Yes  No  N/A  N/O

**EXCAVATING AT HAZARDOUS WASTE SITES (4.2.7)**

- 49. Waste disposed of according to HSP and RCRA regulations
- 50. Appropriate decontamination procedures being followed, per HSP

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**BACKFILL (4.2.8)**

- 51. Backfill certified clean when required by client or local regulation

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

**FORMS/PERMITS (4.3)**

- 52. Waste discharge/NPDES permit obtained for excavation de-watering, where required
- 53. Dig permit obtained, where required by client/facility
- 54. USDA soil permit obtained (for south/southeast and coastal states)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



**H&S Self-Assessment Checklist - FALL PROTECTION**

This checklist shall be used by CH2M HILL personnel **only** and shall be completed at the frequency specified in the project’s HSP/FSI.

This checklist is to be used at locations where: 1) CH2M HILL employees are exposed to fall hazards and/or 2) CH2M HILL provides oversight of subcontractor personnel who are exposed to fall hazards.

SSC or DSC may consult with subcontractors when completing this checklist, but shall not direct the means and methods of fall protection operations nor direct the details of corrective actions. Subcontractors shall determine how to correct deficiencies and we must carefully rely on their expertise. Items considered to be imminently dangerous (possibility of serious injury or death) shall be corrected immediately or all exposed personnel shall be removed from the hazard until corrected.

Completed checklists shall be sent to the HS&E Staff for review.

Project Name: _____	Project No.: _____
Location: _____	PM: _____
Auditor: _____	Title: _____ Date: _____
This specific checklist has been completed to:	
<input type="checkbox"/> Evaluate CH2M HILL employee exposure to fall hazards <input type="checkbox"/> Evaluate a CH2M HILL subcontractor’s compliance with fall protection requirements Subcontractors Name: _____	

- Check “Yes” if an assessment item is complete/correct.
  - Check “No” if an item is incomplete/deficient. Deficiencies shall be brought to the immediate attention of the subcontractor. Section 3 must be completed for all items checked “No.”
  - Check “N/A” if an item is not applicable.
  - Check “N/O” if an item is applicable but was not observed during the assessment.
- Numbers in parentheses indicate where a description of this assessment item can be found in Standard of Practice HS-31.

**SECTION 1**

<b>PERSONNEL SAFE WORK PRACTICES (3.1)</b>	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>N/O</u>
1. CH2M HILL employees have completed initial fall protection training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Project Fall Protection Evaluation Form completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. CH2M HILL employees have complete project-specific fall protection training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Fall protection systems used to eliminate construction fall hazards $\geq 6'$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Fall protection systems used to eliminate general industry fall hazards $\geq 4'$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Personnel aware of and follow requirements established by competent person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Personal fall arrest systems (PFAS) inspected prior to each use for defects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Personnel remaining within guardrails, when provided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Fall protection systems constructed and used according to requirements of Section 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



**CONTROLLED ACCESS ZONE (3.2.7)**

- 52. Control lines enclose controlled access zones
- 53. Only personnel engaged in related work permitted in the controlled access zone
- 54. Control lines 30-45" from the walking/working surface
- 55. Control lines flagged at ≤ 6' intervals with high-visibility material
- 56. Overhand bricklaying control lines positioned 10-15' from working edge
- 57. Leading edge control lines positioned 6-25' from leading edge
- 58. Precast concrete control lines positioned 6-60' or half the length of the erected member

**SAFETY MONITORING SYSTEM (3.2.8)**

- 59. Safety Monitor designated to observe and warn personnel
- 60. Safety monitor not distracted from the monitoring function
- 61. Safety monitor on the same working surface within sight and voice communication
- 62. Only personnel necessary for work in safety monitoring zone
- 63. Personnel adhere to the safety monitors instructions

**FALL PROTECTION PLAN (3.2.9)**

- 64. Plan prepared by qualified person and specifically for site work being performed
- 65. Plan maintained current with changes approved by a qualified person
- 66. Plan maintained at the job site and implemented by competent person
- 67. Plan documents why fall protection systems are infeasible or would create a greater hazard
- 68. Plan discusses measures taken to reduce or eliminate the fall hazards
- 69. Plan discusses when scaffolds, ladders, or vehicle mounted work platforms shall be used
- 70. Locations cover by plan identified and classified as controlled access zones
- 71. Entry into controlled access zone limited to personnel designated in plan
- 72. Safety monitoring system used when no other alternative measure implemented

**COVERS (3.2.10)**

- 73. Covers capable of supporting 2x the maximum weight imposed on the cover at any one time
- 74. Covers secured prevent accidental displacement
- 75. Covers color coded or marked "HOLE" or "COVER"

