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FINAL WORK PLAN FOR NON-TIME CRITICAL SOIL REMOVAL ACTION FORMER DISPOSAL PITS 1 AND 3 REVISION 1 NIROP ALLEGANY BALLISTICS LABORATORY ROCKET CENTER WV

6/1/2013

CH2MHILL

Final Work Plan
Non-Time Critical Soil Removal Action
Former Disposal Pits 1 and 3

Revision No. 01

Allegany Ballistics Laboratory
Rocket Center, West Virginia

Contract No. N62470-08-D-1006
Task Order No. WE28

Submitted to:

Mid-Atlantic
9742 Maryland Avenue
Norfolk, VA 23511-3095

Prepared by:

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June 2013

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U.S. Navy Responsible Authority — June 7, 2013 (Date)

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A Accident Prevention Plan/Activity Hazard Analyses
B Project Schedule
C Quality Control Attachments

Acronyms and Abbreviations

AALA	American Association for Laboratory Accreditation
AASHTO	American Association of State Highway Transportation Officials
ABG	Active Burning Grounds
ABL	Allegany Ballistics Laboratory
AGVIQ CH2MHILL	AGVIQ-CH2M HILL Constructors, Inc. Joint Venture III
AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
ASTM	American Society for Testing and Materials
ATK	Alliant Technology Systems, Inc. (ABL GOCO Contractor)
bgs	below ground surface
BS	blank spike
CCR	Construction Completion Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
CO	Contracting Officer
COC	contaminant of concern
DERP	Defense Environmental Restoration Program
DFOW	definable feature of work
DNAPL	dense non-aqueous phase liquid
DoD	Department of Defense
DOT	U.S. Department of Transportation
DQO	data quality objective
EECA	Engineering Evaluation/Cost Analysis
EDD	electronic data deliverable
ELAP	Environmental Laboratory Accreditation Program
EPA	U.S. Environmental Protection Agency
EPP	Environmental Protection Plan
ESC	erosion and sediment control
EZ	Exclusion Zone
FDP1	Former Disposal Pit 1
FDP3	Former Disposal Pit 3
FEAD	Facilities Engineering and Acquisition Division
FD	field duplicate
FFA	Federal Facilities Agreement
FTL	Field Team Leader
FS	Feasibility Study
HAZCOM	hazard communication
HAZWOPER	Hazardous Waste Operations and Emergency Response
GPS	global positioning system
GWTP	groundwater treatment plant

HDPE	high density polyethylene
lb	pound(s)
ID	identification
IRCDQM	Installation Restoration Chemical Data Quality Manual
IS	internal standard
LCS	laboratory control sample
LLDPE	linear low density polyethylene
LOQ	Limit of Quantitation
MEC	munitions and explosives of concern
MIP	membrane interface probe
MS/MSD	matrix spike/matrix spike duplicate
MSDS	Material Safety Data Sheet
NAVFAC MIDLANT	Naval Facilities Engineering Command, Mid-Atlantic
NAVSEA	Naval Sea Systems Command
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFESC	Naval Facilities Engineering Service Center
NELAC	National Environmental Laboratory Accreditation Conference
NIRIS	Naval Installation Restoration Information Solution
NIST	National Institute of Standards and Technology
NPL	National Priorities List
NTCRA	Non-Time Critical Removal Action
NTP	Notice to Proceed
NTR	Navy Technical Representative
NVLAP	National Voluntary Laboratory Accreditation Program
OU	Operable Unit
oz	ounces
PCE	tetrachloroethene
PID	photoionization detector
PPE	personal protective equipment
ppm	part per million
PVC	polyvinyl chloride
QA	quality assurance
QC	quality control
QCP	Quality Control Plan
QSM	Quality Systems Manual
RCRA	Resource Conservation and Recovery Act
RFP	Request for Proposal
RI	Remedial Investigation
RPD	relative percent difference
RPM	Remedial Project Manager
RQD	Rock Quality Designation
RZ	Reduction Zone
SARA	Superfund Amendments and Reauthorization Act of 1986
SAP	Sampling and Analysis Plan
SSHO	Site Safety and Health Officer

SOW	Scope of Work
SPT	Standard Penetration Test
SRG	Site Remediation Goal
T&D	transportation and disposal
TAT	turnaround time
TB	trip blank
TCA	trichloroethane
TCE	trichloroethene
TCL	target compound list
TO	Task Order
TSDF	treatment, storage, and disposal facility
VOC	volatile organic compound
WMP	Waste Management Plan
WP	Work Plan
WVDEP	West Virginia Department of Environmental Protection
yd^3	cubic yards

1.0 Introduction

AGVIQ-CH2M HILL Constructors, Inc. Joint Venture III (AGVIQ-CH2M HILL) has prepared this Work Plan (WP) in response to the Naval Facilities Engineering Command Mid-Atlantic (NAVFAC MIDLANT) Statement of Work (SOW) dated May 8, 2012 under Task Order (TO) No. WE28 (Modification 01 to TO No. 0030) under Contract No. N62470-08-D-1006.

The purpose of this WP is to outline the implementation procedures to be used to conduct a Non-Time Critical Removal Action (NTCRA) consisting of excavation and proper offsite disposal of potentially hazardous and non-hazardous soil associated with the Former Disposal Pits 1 and 3 (FDP1 and FDP3) located within the Active Burning Grounds (ABG) and part of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Site 1 at Allegany Ballistics Laboratory (ABL), Rocket Center, West Virginia. This WP was developed in conjunction with the following documents and supporting information:

- Final Engineering Evaluation and Cost Analysis (EECA), Site 1, Former Disposal Pits 1 and 3 (Soil), (AGVIQ-CH2M HILL, 2012a)
- Action Memorandum, Site 1 Former Disposal Pits 1 and 3 (Soil) (AGVIQ-CH2M HILL, 2012b); Signed August 27, 2012
- Analytical data from soil borings completed in April 2012 at FDP1 under Task Order No. WE22

The following activities will be performed:

- Pre-construction soil sampling for waste disposal purposes and geotechnical and chemical analyses
- Pre-construction, post-excavation, and post-construction topographic surveying
- Mobilization and site preparation activities
- Well abandonment
- Design and construction of an engineered soil stabilization structure at FDP3
- Excavation of FDP1 and FDP3 to the lateral limits identified in this WP and up to an average depth of 14 feet below ground surface (bgs), or until the water table is encountered, whichever occurs first
- Soil sampling and laboratory analysis of post-excavation samples, potential onsite gravel and soil reuse samples, waste characterization samples (if required), and imported borrow samples
- Proper offsite disposal of contaminated soil (assumed to include listed hazardous waste and non-hazardous waste) generated from site activities and onsite management of aqueous waste

- Backfilling, seeding, and site restoration of disturbed areas
- Preparation and submittal of a Construction Completion Report (CCR)

This WP is organized as follows:

Section 1.0 Introduction includes the site description and project objectives.

Section 2.0 Project Execution Plan details the required scope of work, project schedule, communications plan, and traffic control plan.

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.

Section 4.0 Waste Management Plan (WMP) identifies the management, and transportation and disposal requirements for the waste streams anticipated to be generated during project construction.

Section 5.0 Environmental Protection Plan (EPP) contains 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 removal activities at FDP1 and FDP3.

Section 6.0 Quality Control Plan (QCP) includes the quality control procedures. The site-specific project organization for this TO is also included in this section. The QC attachments (submittal register, testing plan and log, etc.) are provided in Appendix C. The QCP includes information on the quality administrators, the project organization for the work to be completed at ABL and the definable features of work.

Section 7.0 References includes references to documents used to prepare this WP.

Appendices include the following:

A Accident Prevention Plan (APP), to be provided to the Navy under separate cover and included in the Final WP.

B Project Schedule

C Quality Control Documentation
- Submittal Register
- Testing Plan and Log
- Monthly Summary of Field Tests
- Contractor Daily Production Report
- Contractor Daily Quality Control Report
- Preparatory Phase Report
- Transportation and Disposal Log
- Non-conformance/Deficiency Report
- Request for Information

1.1 Site Description and Background

CERCLA Site 1 at ABL is adjacent to the North Branch Potomac River along the northern border of the developed portion of Plant 1. Site 1 contains several historical disposal units and active open burning pads within the 8-acre Active Burning Grounds (ABG) (see Figure 1-1) currently permitted under ABL's Resource Conservation and Recovery Act (RCRA) Permit: WV0170023691.