**FALLING OBJECT PROTECTION (3.2.11)**

- 76. Personnel exposed to falling objects wearing hard hats
- 77. Objects on elevated surfaces position away from surface edge
- 78. Toeboards, screens, guardrails, or canopies used or area barricaded below
- 79. Toeboards, when used, erected along the edge of the overhead walking/working surface
- 80. Toeboards 3 1/2" high, ≤ 1/4" clearance above the surface, and no openings > 1"
- 81. Screening/paneling provided where equipment or materials are piled above toeboards
- 82. Guardrails, when used, no openings small enough to prevent passage of falling objects
- 83. Overhand bricklaying masonry/mortar not stored within 4' of working edge
- 84. Overhand bricklaying excess mortar, masonry units, and other debris kept clear
- 85. Roofing materials not stored within 6' of a roof edge, unless guardrails are provided
- 86. Roofing materials that are positioned near roof edge are stable and self-supporting
- 87. Canopies, when used, strong enough to prevent collapse and penetration by falling objects



**H&S Self-Assessment Checklist – HAND AND POWER TOOLS**

This checklist shall be used by CH2M HILL personnel **only** and shall be completed at the frequency specified in the project’s HSP/FSI.

This checklist is to be used at locations where: 1) CH2M HILL employees are exposed to hand and power tool hazards and/or 2) CH2M HILL provides oversight of subcontractor personnel who are exposed to hand and power tool hazards.

SSC or DSC may consult with subcontractors when completing this checklist, but shall not direct the means and methods of hand and power tool use nor direct the details of corrective actions. Subcontractors shall determine how to correct deficiencies and we must carefully rely on their expertise. Items considered to be imminently dangerous (possibility of serious injury or death) shall be corrected immediately or all exposed personnel shall be removed from the hazard until corrected.

Completed checklists shall be sent to the HS&E Staff for review.

Project Name: _____ Project No.: _____
Location: _____ PM: _____
Auditor: _____ Title: _____ Date: _____
This specific checklist has been completed to:
<input type="checkbox"/> Evaluate CH2M HILL employee exposure to hand and power tool hazards. <input type="checkbox"/> Evaluate a CH2M HILL subcontractor’s compliance with hand and power tool requirements. Subcontractors Name: _____

- Check “Yes” if an assessment item is complete/correct.
  - Check “No” if an item is incomplete/deficient. Deficiencies shall be brought to the immediate attention of the subcontractor. Section 3 must be completed for all items checked “No.”
  - Check “N/A” if an item is not applicable.
  - Check “N/O” if an item is applicable but was not observed during the assessment.
- Numbers in parentheses indicate where a description of this assessment item can be found in Standard of Practice HS-50.

**SECTION 1**

**Yes No N/A N/O**

**SAFE WORK PRACTICES (3.1)**

1. All tools operated according to manufacturer’s instructions and design limitations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. All hand and power tools maintained in a safe condition and inspected and tested before use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Defective tools are tagged and removed from service until repaired.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. PPE is selected and used according to tool-specific hazards anticipated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Power tools are not carried or lowered by their cord or hose.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Tools are disconnected from energy sources when not in use, servicing, cleaning, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Safety guards remain installed or are promptly replaced after repair.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Tools are stored properly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Cordless tools and recharging units both conform to electrical standards and specifications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Tools used in explosive environments are rated for such use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Knife or blade hand tools are used with the proper precautions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Consider controls to avoid muscular skeletal, repetitive motion, and cumulative trauma stressors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SECTION 2**

**Yes No N/A N/O**

**GENERAL (3.2.1)**

- 13. PPE is selected and used according to tool-specific hazards anticipated.
- 14. Tools are tested daily to assure safety devices are operating properly.
- 15. Damaged tools are removed from service until repaired.
- 16. Power operated tools designed to accommodate guards have guards installed.
- 17. Rotating or moving parts on tools are properly guarded.
- 18. Machines designed for fixed locations are secured or anchored.
- 19. Floor and bench-mounted grinders are provided with properly positioned work rests.
- 20. Guards are provided at point of operation, nip points, rotating parts, etc.
- 21. Fluid used in hydraulic-powered tools is approved fire-resistant fluid.

**ELECTRIC-POWERED TOOLS (3.2.2)**

- 22. Electric tools are approved double insulated or grounded and used according to SOP HS-23.
- 23. Electric cords are not used for hoisting or lowering tools.
- 24. Electric tools are used in damp/ wet locations are approved for such locations or GFCI installed.
- 25. Hand-held tools are equipped with appropriate on/off controls appropriate for the tool.
- 26. Portable, power-driven circular saws are equipped with proper guards.

**ABRASIVE WHEEL TOOLS (3.2.3)**

- 27. All employees using abrasive wheel tools are wearing eye protection.
- 28. All grinding machines are supplied with sufficient power to maintain spindle speed.
- 29. Abrasive wheels are closely inspected and ring-tested before use.
- 30. Grinding wheels are properly installed.
- 31. Cup-type wheels for external grinding are protected by the proper guard or flanges.
- 32. Portable abrasive wheels used for internal grinding are protected by safety flanges.
- 33. Safety flanges are used only with wheels designed to fit the flanges.
- 34. Safety guards on abrasive wheel tools are mounted properly and of sufficient strength.