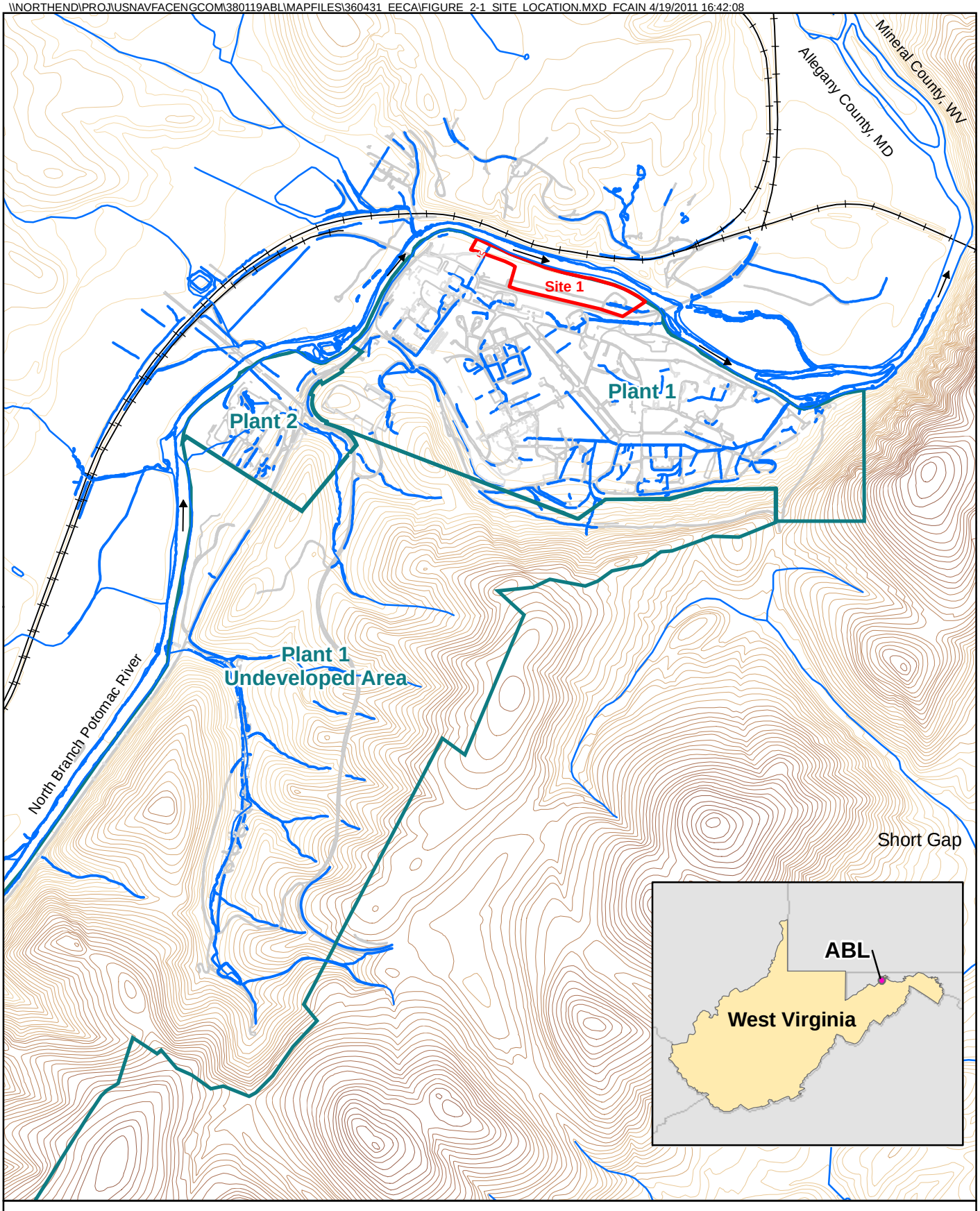
The ABG is used currently to burn reactive waste in designated burn pad areas. Reactive waste generated at ABL is defined as waste material that, because of its composition, may burn violently or detonate.

Historical disposal of spent acid and solvents occurred in three former disposal pits located inside the boundary of the ABG area. After the materials percolated into the ground, it was reported that the pit was ignited to burn off reactive filtrate. The pits were operated during the 1970s and 1980s and have since been backfilled. Reportedly, TCE was the primary spent solvent that was disposed in the pits, which are believed to be one of the primary sources of VOCs in groundwater at Site 1 (CH2M HILL, 1996). TCE has been detected at elevated concentrations (relative to the remainder of the ABG) in the soil beneath FDP1 and FDP3; FDP2 does not contain detectable chlorinated solvents. These findings were supported as a result of a membrane interface probe (MIP) study conducted over this area. Therefore, FDP1 and FDP3 are considered the potential primary sources of VOCs. FDP 2 is not considered a source of contamination to groundwater and is not included in this scope of work.

As shown on Figure 1-2, FDP1 and FDP3 are located in the southwestern portion of the ABG area. The size and location of the FDPs are based upon the historical boundaries of the FDPs documented in the Confirmation Study (Weston, 1987). This document identified the pits using visual observation of ground scarring, as well as a geophysical investigation of the pit areas. The disposal pits are described as being approximately 10 feet wide and ranging in length from approximately 15 to 40 feet (see Figure 1-2). The depths of the pits were estimated at 3 to 5 feet bgs. According to facility personnel, approximately 1,000 pounds (lb) of TCE per month were disposed of in the pit(s) between 1970 and 1978. Disposal of tetrachloroethene (PCE) and 1,1,1-trichloroethane (TCA) was less than 5 lb per year.

From 1972 to 1982, waste acids and bases generated by laboratory operations were disposed by pouring them into pit(s) that had been lined with limestone. According to facility personnel, approximately 1 gallon of waste acid per month was disposed of in the pit(s) until disposal practices ceased.

Environmental investigations have been conducted within the Site 1 area, including the FDPs, since in 1983 beginning with the Initial Assessment Study (ESE Inc., 1983). A summary of previous investigations is provided in the Final EECA (AGIVQ-CH2M HILL, 2012a). Soil data at Site 1 were collected during the Remedial Investigation (RI), Focused RI, and 1998, 2001, and 2004 supplemental soil sampling efforts to better delineate areas of contamination. Results of these investigations were documented in a Focused RI for Site 1 soil completed in 2006 (AGVIQ-CH2M HILL, 2006).



Legend

→ **Flow Direction**

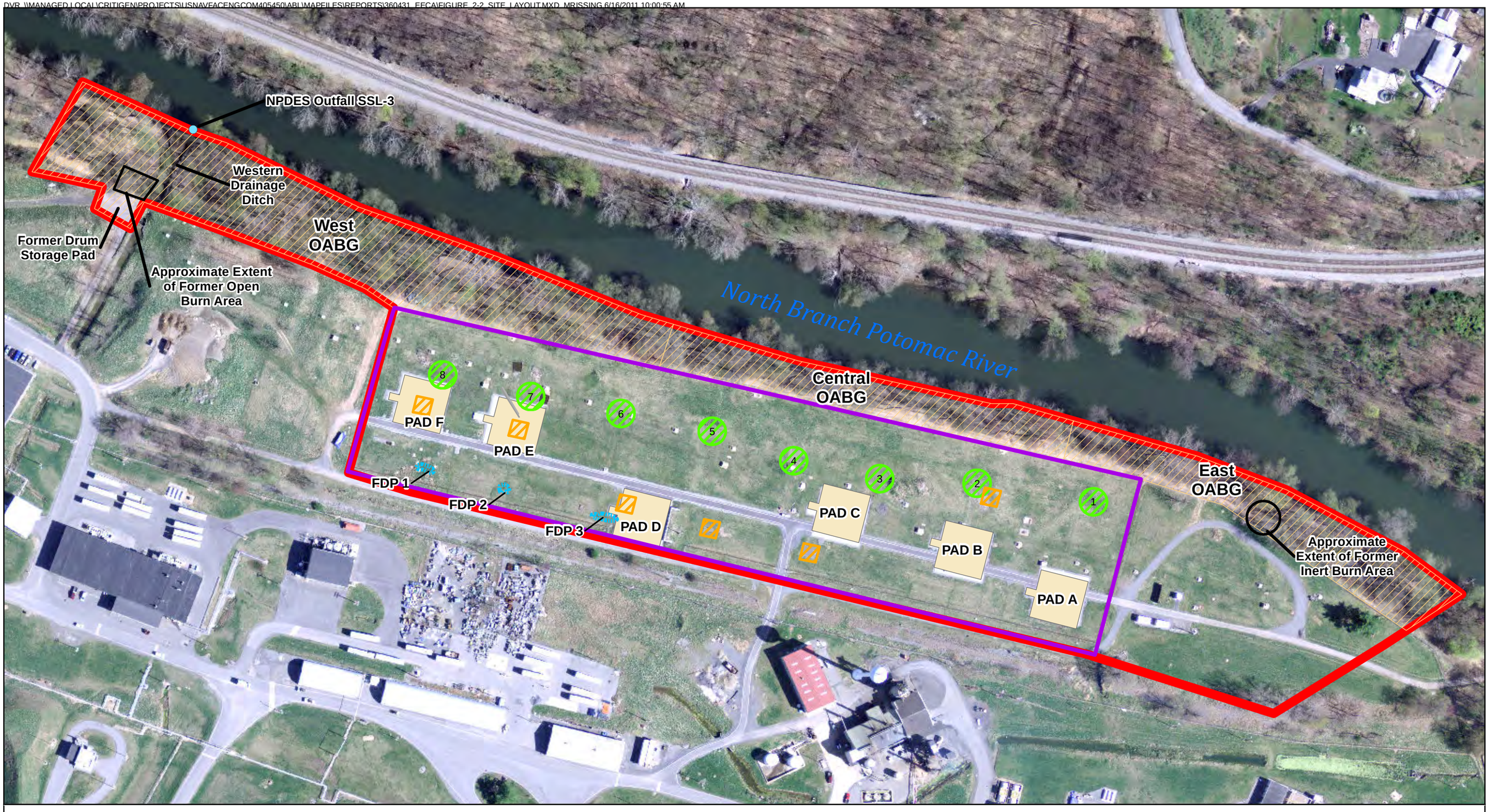
N

0 900 1,800 3,600 Feet

1 inch = 1,800 feet

Figure 1-1
Site Location
Allegany Ballistics Laboratory, Rocket Center, West Virginia

AGVIQ CH2M HILL



Legend

- NPDES Outfall SSL-3
- Former Inert and Open Burn Area
- Former Disposal Pits (FDP)
- Former Earthen Burn Pads
- Active Burning Ground
- Approximate location of former burn pans
- Outside Active Burning Ground (OABG)
- Current Concrete Burn Pads
- Site 1 Boundary

N

0 75 150 300 Feet

Figure 1-2
Site Layout
Allegany Ballistics Laboratory, Rocket Center, West Virginia

AGVIQ CH2M HILL

An MIP and FLUTe liner investigation was conducted in 2009 and 2010 to determine if dense non-aqueous phase liquid (DNAPL) is present in unsaturated soil at the FDPs (AGVIQ-CH2M HILL, 2010). Results of the investigation did not indicate the presence of DNAPL in the vadose zone underlying the FDPs.

Based on the results of previous investigations and the understanding of historical site activities, the FDPs are considered the primary source of VOC contamination in groundwater at Site 1. The Navy, in partnership with the West Virginia department of Environmental Protection (WVDEP) and U.S. Environmental Protection Agency (EPA), agreed that a removal action is desired for FDP1 and FDP3 to reduce the contaminant source present within the unsaturated soil beneath the FDPs. This action will enhance the ability of the groundwater remedy to restore the aquifers to beneficial use. By removing VOC source mass, additional co-located contaminants of concern (COCs) will also be addressed.

An EECA was completed in May 2012, to address unsaturated soil in the former disposal pits and is intended to supplement the selected remedy for Site 1 soil. The alternatives evaluated in the Site 1 EECA were no action, and excavation and offsite disposal (AGVIQ-CH2MHILL, 2012). The preferred alternative, excavation and offsite disposal, was selected for the removal action as documented in the Action Memorandum approved by Naval Sea Systems Command (NAVSEA) on August 27, 2012, with concurrence from EPA on September 17, 2012 (CH2MHILL, 2012b).

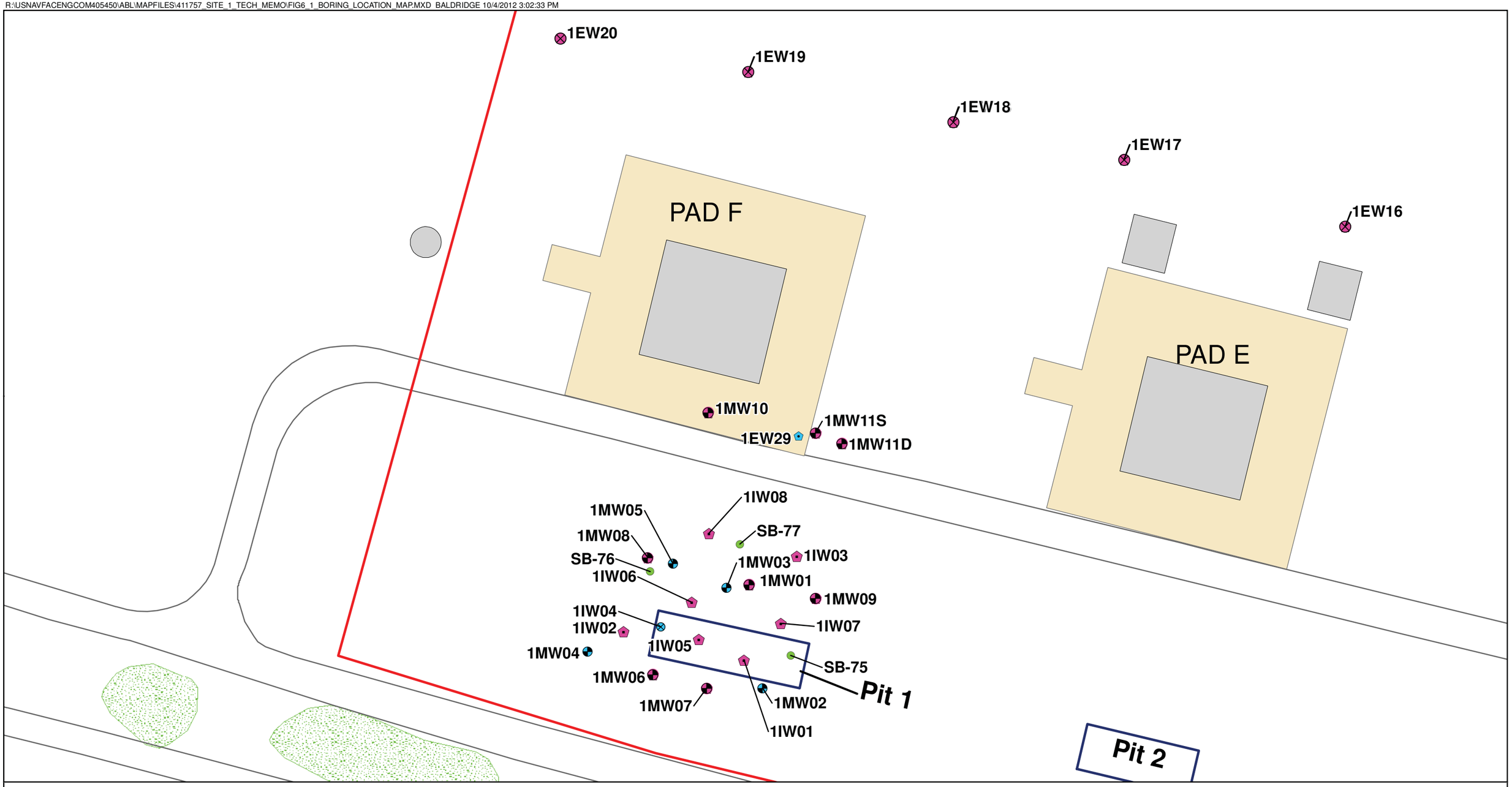
A Draft Feasibility Study (FS) is currently being revised to address soil contamination at Site 1 to evaluate remedial alternatives for long-term protection of human health and the environment, including protection against contaminants leaching to groundwater. It is understood that the final remedial action for this area will be determined in the forthcoming Record of Decision for Site 1 Soil.

1.1.1 April 2012 Soil Boring Advancement

In April 2012, as part of an aquifer pump test at Site 1 (performed under TO No. WE22), AGVIQ-CH2M HILL advanced three borings in the vicinity of FDP1, as shown on Figure 1-3, using a truck-mounted sonic drill (AGVIQCH2MHILL, 2012c). Discrete groundwater samples were collected from the saturated soil within each borehole, an aquifer pump test was conducted at injection well 1IW06 and extraction well 1EW29 to obtain hydraulic characteristics in the vicinity of FDP1, and analytical samples were collected from groundwater wells in the vicinity of FDP1 during the pump test for VOC analysis (AGVIQ-CH2M HILL, 2012c). The boring information is discussed herein as it directly relates to the unsaturated soils that are the subject of this removal action.

Boring AS01-SB75 was completed within FDP1 and borings AS01-SB76 and AS01-SB77 were completed downgradient of FDP1. The borings were advanced from the ground surface to approximately 31 feet bgs, where the top of bedrock was encountered. The borings were completed to record the lithology of the alluvium strata using the Unified Soil Classification System. Core AS01-SB75 was photo-documented and a field DNAPL assessment was performed.

R:\USNAVFACENGCOM405450\ABL\MAPFILES\411757_SITE_1_TECH_MEMO\FIG6_1_BORING_LOCATION_MAP.MXD BALDRIDGE 10/4/2012 3:02:33 PM



Legend

- Soil Boring Location
- Monitoring Well - Bedrock; 1MW05
- Extraction Well - Bedrock
- Injection Well - Bedrock
- Monitoring Well - Alluvial
- Extraction Well Alluvial
- Injection Well - Alluvial
- Water Body
- Former Disposal Pit
- Site 1 Boundary
- Building
- Approximate location of current burn pads
- Road
- Vegetation

N

0 15 30 Feet

1 inch = 30 feet

Figure 1-3
Boring Location Map
Site 1 FDP1 Investigation
Allegany Ballistics Laboratory

AGVIQ CH2M HILL

Soil samples were collected in 5-foot intervals from ground surface to top of bedrock with continuous 4-inch diameter soil core recovery. Photoionization detector (PID) readings were recorded along the length of each soil core to assess in-situ total VOC concentrations and identify high concentration areas within the subsurface. The measurements were collected using a mini-RAE PID detector with the air intake tube inserted directly into the recovered soil core at approximately 1-foot intervals along the length of the recovered core.

FLUTe™ technology was used to locate DNAPL in the alluvial subsurface. As each 5-foot soil core was removed from the borehole, the soil was extruded into a reactive coated (FLUTe™) liner designed to produce a stain when DNAPL is contacted. In addition to the FLUTe™ liner, Sudan IV dye, a hydrophobic dye which turns bright red in the presence of DNAPL, was also used to determine if DNAPL was present in the subsurface soil. Soil samples were composited every foot along the soil core and mixed with Sudan IV dye. The mixture was shaken in a jar for approximately 30 seconds. The reaction of the soil with the Sudan IV was recorded.

The lithology of the upper portion of the borings, between land surface and 13 to 15 feet bgs, was comprised mostly of fine grained materials, silt, clay, and fine grained sand. In addition, cobble sized gravel was encountered in SB-75 between 5 and 13 feet. The saturated zone was encountered between 13 and 15 feet bgs. Below 15 feet bgs, the lithology was comprised mostly of coarse grained sand and cobble sized gravel (1 to 2 inches in diameter) in a silt and clay matrix. The fractured shale bedrock or weathered shale bedrock was encountered at approximately 28 to 30 feet bgs.

PID readings were recorded along the entire length of the recovered soil cores. The upper 15 feet of each boring, which encompasses the removal action depth, had little to no readings. There was no indication of DNAPL in any of the soil borings based on the Sudan IV dye test. The FLUTe™ liner indicated DNAPL staining in only one boring within the removal action area, this was boring SB-75 at 9 and 15 feet bgs.