**PNEUMATIC-POWERED TOOLS (3.2.4)**

- 35. Tools are secured to hoses or whip by positive means to prevent disconnection.
- 36. Safety clips or retainers are installed to prevent attachments being expelled.
- 37. Safety devices are installed on automatic fastener feed tools as required.
- 38. Compressed air is not used for cleaning unless reduced to < 30 psi, with PPE, and guarded.
- 39. Manufacturer’s safe operating pressure for hoses, pipes, valves, etc. are not exceeded.
- 40. Hoses are not used for hoisting or lowering tools.
- 41. All hoses >1/2-inch diameter have safety device at source to reduce pressure upon hose failure.
- 42. Airless spray guns have required safety devices installed.
- 43. Blast cleaning nozzles are equipped with operating valves, which are held open manually.
- 44. Supports are provided for mounting nozzles when not in use.
- 45. Air receiver drains, handholes, and manholes are easily accessible.
- 46. Air receivers are equipped with drainpipes and valves for removal of accumulated oil and water.
- 47. Air receivers are completely drained at required intervals.
- 48. Air receivers are equipped with indicating pressure gauges.
- 49. Safety, indicating, and controlling devices are installed as required.
- 50. Safety valves are tested frequently and at regular intervals to assure good operating condition.

**H&S Self-Assessment Checklist – HAND AND POWER TOOLS**  
**SECTION 2 (continued)**

**Yes No N/A N/O**

**LIQUID FUEL-POWERED TOOLS (3.2.5)**

- |   |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 51. Liquid fuel-powered tools are stopped when refueling, servicing, or maintaining.                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 52. Liquid fuels are stored, handled, and transported in accordance with SOP HS-21                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 53. Liquid fuel-powered tools are used in confined spaces in accordance with SOP HS-17.             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 54. Safe operating pressures of hoses, valves, pipes, filters, and other fittings are not exceeded. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**POWDER-ACTUATED TOOLS (3.2.6)**

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 55. Only trained employee operates powder-actuated tools.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 56. Powder-actuated tools are not loaded until just prior to intended firing time.                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 57. Tools are not pointed at any employee at any time.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 58. Hands are kept clear of open barrel end.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 59. Loaded tools are not left unattended.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 60. Fasteners are not driven into very hard or brittle materials.                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 61. Fasteners are not driven into easily penetrated materials unless suitable backing is provided. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 62. Fasteners are not driven into spalled areas.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 63. Powder-actuated tools are not used in an explosive or flammable atmosphere.                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 64. All tools are used with correct shields, guards, or attachments recommended by manufacturer.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**JACKING TOOLS (3.2.7)**

- |   |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 65. Rated capacities are legibly marked on jacks and not exceeded.                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 66. Jacks have a positive stop to prevent over-travel.                                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 67. The base of jacks are blocked or cribbed to provide a firm foundation, when required. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 68. Wood blocks are place between the cap and load to prevent slippage, when required.    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 69. After load is raised, it is cribbed, blocked, or otherwise secured immediately.       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 70. Antifreeze is used when hydraulic jacks are exposed to freezing temperatures.         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 71. All jacks are properly lubricated.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 72. Jacks are inspected as required.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 73. Repair or replacement parts are examined for possible defects.                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 74. Jacks not working properly are removed from service and repaired or replaced.         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**HAND TOOLS (3.2.8)**

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 75. Wrenches are not used when jaws are sprung to the point of slippage.                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 76. Impact tools are kept free of mushroomed heads.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 77. Wooden handles of tools are kept free of splinters or cracks and are tightly fitted in tool. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



**H&S Self-Assessment Checklist – TRAFFIC CONTROL**

This checklist shall be used by CH2M HILL personnel **only** and shall be completed at the frequency specified in the project’s HSP/FSI.

This checklist is to be used at locations where: 1) CH2M HILL employees are exposed to traffic hazards and/or 2) CH2M HILL provides oversight of subcontractor personnel who are exposed to traffic hazards.

SSC or DSC may consult with subcontractors when completing this checklist, but shall not direct the means and methods of traffic control operations nor direct the details of corrective actions. Subcontractors shall determine how to correct deficiencies, and we must carefully rely on their expertise. Items considered to be imminently dangerous (possibility of serious injury or death) shall be corrected immediately or all exposed personnel shall be removed from the hazard until corrected.

Completed checklists shall be sent to the HS&E Staff for review.

Project Name: \_\_\_\_\_ Project No.: \_\_\_\_\_  
 Location: \_\_\_\_\_ PM: \_\_\_\_\_  
 Auditor: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

This specific checklist has been completed to:

Evaluate CH2M HILL employee exposure to traffic hazards.  
 Evaluate a CH2M HILL subcontractor’s compliance with traffic control requirements.  
 Subcontractors Name: \_\_\_\_\_

- Check “Yes” if an assessment item is complete/correct.
  - Check “No” if an item is incomplete/deficient. Deficiencies shall be brought to the immediate attention of the subcontractor. Section 3 must be completed for all items checked “No.”
  - Check “N/A” if an item is not applicable.
  - Check “N/O” if an item is applicable but was not observed during the assessment.
- Numbers in parentheses indicate where a description of this assessment item can be found in Standard of Practice HS-24.