1.2 Project Objective

This project implements "Alternative 2- Excavation and Offsite Disposal," as a NTCRA under CERCLA at FDPs 1 and 3, as described in the Final EECA (AGVIQ-CH2M HILL, 2012a) and approved in the Action Memorandum signed August 27, 2012 (CH2M HILL, 2012b). Contaminated soils associated with FDPs 1 and 3 will be removed by excavating to 14 feet bgs (average), or to the water table, whichever occurs first.

1.3 Regulatory Background

In accordance with the Defense Environmental Restoration Program (DERP), the U.S. Navy is conducting this NTCRA within the overall framework of the CERCLA and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Executive Order 12580, "Superfund Implementation," January 23, 1987, as amended, delegates CERCLA authority to the Navy as the lead agency to implement response actions under CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal regulations [CFR] 300).

The Plant 1 portion of the ABL was proposed for the National Priority List (NPL) of CERCLA in June 1993 and added to the list May 31, 1994. Following placement on the NPL, a Federal Facilities Agreement (FFA) was negotiated between WVDEP, EPA, and the Navy. The FFA was signed on January 7, 1998.

FDPs 1 and 3 part of CERCLA Site 1 at ABL Plant 1 and are located within the active burning ground. This NTCRA will be implemented for contaminated soil removal from the unsaturated zone within the geographical boundaries of FDPs 1 and 3 including a 2-foot buffer area around each FDP. The preferred alternative identified in the Final EECA (AGVIQ-CH2M HILL, 2012a). An Action Memorandum selecting the preferred alternative was signed August 27, 2012. In a letter dated September 17, 2012, EPA concurred the alternative selected in the Action Memorandum will support the Remedial Action Objective. This NCTRA is intended to supplement the final remedy for CERCLA Site 1 soil. The final remedy for Site 1 soils (Operable Unit 4 [OU4]) is currently being evaluated as part of the FS process.

2.0 Project Execution Plan

The scope of work, personnel qualifications, reporting procedures, project construction completion report, project schedule, communication plan, work hours, and traffic control plan are described in this section.

2.1 Scope of Work

The activities to be performed by AGVIQ-CH2M HILL are identified below and the means and methods to complete each task are described further in this section.

- Preparation of project planning documents.
- Pre-construction soil sampling for waste disposal purposes and geotechnical and chemical analyses. The geotechnical samples will support soil stabilization design activities for the engineered soil stabilization structure required to protect Burn Pad D to be able to complete the excavation at FDP3. Chemical samples will be collected in advance to provide existing conditions of the undisturbed soil at the edge of the FDP3 excavation, behind portions of the soil structure, since these will not be able to be collected after the structure is in place.
- Surveying activities, including:
  - Conducting baseline site surveys to document the existing topographic conditions at the project site and the FDPs; to support the stabilization design activities; establish the excavation limits; and create the overall project site layout drawing(s).
  - Post-excavation surveying to document the completed lateral and vertical excavation limits at FDP1 and FDP3.
  - Post-construction topographic surveying to document final restored site conditions.
- Design and construction of an engineered soil stabilization structure at FDP3 to protect the Burn Pad D, which is adjacent to FDP3.
- Mobilization and site preparation activities such as soil erosion control establishment, material staging areas, waste staging areas, haul road construction, decontamination area, etc.
- Abandonment of up to 12 alluvial and 5 bedrock wells that may be impacted by the excavation work.
- Excavation of FDP1 and FDP3 up to an average depth of 14 feet bgs or until the water table is encountered, whichever occurs first.
- Soil sampling and laboratory analysis of:
  - Post-excavation samples collected after the completion of excavation activities to document existing conditions.

  - Soil generated from site activities to assess waste disposal options and potential onsite reuse options.
  - Imported borrow material sampling to confirm material is suitable as site backfill.
- Proper onsite management of soil and aqueous waste; offsite disposal of contaminated soil generated from site activities; and transportation and disposal (T&D).
- Backfilling, seeding, and site restoration of disturbed areas.
- Decontamination of equipment and demobilization.
- Preparation and submittal of a CCR upon full project demobilization.

Each of these activities is described further in the following sections.

2.1.1 Project Plan Development

This WP will be provided to the Navy as a draft, draft-final, and final document and to WVDEP and EPA as draft-final (for a 30-day review period) and final documents for acceptance before personnel mobilize to the site. The Final WP will include the APP and Health and Safety Plan as approved by the Facilities Engineering and Acquisition Division (FEAD).

This project is anticipated to be conducted in summer 2013. Based upon the proposed excavation areas per the Navy SOW, the field effort is planned to be approximately 2 months in duration. Workdays will be Monday to Friday for 10 hours per days with work beginning at 10:00 AM and ending at 8:00 PM. This schedule was developed in an attempt to optimize site productivity while providing a workaround of Alliant Techsystem's (ATK) daily burning operations at Site 1, which typically end by 10:00 AM.

2.1.2 Mobilization for Baseline Survey and Geotechnical/Chemical Assessment

Before full mobilization to perform the NTCRA, a separate mobilization (consisting of a Field Team Lead [FTL]/Health and Safety Lead/Quality Lead (one person), a topographic survey crew, and a drilling crew) will occur to collect baseline soil and project surveying data to support the overall NTCRA. The baseline data collected will include the surveying of the project site, three excavation perimeters associated with FPD1 and FDP3, 17 monitoring and injection wells in the vicinity of FDP1, and the western edge of Burn Pad D. Baseline subsurface data will also be obtained from the collection of soil boring samples for geotechnical and chemical analysis. The geotechnical analysis will be used to support the soil stabilization structure design development and the chemical analysis will be used to document the concentrations of existing site COCs as described further in this section. Borings will also be advanced to an approximate depth of 14 feet bgs in both FDP1 and FDP3 for waste disposal purposes.

Prior to any conducting soil borings, a utility clearance will be performed. AGVIQ-CH2M HILL will notify West Virginia "One Call" and after they issue a locate ticket, AGVIQ-CH2M HILL will provide a private utility locating firm to evaluate the soil boring locations to demarcate existing subsurface utilities. It is anticipated that ATK personnel will provide site facilities drawings to assist in the utility locating and demarcation efforts.

This separate mobilization will occur after receipt of a Notice to Proceed (NTP) from the Contracting Officer (CO) and after the site personnel complete"3R" awareness training for munitions and explosives of concern (MEC). The MEC training was determined to be appropriate for all intrusive tasks to be completed within the ABG. The APP for the April 2012 soil boring and sampling conducted under TO No. WE22 at FDP1 will be utilized for these same TO No. WE28 Definable Features of Work (DFOWs) for this field data collection and sampling.

The existing groundwater treatment plant (GWTP) office will be temporarily used as the field office for this work. The field effort is anticipated to be approximately 3 days in duration.

2.1.2.1 Topographic Survey

A baseline topographic survey will be conducted to document the topographic conditions for the overall project site. During the survey, three perimeters will be staked in the field and documented by a baseline topographic survey for future re-acquisition as follows:

- Overall project site area including location of existing ABG structures (i.e., Burn Pad D, fence, FDP1 wells, etc.)
- Global positioning system (GPS) defined perimeters of FDP1 and FDP3 per the Navy SOW
- Two-foot boundary outside the perimeters of FDP1 and FDP3
- Proposed edge of the toe of the overall excavation area (top of 1:1 slope)

These boundaries will delineate the locations of the potentially hazardous source soils within FDP1 and FDP3, the 2-foot buffer zone that will be removed to assure the removal of the potential source area, and the proposed edge of the toe of the excavation. The basis of these boundaries will be derived from Figures 2-1 and 2-2 of this WP. Figure 2-1 shows the actual GPS point boundaries of FDP1 and FDP3 to which a 2-foot buffer zone will be surveyed and identified. The overall site baseline survey will be included in the CCR.

The locations of 12 alluvium and 5 bedrock wells in the vicinity of FDP1 will be surveyed with the expectation that they will be abandoned prior to FDP1 excavation activities. Of these 17 wells, 7 are alluvial injection wells (1IW06, 1IW02, 1IW05, 1IW01, 1IW07, 1IW03, and 1IW08), 5 are alluvial monitoring wells (1MW08, 1MW06, 1MW07, 1MW09, and 1MW01), 4 are bedrock monitoring wells (1MW05, 1MW04, 1MW02, and 1MW03) and 1 is a bedrock injection well (1IW01). None of these wells are used in the current long-term monitoring program for Site 1.

The western edge of Burn Pad D will also be surveyed to create a baseline for an accurate engineering design for the stabilization structure that will installed at FDP3 to facilitate excavation in this area.