**SECTION 1**

	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>N/O</u>
<b>SAFE WORK PRACTICES (3.1)</b>				
1. Personnel working on/adjacent to active roadways or in control zones are wearing safety vests.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Traffic control plan (TCP) is consistent with roadway, traffic, and working conditions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. TCP has been approved by regulatory or contractual authority prior to work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. TCP considers all factors that may influence traffic related hazards and controls.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Work areas are protected by rigid barriers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Lookouts are used when applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Vehicles are parked 40 feet away from work zone or are equipped with hazard beacon/strobe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. TMCC or TMA vehicle is used where appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All CH2M HILL traffic control devices conform to MUTCD standards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traffic control devices are inspected continuously.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flagging is only used when other means of traffic control are inadequate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional traffic control zone controls have been implemented.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cranes do not swing loads/booms over nor do workers enter/cross live roadways (as defined).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SECTION 2**

**Yes No N/A N/O**

**GENERAL (3.2.1)**

- 14. Lane closings are performed when required by this SOP.
- 15. Traffic control configurations are based on an engineering study of the location.
- 16. If no study, traffic control is performed with approval of the authority having jurisdiction.
- 17. TCP has been prepared and understood by all responsible parties prior to work.
- 18. Special preparation/coordination with external parties has been conducted where applicable.
- 19. All contractor traffic control devices conform to MUTCD standards.
- 20. Traffic movement and flow are inhibited or disrupted as little as possible.
- 21. Supplemental equipment and activities do not interfere with traffic.
- 22. Drivers and pedestrians are considered when entering and traversing traffic control zone.

**TRAFFIC CONTROL ZONES (3.2.2)**

- 23. Traffic control zones are divided into the necessary five areas.
- 24. Advances warning area is designed based on conditions of speed, roadways, and driver needs.
- 25. Advanced warning signage is spaced according to roadway type and conditions.
- 26. Transition areas are used to channelize traffic around the work area.
- 27. Buffer areas are used to provide a margin of safety for traffic and workers.
- 28. The buffer area is free of equipment, workers, materials, and worker vehicles.
- 29. The length of the buffer area is two times the posted speed limit in feet.
- 30. All work is contained in the work area and is closed to all traffic.
- 31. A termination area is used to provide traffic to return to normal lanes.
- 32. A downstream taper is installed in the termination area.

**DEVICE INSTALLATION AND REMOVAL (3.2.3)**

- 33. All vehicles involved with device installation/removal have hazard beacons/strobes.
- 34. Devices are installed according to the order established by this SOP.
- 35. Devices are removed in the opposite order of installation.
- 36. Tapers are used to move traffic out of its normal path.
- 37. Tapers are created using channelizing devices.
- 38. The length of taper is determined by posted speed and width of lane to be closed (see formula).
- 39. Local police or highway patrol assist during taper installation and removal.
- 40. TMCC/ TMA vehicles are used to protect personnel during installation and removal of devices.
- 41. Cone trucks are equipped with platforms and railings.
- 42. Cones are the appropriate height for the specific roadway and are reflectorized.
- 43. Temporary sign supports are secured using sandbags to prevent movement.
- 44. Arrow panels are used on lane closures where required.
- 45. Concrete barriers are used where required.
- 46. Barrels, crash cushions, or energy absorbing terminals are used to protect traffic as required.
- 47. Changeable message signs (CMS) are used as required.
- 48. CMS are not used to replace required signage.
- 49. No more than two message panels are used in any message cycle on CMS.

**FLAGGING (3.2.4)**

- 50. Flagging is used only when other traffic control methods are inadequate.
- 51. Only approved personnel with current certification are allowed to be used as flaggers.
- 52. Flaggers are located off the traveled portion of the roadway.
- 53. A communication system is established when more than one flagger is used.
- 54. Hand signaling by flaggers is by means of red flags, sign paddles, or red lights.
- 55. Flaggers are alert, positioned close enough to warn work crews, and easily identified from crew.
- 56. An escape plan is established by crew and flaggers prior to traffic control set up.
- 57. Signs indicating a flagger is present are used and removed as required.