Removal Area Boundary at FDP-1 (coordinates in State Plane, feet)		
	Northing	Easting
1-1	388658.03	2155963.09
1-2	388657.24	2155972.97
1-3	388653.32	2155982.18
1-4	388646.06	2155988.67
1-5	388639.76	2155982.33
1-6	388643.21	2155973.23
1-7	388645.67	2155963.76
1-8	388651.49	2155956.68

Removal Area Boundary at FDP-3 (coordinates in State Plane, feet)		
	Northing	Easting
3-1	388576.03	2156254.24
3-2	388574.91	2156264.13
` 3-3	388572.92	2156272.84
3-4	388570.31	2156283.36
3-5	388565.51	2156287.09
3-6	388560.83	2156282.80
3-7	388561.33	2156272.57
3-8	388563.65	2156262.58
3-9	388565.41	2156252.59
3-10	388572.18	2156245.83

Legend

- Removal Area Boundary Vertex
- Engineered Excavation Stabalization
- Excavation Cross Sections
- Proposed Relocated Fence Line
- Existing Fence Line
- Approximate Limits of Excavation (Including Sloping for Excavation Sidewall Stablization)
- Former Disposal Pits (FDP)
- Removal Area
- Active Burning Ground
- Boring Proposed Location

N

0 15 30 60 Feet

1 inch = 30 feet

Figure 2-1
Removal Areas
Allegany Ballistics Laboratory, Rocket Center, West Virginia

AGVIQ CH2M HILL

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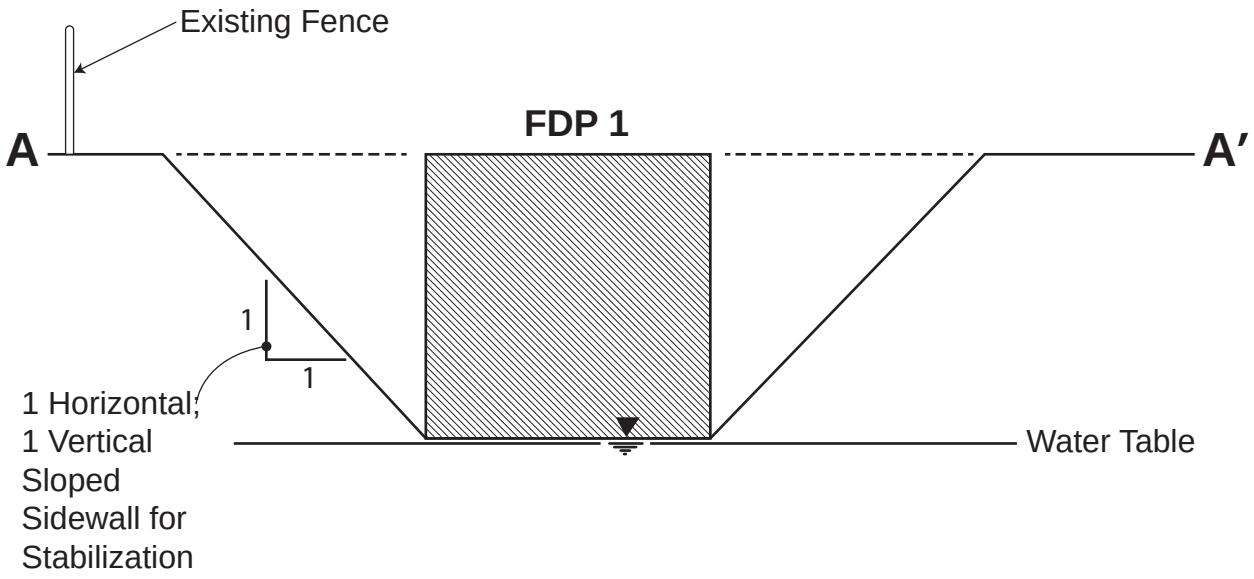
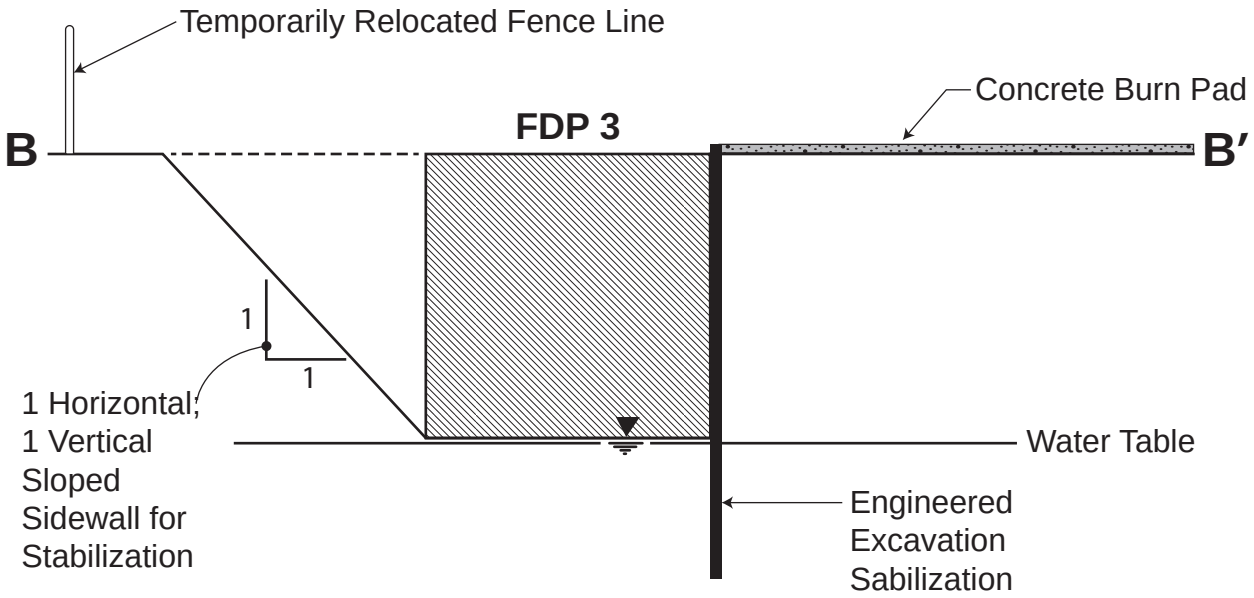


Cross Section A-A'



Cross Section B-B'

Notes:

1.) Actual Slope or Benching Specifications for Excavation Sidewall Stabilization to be Included as Part of a Separate Engineered Design.

2.) Actual Engineered Excavation Stabilization Details to be Included as Part of a Separate Engineered Design.

Legend

FDP Removal Area

FIGURE 2-2
Conceptual Removal Area Cross Section
Allegany Ballistics Laboratory, Rocket Center, West Virginia

2.1.2.2 Soil Boring Advancement, Sampling and Boring Abandonment

AGVIQ-CH2M HILL will install three soil borings at the locations identified on Figure 2-1. Borings will be driven to determine the subsurface profile and engineering properties of the soil and rock in the vicinity of FDP3 (adjacent to Burn Pad D); to facilitate development of the excavation support system design; and to evaluate the presence or absence of site COCs. Two borings (12GE-01 and 12CH-01) will be driven outside of the proposed excavation area and one boring (12GE-02) will be driven within the area requiring excavation. In addition, up to three soil borings will be advanced in FDP1 and FDP3 to an approximate depth of 14 feet bgs to obtain representative in-situ samples of the F002 waste for disposal purposes (although the material inside the FDPs 1 and 3, including the 2-foot buffer zone, will be disposed as F002 waste, representative analytical data will be required by the facilities accepting the waste). As possible, samples generated from geotechnical boring 12-GE02 at FDP3 may be used to represent waste within FDP3.

All borings will be advanced using a hollow-stem auger, mud rotary drill, or rotosonic drill. Borings 12GE-01 and 12GE-02 will extend from the soil surface to an approximate depth of 30-35 feet bgs, which is the approximate bedrock depth based on historical site information. Standard Penetration Tests (SPT) will be performed continuously during advancement of Borings 12GE-01 and 12GE-02 using a split spoon sampler throughout the alluvium. Up to four undisturbed samples will be collected for geotechnical analyses using Shelby tubes or a Pitcher/Denison sampler if stiff clays or silts are encountered. If rock is encountered at a depth shallower than 30 feet bgs, it will be collected using a minimum NQ-size core barrel. The borings will be logged by the FTL, who will record the groundwater elevation within each core, the soil classification as well as the soil description in accordance with American Society for Testing and Materials (ASTM) standards. Upon completion, the borings will be backfilled with cement-bentonite grout.

Undisturbed samples will be handled and transported to a geotechnical laboratory that meets the Department of Defense (DoD) National Institute of Standards and Technology (NIST), National Voluntary Laboratory Accreditation Program (NVLAP), American Association of State Highway Transportation Officials (AASHTO), or American Association for Laboratory Accreditation (AALA) requirements. The laboratory will analyze the samples for the geotechnical parameters identified in Table 3-3 in the SAP (Section 3.0 of this WP).

During the soil boring activities, four discrete subsurface soil samples will also be collected from 12GE-01 and 12CH-01 at approximate depth intervals of 3.5 feet (i.e., 3.5 feet bgs, 7 feet bgs, 10.5 feet bgs, and 14 feet bgs) for chemical laboratory analysis. A total of eight samples will be collected; four from each boring. The samples will be analyzed for the parameters identified in Table 3-3 in the SAP (Section 3.0 of this WP). The purpose of the sample collection is to document the subsurface COC concentrations that will remain after completion of the soil removal at FDP3. Because the soil stabilization structure will prevent excavation sidewall sampling from the walls adjacent to Burn Pad D upon completion the FDP3 areas, the samples will be collected before the stabilization structure is constructed to document the presence or absence of subsurface COC concentrations.

During the soil boring advancement, the groundwater elevation will be measured with a water level meter. This and other applicable information will be documented by the FTL.

Soil cuttings generated from drilling activities and waste generated from soil boring activities will be disposed in accordance with the WMP (Section 4.0 of this WP).