**SECTION 2**

**Yes    No    N/A    N/O**

**INSPECTION AND MAINTENANCE (3.2.5)**

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 58. Traffic control zones are monitored to determine their effectiveness under varying conditions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 59. Traffic control devices are inspected at the beginning and continuously during work shift.     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 60. Traffic control devices are restored to their proper position immediately and continuously.    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 61. Damaged, old, or ineffective devices are removed and replaced immediately and continuously.    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 62. Devices using reflected light for illumination are cleaned and monitored continuously.         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



## **Attachment 6**

### **Behavior Based Loss Prevention System Forms**

- **Activity Hazard Analysis**
- **Pre-Task Safety Plans**
- **Loss Prevention Observation**
- **Incident Report and Investigation**







PRINT

SIGNATURE

Supervisor Name:

\_\_\_\_\_

\_\_\_\_\_

Date/Time: \_\_\_\_\_

Safety Officer Name:

\_\_\_\_\_

\_\_\_\_\_

Date/Time: \_\_\_\_\_

Employee Name(s):

\_\_\_\_\_

\_\_\_\_\_

Date/Time: \_\_\_\_\_

Project: _____ Location: _____ Date: _____ Supervisor: _____ Emergency Number(s): _____		
Brief Job Descriptions: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____		
List Specific Tasks for the Jobs (Match number from above). 1. _____ 2. _____ 3. _____ 4. _____ 5. _____		
Tools/Equipment required for Tasks, (ladders, scaffolds, fall protection, cranes/rigging, heavy equipment, power tools)match number from above: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____		
Potential H&S Hazards, including chemical, physical, safety, biological and environmental <b>(Check all that apply and review exposures as they will be encountered in the tasks above):</b>		
<input type="checkbox"/> Chemical burns/contact	<input type="checkbox"/> Trench, excavations, cave-ins	<input type="checkbox"/> Ergonomics
<input type="checkbox"/> Pressurized lines/equipment	<input type="checkbox"/> Overexertion	<input type="checkbox"/> Chemical splash
<input type="checkbox"/> Thermal burns	<input type="checkbox"/> Pinch points	<input type="checkbox"/> Poisonous plants/insects
<input type="checkbox"/> Electrical	<input type="checkbox"/> Cuts/abrasions	<input type="checkbox"/> Eye hazards/flying projectile
<input type="checkbox"/> Weather conditions	<input type="checkbox"/> Spills	<input type="checkbox"/> Inhalation hazard
<input type="checkbox"/> Heights/fall > 6'	<input type="checkbox"/> Overhead Electrical hazards	<input type="checkbox"/> Heat/cold stress
<input type="checkbox"/> Noise	<input type="checkbox"/> Elevated loads	<input type="checkbox"/> Water/drowning hazard
<input type="checkbox"/> Explosion/fire	<input type="checkbox"/> Slips, trip and falls	<input type="checkbox"/> Heavy equipment
<input type="checkbox"/> Radiation	<input type="checkbox"/> Manual lifting	<input type="checkbox"/> Aerial lifts/platforms
<input type="checkbox"/> Confined space entry	<input type="checkbox"/> Welding/cutting	<input type="checkbox"/> Demolition
Other Potential Hazards (Describe): _____ _____ _____		

Hazard Control Measures (Check all that apply):			
<b>PPE</b> <input type="checkbox"/> Thermal/lined <input type="checkbox"/> Eye <input type="checkbox"/> Dermal/hand <input type="checkbox"/> Hearing <input type="checkbox"/> Respiratory <input type="checkbox"/> Reflective vests <input type="checkbox"/> Flotation device	<b>Protective Systems</b> <input type="checkbox"/> Sloping <input type="checkbox"/> Shoring <input type="checkbox"/> Trench box <input type="checkbox"/> Barricades <input type="checkbox"/> Competent person <input type="checkbox"/> Locate buried utilities <input type="checkbox"/> Daily inspections	<b>Fire Protection</b> <input type="checkbox"/> Fire extinguishers <input type="checkbox"/> Fire watch <input type="checkbox"/> Non-spark tools <input type="checkbox"/> Grounding/bonding <input type="checkbox"/> Intrinsically safe equipment	<b>Electrical</b> <input type="checkbox"/> Lockout/tagout <input type="checkbox"/> Grounded <input type="checkbox"/> Panels covered <input type="checkbox"/> GFCI/extension cords <input type="checkbox"/> Power tools/cord inspected
<b>Fall Protection</b> <input type="checkbox"/> Harness/lanyards <input type="checkbox"/> Adequate anchorage <input type="checkbox"/> Guardrail system <input type="checkbox"/> Covered opening <input type="checkbox"/> Fixed barricades <input type="checkbox"/> Warning system	<b>Air Monitoring</b> <input type="checkbox"/> PID/FID <input type="checkbox"/> Detector tubes <input type="checkbox"/> Radiation <input type="checkbox"/> Personnel sampling <input type="checkbox"/> LEL/O2 <input type="checkbox"/> Other	<b>Proper Equipment</b> <input type="checkbox"/> Aerial lift/ladders/scaffolds <input type="checkbox"/> Forklift/ Heavy equipment <input type="checkbox"/> Backup alarms <input type="checkbox"/> Hand/power tools <input type="checkbox"/> Crane w/current inspection <input type="checkbox"/> Proper rigging <input type="checkbox"/> Operator qualified	<b>Welding &amp; Cutting</b> <input type="checkbox"/> Cylinders secured/capped <input type="checkbox"/> Cylinders separated/upright <input type="checkbox"/> Flash-back arrestors <input type="checkbox"/> No cylinders in CSE <input type="checkbox"/> Flame retardant clothing <input type="checkbox"/> Appropriate goggles
<b>Confined Space Entry</b> <input type="checkbox"/> Isolation <input type="checkbox"/> Air monitoring <input type="checkbox"/> Trained personnel <input type="checkbox"/> Permit completed <input type="checkbox"/> Rescue	<b>Medical/ER</b> <input type="checkbox"/> First-aid kit <input type="checkbox"/> Eye wash <input type="checkbox"/> FA-CPR trained personnel <input type="checkbox"/> Route to hospital	<b>Heat/Cold Stress</b> <input type="checkbox"/> Work/rest regime <input type="checkbox"/> Rest area <input type="checkbox"/> Liquids available <input type="checkbox"/> Monitoring <input type="checkbox"/> Training	<b>Vehicle/Traffic</b> <input type="checkbox"/> Traffic control <input type="checkbox"/> Barricades <input type="checkbox"/> Flags <input type="checkbox"/> Signs
<b>Permits</b> <input type="checkbox"/> Hot work <input type="checkbox"/> Confined space <input type="checkbox"/> Lockout/tagout <input type="checkbox"/> Excavation <input type="checkbox"/> Demolition <input type="checkbox"/> Energized work	<b>Demolition</b> <input type="checkbox"/> Pre-demolition survey <input type="checkbox"/> Structure condition <input type="checkbox"/> Isolate area/utilities <input type="checkbox"/> Competent person <input type="checkbox"/> Hazmat present	<b>Inspections:</b> <input type="checkbox"/> Ladders/aerial lifts <input type="checkbox"/> Lanyards/harness <input type="checkbox"/> Scaffolds <input type="checkbox"/> Heavy equipment <input type="checkbox"/> Cranes and rigging	<b>Training:</b> <input type="checkbox"/> Hazwaste <input type="checkbox"/> Construction <input type="checkbox"/> Competent person <input type="checkbox"/> Task-specific (THA) <input type="checkbox"/> Hazcom
<b>FieldNotes:</b> _____ _____ _____			

Supervisor signature: \_\_\_\_\_

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



---

# Incident Report Form

**Fax completed form to:**

**425.462.5957**

CH2M HILL Seattle Office

Attention: Corporate HS&E Department

**Type of Incident** (Select at least one)

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Injury/Illness             | <input type="checkbox"/> Property Damage | <input type="checkbox"/> Spill/Release |
| <input type="checkbox"/> Environmental/Permit Issue | <input type="checkbox"/> Near Miss       | <input type="checkbox"/> Other         |

**General Information** (Complete for all incident types)

Preparer's Name: \_\_\_\_\_ Preparer's Employee Number: \_\_\_\_\_

Date of Report: \_\_\_\_\_ Date of Incident: \_\_\_\_\_ Time of Incident: \_\_\_\_\_ am/pm

**Type of Activity** (Provide activity being performed that resulted in the incident)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Asbestos Work                     | <input type="checkbox"/> Excavation Trench-Haz Waste | <input type="checkbox"/> Other (Specify) _____     |
| <input type="checkbox"/> Confined Space Entry              | <input type="checkbox"/> Excavation Trench-Non Haz   | <input type="checkbox"/> Process Safety Management |
| <input type="checkbox"/> Construction Mgmt- Haz Waste      | <input type="checkbox"/> Facility Walk Through       | <input type="checkbox"/> Tunneling                 |
| <input type="checkbox"/> Construction Mgmt - Non-Haz Waste | <input type="checkbox"/> General Office Work         | <input type="checkbox"/> Welding                   |
| <input type="checkbox"/> Demolition                        | <input type="checkbox"/> Keyboard Work               | <input type="checkbox"/> Wetlands Survey           |
| <input type="checkbox"/> Drilling-Haz Waste                | <input type="checkbox"/> Laboratory                  | <input type="checkbox"/> Working from Heights      |
| <input type="checkbox"/> Drilling-Non Haz Waste            | <input type="checkbox"/> Lead Abatement              | <input type="checkbox"/> Working in Roadways       |
| <input type="checkbox"/> Drum Handling                     | <input type="checkbox"/> Motor Vehicle Operation     | <input type="checkbox"/> WWTP Operation            |
| <input type="checkbox"/> Electrical Work                   | <input type="checkbox"/> Moving Heavy Object         |  |

**Location of Incident** (Select one)

- Company Premises (CH2M HILL Office: \_\_\_\_\_)
- Field (Project #: \_\_\_\_\_ Project/Site Name: \_\_\_\_\_ Client: \_\_\_\_\_)
- In Transit (Traveling from: \_\_\_\_\_ Traveling to: \_\_\_\_\_)
- At Home