2.1.3 Design of the Soil Stabilization Structure

Based on the geotechnical data collected during the separate mobilization, AGVIQ-CH2M HILL will develop up to three conceptual soil stabilization structure alternatives for submittal to the Navy. The submittal will briefly identify the pros and cons of each alternative and identify a preferred alternative for the Navy to select the design to be constructed. Once determined, AGVIQ-CH2M HILL will develop a design-build bid package consisting of a limited quantity of design drawings (approximately three to six) supported by technical specifications. The bid package will be distributed to qualified subcontractors. AGVIQ-CH2M HILL will review the subcontractor bids for sound engineering judgment and will award a subcontract for installation of the selected soil stabilization structure, which will be installed prior to soil excavation at FDP3.

The final structure, with the exception of the upper 3 feet, will remain in place after the soil NTCRA at FDP3 is complete.

2.1.4 Full Mobilization, Planning Meetings, and Site Preparation

Mobilization will commence following receipt of a NTP from the CO, and after site personnel complete the MEC awareness training.

Mobilization activities will include transporting to the site the personnel, equipment, materials, supplies, and other services required to implement the NTCRA. AGVIQ-CH2M HILL will mobilize a Site Superintendent, one combination Site Safety and Health Officer (SSHO)/Project QC Manager, heavy equipment operators, laborers, trucks, light trees, and various pieces of heavy equipment (bulldozer, loader, excavator, etc.) as well as a temporary field office trailer. The field office will be located adjacent to the GWTP and it will be powered via electric connection to existing electrical supply lines serving the GWTP. Temporary sanitary facilities will also be mobilized to the excavation site within the ABG. Site personnel will use non-camera containing cellular phones, reviewed and approved by ATK security, to communicate during operations.

2.1.4.1 Planning Meetings

Depending upon NTP timing, a Pre-Construction Meeting will be held in advance of project mobilization to review the scope of work, project schedule, task coordination issues and procedures, and communication channels, and to introduce project personnel.

During mobilization, a Project Kickoff/Coordination and Mutual Understanding Meeting will be conducted. This meeting will include a review of this WP and review and acknowledgment of the APP and AHAs by the site personnel. Additional meetings will occur as needed as new personnel, visitors, and/or subcontractors arrive at the site and as mobilization progresses.

Coordination with ATK Regarding Site 1 Burning Operations

Historically, ATK conducts daily burning operations at Site 1 between 9:00 to 10:00 AM. However, during fall 2012, ATK was conducting burning operations multiple times per day on an as-needed basis and also required AGVIQ-CH2M HILL personnel to evacuate Site 1 and the GWTP building during some of these burning operations. AGVIQ-CH2M HILL will

schedule a coordination meeting with ATK to discuss ATK's burning requirements during the execution of this work. The goal of the coordination meeting is to encourage ATK to proactively plan the burning operations, to the extent feasible, to enable AGVIQ-CH2M HILL as much access to the work areas as possible to reduce potential cost impacts to the Navy due to unanticipated construction delays. AGVIQ-CH2M HILL will propose and seek a commitment/endorsement from ATK to provide unrestricted and uninterrupted access to Site 1 for all AGVIQ-CH2M HILL project personnel daily from 10:00 AM to 8:00 PM.

To reduce the potential burn-related cost impacts to the Navy, AGVIQ-CH2M HILL is currently planning on beginning work after the burn operations at Site 1, at 10:00 AM and working through 8:00 PM. AGVIQ-CH2M HILL is prepared to mobilize light towers, as needed, to provide visibility to facilitate construction.

2.1.4.2 Site Preparation

Utility Clearance

Prior to any intrusive activities including soil borings, fence installation and excavation activities, etc., utility clearance will be performed. AGVIQ-CH2M HILL will notify West Virginia "One Call" and after they issue a locate ticket, AGVIQ-CH2M HILL will provide a private utility locating firm to evaluate the relevant areas where intrusive activities are planned to demarcate existing subsurface utilities. It is anticipated that ATK personnel will provide site facilities drawings to assist in the utility locating and demarcation efforts.

Erosion Control

Temporary erosion and sediment controls features will be installed as necessary to prevent the discharge of sediment and other pollutants during the NTCRA. Erosion and sediment controls will be installed as needed to control sediment from discharging into adjacent water bodies in accordance with the EPP (Section 5.0 of this WP).

ABG Fence Removal and Installation.

To provide the required excavation and stockpile working footprints and facilitate efficiency of overall site operations, the southern ABG fence, fence posts and associated concrete will be removed and disposed of offsite in accordance with the WMP (Section 4.0 of this WP). The new fencing will be installed as shown on Figure 2-3 prior to removal of the existing ABG fence. Any reusable portion of the fencing will be properly staged in a clean materials staging area for potential onsite reuse as fencing material along with installation of new fencing as required.

Site Access

AGVIQ-CH2M HILL proposes to construct two temporary, 20-foot wide access roads off the existing ABG paved access road to enable personnel and equipment access to FDP1 and FDP3. The roads will be constructed with a woven geotexile fabric as the base layer, followed by a 2- to 2.5-inch-diameter gravel layer. AGVIQ-CH2M HILL proposes to obtain the gravel from existing onsite stockpiles from ATK, if available. Any gravel, including from offsite sources, will be sampled in accordance with the SAP (Section 3.0 of this WP). AGVIQ-CH2M HILL will provide the sample analytical results summary to the Navy for approval before using this material. To reduce soil, sediment and mud migration from the work area

into the surrounding areas, the gravel roads will be extended around the FDP1 and FDP3 proposed excavation boundaries.

Work Zones

The following environmental work zones will be established at the site to prevent contaminant migration from potentially impacted people, places or things to surrounding areas.

- **Exclusion Zone (EZ):** identified as the area of excavation where equipment is actively performing intrusive subsurface work. The distance of the area will be considered large enough in circumference to encapsulate the excavation and personnel working in the excavation area. This area will be demarcated to identify specific personal protective equipment (PPE) and/or training entry requirements.
- **Reduction Zone (RZ):** identified as the area adjacent to the EZ. The RZ is comprised of reduction equipment such as decontamination support equipment, washing stations, and authorized support personnel. Entrances and exits from the RZ will be demarcated to identify and indicate specific PPE and/or training entry/exit requirements.
- **Cold Zone:** identified as the remaining portion of the site excluding the EZ and RZ. This area will include uncontaminated equipment, support personnel, office trailers, clean material staging areas, and any additional equipment or personnel needed to perform the activities at the site.

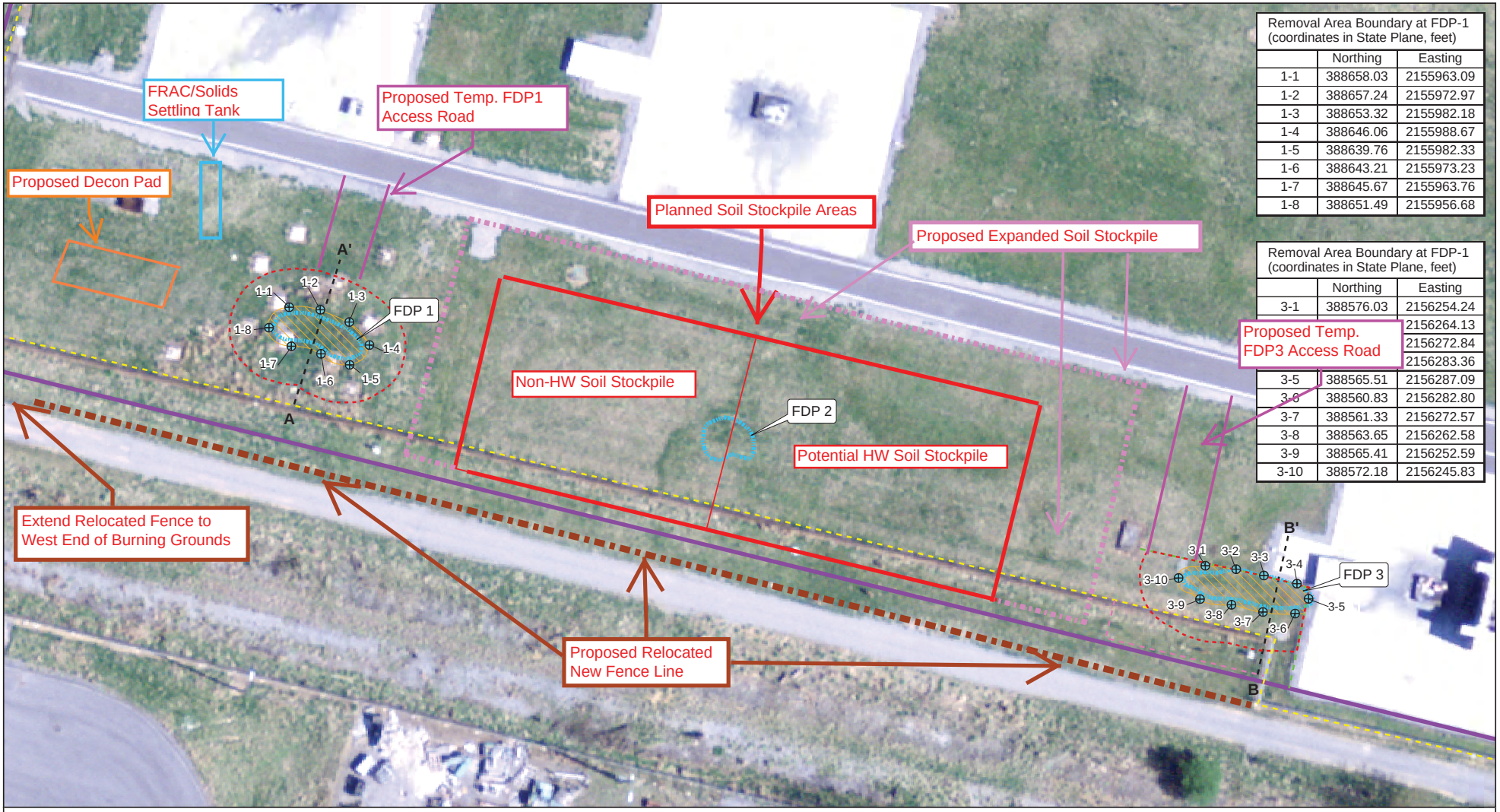
Decontamination

AGVIQ-CH2M HILL will construct a decontamination pad west of FDP1 in the RZ (see Figure 2-3). The decontamination pad will be the primary location where workers and equipment exposed to potentially contaminated soil and/or water will be decontaminated. All personnel, equipment, tools, etc., exposed to potentially contaminated material will be decontaminated before they exit the RZ.