**Geographic Location of Incident** (Select region where the incident occurred)

- |                                    |                                    |   |
|------------------------------------|------------------------------------|---|
| <input type="checkbox"/> Northeast | <input type="checkbox"/> Southwest | <input type="checkbox"/> Asia Pacific       |
| <input type="checkbox"/> Southeast | <input type="checkbox"/> Corporate | <input type="checkbox"/> Europe Middle East |
| <input type="checkbox"/> Northwest | <input type="checkbox"/> Canadian  | <input type="checkbox"/> Latin America      |

If a CH2M HILL subcontractor was involved in the incident, provide their company name and phone number: \_\_\_\_\_

Describe the Incident (Provide a brief description of the incident): \_\_\_\_\_

---

---

**Injured Employee Data** (Complete for Injury/Illness incidents only)

**If CH2M HILL employee injured**

Employee Name: \_\_\_\_\_ Employee Number: \_\_\_\_\_

---

## If CH2M HILL Subcontractor employee injured

Employee Name: \_\_\_\_\_ Company: \_\_\_\_\_

### Injury Type

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Allergic Reaction         | <input type="checkbox"/> Electric Shock      | <input type="checkbox"/> Multiple (Specify) _____ |
| <input type="checkbox"/> Amputation                | <input type="checkbox"/> Foreign Body in eye | <input type="checkbox"/> Muscle Spasms            |
| <input type="checkbox"/> Asphyxia                  | <input type="checkbox"/> Fracture            | <input type="checkbox"/> Other (Specify) _____    |
| <input type="checkbox"/> Bruise/Contusion/Abrasion | <input type="checkbox"/> Freezing/Frost Bite | <input type="checkbox"/> Poisoning (Systemic)     |
| <input type="checkbox"/> Burn (Chemical)           | <input type="checkbox"/> Headache            | <input type="checkbox"/> Puncture                 |
| <input type="checkbox"/> Burn/Scald (Heat)         | <input type="checkbox"/> Hearing Loss        | <input type="checkbox"/> Radiation Effects        |
| <input type="checkbox"/> Cancer                    | <input type="checkbox"/> Heat Exhaustion     | <input type="checkbox"/> Strain/Sprain            |
| <input type="checkbox"/> Carpal Tunnel             | <input type="checkbox"/> Hernia              | <input type="checkbox"/> Tendonitis               |
| <input type="checkbox"/> Concussion                | <input type="checkbox"/> Infection           | <input type="checkbox"/> Wrist Pain               |
| <input type="checkbox"/> Cut/Laceration            | <input type="checkbox"/> Irritation to eye   |   |
| <input type="checkbox"/> Dermatitis                | <input type="checkbox"/> Ligament Damage     |   |
| <input type="checkbox"/> Dislocation               |  |   |

### **Part of Body Injured**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Abdomen         | <input type="checkbox"/> Hand(s)                  | <input type="checkbox"/> Neck                  |
| <input type="checkbox"/> Ankle(s)        | <input type="checkbox"/> Head                     | <input type="checkbox"/> Nervous System        |
| <input type="checkbox"/> Arms (Multiple) | <input type="checkbox"/> Hip(s)                   | <input type="checkbox"/> Nose                  |
| <input type="checkbox"/> Back            | <input type="checkbox"/> Kidney                   | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Blood           | <input type="checkbox"/> Knee(s)                  | <input type="checkbox"/> Reproductive System   |
| <input type="checkbox"/> Body System     | <input type="checkbox"/> Leg(s)                   | <input type="checkbox"/> Shoulder(s)           |
| <input type="checkbox"/> Buttocks        | <input type="checkbox"/> Liver                    | <input type="checkbox"/> Throat                |
| <input type="checkbox"/> Chest/Ribs      | <input type="checkbox"/> Lower (arms)             | <input type="checkbox"/> Toe(s)                |
| <input type="checkbox"/> Ear(s)          | <input type="checkbox"/> Lower (legs)             | <input type="checkbox"/> Upper Arm(s)          |
| <input type="checkbox"/> Elbow(s)        | <input type="checkbox"/> Lung                     | <input type="checkbox"/> Upper Leg(s)          |
| <input type="checkbox"/> Eye(s)          | <input type="checkbox"/> Mind                     | <input type="checkbox"/> Wrist(s)              |
| <input type="checkbox"/> Face            |   |  |
| <input type="checkbox"/> Finger(s)       | <input type="checkbox"/> Multiple (Specify) _____ |  |
| <input type="checkbox"/> Foot/Feet       |   |  |

### **Nature of Injury**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Absorption                  | <input type="checkbox"/> Inhalation               | <input type="checkbox"/> Overexertion             |
| <input type="checkbox"/> Bite/Sting/Scratch          | <input type="checkbox"/> Lifting                  | <input type="checkbox"/> Repeated Motion/Pressure |
| <input type="checkbox"/> Cardio-Vascular/Respiratory | <input type="checkbox"/> Mental Stress            | <input type="checkbox"/> Rubbed/Abraded           |
| System Failure                                       | <input type="checkbox"/> Motor Vehicle Accident   | <input type="checkbox"/> Shock                    |
| <input type="checkbox"/> Caught In or Between        | <input type="checkbox"/> Multiple (Specify) _____ | <input type="checkbox"/> Struck Against           |
| <input type="checkbox"/> Fall (From Elevation)       | <input type="checkbox"/> Other (Specify) _____    | <input type="checkbox"/> Struck By                |
| <input type="checkbox"/> Fall (Same Level)           |   | <input type="checkbox"/> Work Place Violence      |
| <input type="checkbox"/> Ingestion                   |   |   |

Initial Diagnosis/Treatment Date: \_\_\_\_\_

### **Type of Treatment**

- |   |  |
|---|--|
| <input type="checkbox"/> Admission to hospital/medical facility   | <input type="checkbox"/> None                                |
| <input type="checkbox"/> Application of bandages                  | <input type="checkbox"/> Observation                         |
| <input type="checkbox"/> Cold/Heat Compression/Multiple Treatment | <input type="checkbox"/> Other (Specify) _____               |
| <input type="checkbox"/> Cold/Heat Compression/One Treatment      | <input type="checkbox"/> Prescription- Multiple dose         |
| <input type="checkbox"/> First Degree Burn Treatment              | <input type="checkbox"/> Prescription- Single dose           |
| <input type="checkbox"/> Heat Therapy/Multiple treatment          | <input type="checkbox"/> Removal of foreign bodies           |
| <input type="checkbox"/> Multiple (Specify) _____                 | <input type="checkbox"/> Skin Removal                        |
| <input type="checkbox"/> Heat Therapy/One Treatment               | <input type="checkbox"/> Soaking therapy- Multiple Treatment |
| <input type="checkbox"/> Non-Prescriptive medicine                | <input type="checkbox"/> Soaking Therapy- One Treatment      |

- Stitches/Sutures
- Tetanus
- Treatment for infection
- Treatment of 2<sup>nd</sup> /3<sup>rd</sup> degree burns
- Use of Antiseptics - multiple treatment

- Use of Antiseptics - single treatment
- Whirlpool bath therapy/multiple treatment
- Whirlpool therapy/single treatment
- X-rays negative
- X-rays positive/treatment of fracture

Number of days doctor required employee to be off work: \_\_\_\_\_

Number of days doctor restricted employee's work activity: \_\_\_\_\_

Equipment Malfunction : Yes  No  Activity was a Routine Task: Yes  No

Describe how you may have prevented this injury: \_\_\_\_\_

**Physician Information**

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

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

City: \_\_\_\_\_

Zip Code: \_\_\_\_\_

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

**Hospital Information**

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

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

City: \_\_\_\_\_

Zip Code: \_\_\_\_\_

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

**Property Damage** (Complete for Property Damage incidents only)

Property Damaged: \_\_\_\_\_ Property Owner: \_\_\_\_\_

Damage Description: \_\_\_\_\_

Estimated Amount: \$ \_\_\_\_\_

**Spill or Release** (Complete for Spill/Release incidents only)

Substance (attach MSDS): \_\_\_\_\_ Estimated Quantity: \_\_\_\_\_

Facility Name, Address, Phone No.: \_\_\_\_\_

Did the spill/release move off the property where work was performed?: \_\_\_\_\_

Spill/Release From: \_\_\_\_\_ Spill/Release To: \_\_\_\_\_

**Environmental/Permit Issue** (Complete for Environmental/Permit Issue incidents only)

Describe Environmental or Permit Issue: \_\_\_\_\_

Permit Type: \_\_\_\_\_

Permitted Level or Criteria (e.g., discharge limit): \_\_\_\_\_

Permit Name and Number (e.g., NPDES No. ST1234): \_\_\_\_\_

Substance and Estimated Quantity: \_\_\_\_\_

Duration of Permit Exceedence: \_\_\_\_\_

**Verbal Notification** (Complete for all incident types)(Provide names, dates and times)

CH2M HILL Personnel Notified: \_\_\_\_\_

Client Notified: \_\_\_\_\_

**Witnesses** (Complete for all incident types)

**Witness Information (First Witness)**

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

Employee Number (CH2M HILL): \_\_\_\_\_

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

City: \_\_\_\_\_

Zip Code: \_\_\_\_\_

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

**Witness Information (Second Witness)**

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

Employee Number (CH2M HILL): \_\_\_\_\_

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

City: \_\_\_\_\_

Zip Code: \_\_\_\_\_

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

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



---

## **Attachment 7**

**Applicable Material Safety Data Sheets  
(Available Onsite)**

---

---

## **Attachment 8**

### **Subcontractor H&S Plans/Procedures (Available Onsite)**

---