The pad is estimated to be approximately 40 feet by 100 feet and will be constructed with a minimum 6-inch perimeter berm, a water collection sump and an impervious 10-mil high density polyethylene (HDPE) liner. Wastewater will be pumped into a frac tank and then pretreated prior to discharge and final treatment at the GWTP, in accordance with the WMP (Section 4.0 of this WP).

The pad will be of sufficient size to allow equipment to be driven onto the pad, accommodate the decontamination of tools and equipment, and capture and contain all wash water and overspray from the decontamination operation. AGVIQ-CH2M HILL will ensure that equipment leaving the RZ is free of contaminated material.

Decontamination will consist of spraying tools and equipment with high-pressure water from an onsite clean water source and when appropriate, may also consist of dry decontamination methods such as shovels and brooms to remove dry material adhered to equipment, vehicle tires, tools, and machinery. AGVIQ-CH2M HILL will obtain the approvals from ATK to obtain access to facility water. Wastes generated by decontamination operations will be managed in accordance with the WMP (Section 4.0 of this WP).



Removal Area Boundary at FDP-1 (coordinates in State Plane, feet)

	Northing	Easting
1-1	388658.03	2155963.09
1-2	388657.24	2155972.97
1-3	388653.32	2155982.18
1-4	388646.06	2155988.67
1-5	388639.76	2155982.33
1-6	388643.21	2155973.23
1-7	388645.67	2155963.76
1-8	388651.49	2155956.68

Removal Area Boundary at FDP-1 (coordinates in State Plane, feet)

	Northing	Easting
3-1	388576.03	2156254.24
		2156264.13
		2156272.84
		2156283.36
3-5	388565.51	2156287.09
3-6	388560.83	2156282.80
3-7	388561.33	2156272.57
3-8	388563.65	2156262.58
3-9	388565.41	2156252.59
3-10	388572.18	2156245.83

Legend

- Removal Area Boundary Vertex
- Engineered Excavation Stabalization
- Excavation Cross Sections
- Proposed Relocated Fence Line
- Existing Fence Line
- Approximate Limits of Excavation (Including Sloping for Excavation Sidewall Stablization)
- Former Disposal Pits (FDP)
- Removal Area
- Active Burning Ground

N

0 15 30 60 Feet

1 inch = 30 feet

Figure 2-3
Proposed NTCRA Footprint
Allegany Ballistics Laboratory, Rocket Center, West Virginia

AGVIQ CH2M HILL

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Secondarily, as the excavation activities described in Section 2.1.5 progress from potentially hazardous material to potentially non-hazardous material, decontamination may also be conducted directly over the excavation using high pressure water or dry decontamination methods to optimize site production. When this occurs, the removed material will be allowed to fall back into the excavation.

Contaminated Soil Staging Area

An approximate 60 feet wide by 200-feet long soil staging area will be constructed to stage contaminated soil. AGVIQ-CH2M HILL anticipates that soil that is characterized as F002 listed hazardous waste (see WMP [Section 4.0 of this WP] for F002 characterization requirements) and non-hazardous soil will be generated. In addition, some of the non-hazardous soil may be suitable for onsite reuse.

All excavated soil will be accumulated in segregated stockpiles staged within the staging area which will be underlain with 40-mil linear low density polyethylene (LLDPE) liner and will be bermed along its perimeter to prevent contaminant migration from the staging area to surrounding areas. Additionally, the staging area will contain a 6-inch berm segregating the listed hazardous waste and potential hazardous waste from the potential non-hazardous waste soil/reuse soil (see Figure 2-3). Incidental amounts of aqueous waste generated during the NTCRA (e.g., decontamination water or stormwater accumulations within the berm) may be added to the hazardous soil and non-hazardous soil stockpiles as long as adding water does not create a slurry or cause erosion of the stockpiles. Aqueous waste that cannot be added to the stockpile will be removed and pumped to the onsite frac tank and then pretreated prior to discharge and final treatment at the GWTP in accordance with the WMP (Section 4.0 of this WP).

2.1.5 Well Abandonment

Up to 17 wells (previously identified) will be abandoned by a licensed West Virginia well driller in accordance with West Virginia regulations #47-60-19 to facilitate FDP1 excavation.

As a cost efficient measure, where possible, wells at the shallow edges of the excavation will be protected and not sealed with an emphasis on protecting bedrock wells in the FDP1 area. The wells requiring abandonment will be confirmed in the field after surveying and mapping the limits of excavation. The wells confirmed for abandonment will be tremie-grouted from the bottom of the well up to approximately 14 feet bgs. Each well's surface completion components will remain in place at this time. During the excavation activities, the well surface completion components will be properly removed and after the excavation has reached the anticipated average depth of 14 feet bgs, personnel will enter the excavation. In the excavation, personnel will cut the wells and perform any additional sealing necessary to ensure that the wells are abandoned in accordance with the applicable regulation(s).

2.1.6 Excavation of Soils – FDP1 and FDP3

For FDPs 1 and 3, excavation will remove potential source material, as well as a 2-foot soil buffer from the area defined by the GPS coordinates shown on Figure 2-3. For each pit, excavation depth of the source material will reach up to 14 feet bgs (average) or until the water table is encountered, whichever comes first. AGVIQ-CH2M HILL will excavate to the

geographical boundaries depicted on Figure 2-2 (and up to an average of 14 feet bgs) unless directed to do otherwise by the Navy.

An excavator will unearth the soil. The soil will be screened with a PID instrument and placed into a dump truck for transport to the appropriate staging areas. Since the excavations will be in the unsaturated zone, any entrapped water encountered within the excavation that needs to be removed for excavation safety will be pumped using a trash pump to an onsite frac tank. Aqueous and solid materials will be managed in accordance with the WMP (Section 4.0 of this WP).

Excavation at FDP1 is planned to occur concurrently with the FDP3 soil stabilization structure construction. With the exception of the stabilized walls associated with FDP3, all excavation walls will be sloped at a 1:1 angle and excavation entrances will be sloped at a 3:2 angle to ensure equipment and/or personnel can safely access the excavations as needed for sampling, backfilling, well abandonment, and other required tasks.

Material generated during the soil structure installation may be initially stockpiled on top of the FDP3 limits until the soil can be relocated to the soil staging area during the overall FDP3 soil removal effort. Soil removed for the stabilization wall structure installation will be placed on 10-mil polyethylene sheeting with straw bales placed around the removed soil for erosion control.

During excavation activities, AGVIQ-CH2M HILL plans to initially segregate soil generated from excavation activities into a minimum of four soil stockpiles that may include hazardous F002 listed waste, potentially hazardous soil (to be stockpiled right of the bermed area shown in Figure 2-3 but not comingled), and potential non-hazardous soil/potential reuse soil (to be stockpiled left of the bermed area shown in Figure 2-3).

The initial segregation will be based on both the GPS coordinates shown on Figure 2-3 in conjunction with field PID screening values as follows:

- F002 listed waste - This will include the soil within the GPS demarcated FDP1 and FDP3 perimeters plus soil from the 2-foot buffer areas.
- Potentially hazardous soil – This will include soil from outside the 2-foot buffer areas with PID screening values greater than 10 ppm.
- Non-hazardous soil/reuse soil – This will include soil from outside the 2-foot buffer areas with PID values less than 10 ppm. Field judgment based on a combination of olfactory, visual and PID values will be made as to the value of further segregating these soils.

Upon unearthing the F002 waste, it may be possible to avoid stockpiling this waste by directly loading it for transportation to the disposal facility if the facility agrees the in-situ samples discussed in Section 2.1.2.2, along with generator knowledge, are sufficient for characterization purposes. Otherwise, the F002 waste will be staged as described above and sampled for disposal purposes as described in Section 3.0. The ability to directly load the F002 waste (which will reduce the staging area footprint), the actual soil volumes generated, and the PID screening values obtained are factors that will be used to ultimately determine if and how the four stockpiles can be further segregated to mirror the sampling frequency identified in Section 3.0.

With the exception of the soil within the demarcated FDP1 and FDP3 perimeters and the soil from within the 2-foot buffer areas, which will be disposed offsite as F002 listed waste, the actual disposal and potential re-use classification of all other excavated material will be determined from the results of onsite screening during excavation and the analytical sampling that will be conducted to characterize the soil for potential onsite reuse suitability, as described in the SAP (Section 3.0 of this WP), and for waste profile generation for offsite disposal (hazardous waste [HW] and non-HW soil that can't be reused). The WMP (Section 4.0 of this WP) describes how the analytical sampling data will be used to characterize waste. AGVIQ-CH2M HILL will provide the analytical results summary to the Navy to obtain Navy approval before proceeding with disposing or reusing this material.

During the excavation process, our goal and excavation activities will focus on removing the potential FDP source areas in a cost efficient manner. As the equipment moves from the hazardous soils to the other soils, parts of equipment that made contact with soil will be decontaminated in accordance with Section 2.1.4.2.6 to prevent cross contamination.

Upon completion of the geographically defined excavation of FDP1 and FPD3, AGVIQ-CH2M HILL personnel may enter into the excavation to visually assess the sidewalls for staining and collect sidewall samples to document the presence or absence of site COCs that remain post impacted soil removal, as described in the SAP (Section 3.0 of this WP). Collecting the samples using the excavator bucket, as identified in the SAP, may be conducted due to health and safety reasons but the excavator-assisted collection approach may not be possible and personnel may need to enter into the excavation to conduct the visual sidewall assessment and required sidewall sampling. Depending upon the results of onsite air monitoring after excavations are completed, personnel entering the excavations for sampling and well abandonment tasks may need to use Level C PPE.

AGVIQ-CH2M HILL will provide the post excavation sample analytical results to the Navy after receipt of the results. Because this NTCRA is not considered a clean closure, the analytical results will not be required before backfilling begins unless the Navy directs AGVIQ-CH2M HILL to delay backfilling pending the receipt of sample data. Air monitoring for health and safety purposes will be conducted in accordance with the APP, and PPE will be determined based on the action levels identified in the APP.

At final excavation depth, wells that were abandoned will be cut with a demolition saw to match the excavated elevations. Disposal of the risers from abandoned wells will be managed in accordance with the WMP (Section 4.0 of this WP).

2.1.6.1 Surveying

Before backfilling, the lateral and vertical excavation limits will be documented with a topographic post excavation survey. The post excavation sidewall sample locations will also be surveyed. For FDP3 before the post-excavation survey is completed, the top 3 feet of the soil stabilization structure will be removed as a preventative measure against potential frost heave damage to the adjacent to Burn Pad D. The top 3 feet of the structure will be mechanically removed. The waste generated (concrete, wood, or steel) will be managed in accordance with the WMP (Section 4.0 of this WP).

The post-excavation survey and as-built drawing(s) will be included in the CCR.

2.1.7 Backfill and Site Restoration

Upon completion of the excavation, well abandonment/riser removal, sidewall sampling, and the construction topographic surveys, the excavations will be backfilled. Backfilling will proceed without receipt of the post-excavation sidewall sample results.

Geotextile fabric will be placed at the excavation base associated with FDP1 and FDP3 to demarcate the bottom of the excavation limits for future reference. To secure the geotextile, a 1-foot layer of 2- to 2.5-inch gravel will be placed to 1-foot above the seasonal high water table. The gravel will be compacted in 12- to 18-inch lifts by the excavator bucket. A second geotextile fabric will be placed on the top of the gravel to prevent future settling of backfill material into the underlying gravel. The remainder of the excavation above the second geotextile will be backfilled to 2-inches below grade. The backfill material is anticipated to consist of suitable material that was previously used during site support activities (such as haul roads, non-hazardous soil from the staging area, etc.), certified clean or sampled common fill from an offsite borrow source, and/or from available onsite stockpiles of suitable fill material at ABL, which will be sampled and analyzed in accordance with the SAP (Section 3.0 of this WP) and confirmed acceptable for onsite use as backfill material.

Imported fill may be certified clean and if so, may be imported to the site after Project Manager approval and used onsite as backfill without sampling. If the imported fill cannot be certified clean, it will be sampled in accordance with the SAP for the constituents identified in Table 3-3. If the imported fill analytical results are less than or equal to the EPA Region 3 RSLs, the material will be determined to be suitable for use onsite as backfill. Any material that is stockpiled at the ABL facility and is associated with another project must be sampled in accordance with the SAP for the COCs identified in Table 3-3. If the imported fill analytical results are less than or equal to the EPA Region 3 RSLs, the material will be determined to be suitable for use onsite as backfill. The fill material will be compacted with the bucket of equipment in 12- to 18-inch lifts. It is anticipated that up to 50 percent of the required gravel will be taken from non-impacted portions of the site, such as haul roads and clean material staging pads and reused as excavation backfill material.

No sampling will be conducted on the 2- to 2.5-inch gravel.

AGVIQ-CH2M HILL assumed that up to 30 percent of the project backfill material may be provided from an onsite sampled source. AGVIQ-CH2M HILL will provide the crusher run sample analytical results summary or clean certification to the Navy to obtain approval from the Navy before proceeding with backfilling with this material.

AGVIQ-CH2M HILL assumes that up to 15 percent of the soil excavated from outside of the 2-foot buffer areas associated with FDP1 and FDP2 may be suitable for onsite reuse to backfill the FDP1 and FDP3 excavation. Soil from outside of the 2-foot buffer area will be sampled as described in the SAP to determine suitability for onsite reuse. AGVIQ-CH2M HILL will provide the reuse sample analytical results summary to the Navy to obtain approval from the Navy before proceeding with backfilling with this material.

Topsoil will be placed over all disturbed areas. Topsoil will be sampled as identified in the SAP. AGVIQ-CH2M HILL will provide the topsoil sample analytical results summary to the Navy to obtain approval from the Navy before proceeding with use. The disturbed areas will be reseeded with a common contractor's seed mixture followed by hay to promote

grass growth for final restoration. Silt fencing and erosion control measures will be maintained in place until an acceptable level of vegetation is established. After the grass is established, a final trip will be made to the site to remove the silt fence and other materials left to facilitate site restoration activities.

2.1.8 Demobilization

Before seeding of remaining disturbed project areas, the site will be cleared of work-produced waste and debris, equipment, materials to the satisfaction of ATK/FEAD. Activities will include:

- Decontamination of facilities, equipment, and materials prior to final removal from the site.
- Remove temporary construction features, such as haul roads, work areas, stockpiles, structures, fencing, and waste staging or storage areas in accordance with project requirements and directions provided by the Navy representative. Once soils are removed from the staging area, the area will be decontaminated as indicated in the applicable or relevant and appropriate requirements of the EECA [(33 CSR 20-7.2 only as it incorporates 40 CFR 264.554(d)(1)(ii), (d)(2), (j)(1), (j)(2))] (CH2M HILL, 2012a).
- After decontamination, remove any decontamination support features (such as a pad or wash units). Properly dispose of any items that cannot be decontaminated and/or materials (such as plastic sheeting) used in decontamination activities, along with the soil being disposed or disposed offsite at the appropriate disposal facility.
- Remove erosion and sediment controls when vegetation has been established.
- Conduct a final site inspection and closeout meeting. The NTR/Remedial Project Manager (RPM), the FEAD ATK Environmental Manager, and the AGVIQ-CH2M HILL Project Manager or designated site manager/representative will be invited to the final inspection to ensure that tasks have been conducted to the satisfaction of the Navy and in accordance with the scope identified herein to ensure that the items on the punch list are resolved.

2.2 Project Schedule

Field work will begin following approval of this WP by NAVFAC MIDLANT, with a consideration of weather conditions. A detailed Project Schedule is included in Appendix A of this WP.

2.3 Communications Plan

A communications matrix summarizing the lines of communications for NAVFAC MIDLANT and AGVIQ-CH2M HILL is presented in Table 2-1. Table 2-2 provides a project personnel directory.

TABLE 2-1
Communications Matrix

AGVIQ-CH2M HILL Position	Navy Direct Report
AGVIQ-CH2M HILL SBRAC Deputy Program Manager – Sam Naik	Zane Perry - Contracting Officer's Technical Representative (COTR)
AGVIQ-CH2M HILL Project Manager – Paul Rakowski	Walt Bell, Remedial Project Manager/NTR
AGVIQ-CH2M HILL Deputy Project Manager – Janice Derby	
AGVIQ-CH2M HILL Site Supervisor, SSHO and QA/QC – TBD	Les Mull, ATK Environmental George Colley, Yorktown FEAD ET

TABLE 2-2
Project Personnel Directory

Contact	Company
Zane Perry , COTR	NAVFAC Atlantic 6506 Hampton Blvd. Norfolk VA 23508-1278
Walter Bell, RPM/NTR	NAVFAC Mid Atlantic Building N-26, Room 3300 Naval Station Norfolk 9742 Maryland Ave Norfolk, VA 23511 Direct Line: 757-341-0484
Les Mull, ATK Environmental	Leslie H. Mull II, CHMM Environmental Compliance Alliant Techsystems Inc. (ATK) Allegany Ballistics Laboratory Office: 304.726.5425 Mobile: 301.697.8615 email: les.mull@atk.com
George Colley, ET	Construction Representative (ConRep) and Engineering Technician NAVFAC / Naval Weapons Station Yorktown Public Works / Facilities Engineering and Design (FEAD) Dept. Bldg. 16, Spring Rd. Naval Weapons Station Yorktown VA 23691 757-887-4303 (D) 757-636-7215 (C)
Sidney Allison, SBRAC Program Manager Sam Naik, Deputy Program Manager Theresa Rojas, QC Manager Angelo Liberatore, Health and Safety Manager	AGVIQ-CH2M HILL Constructors, c/o CH2M HILL Constructors, Inc. 1000 Abernathy Road, Northpark 400 Suite 1600 Atlanta, GA 30328 770/604-9095
Larry Westphal, Contracts Administration Manager Paul Rakowski, Project Manager Rachel Francis, Health & Safety Program Administrator	AGVIQ-CH2M HILL 4610 Westgrove Court Virginia Beach, VA 23455 Direct Line 757-231-8581 (P. Rakowski) Cell 757-544-6744 (P. Rakowski) FAX 757-318-9421

TABLE 2-2
Project Personnel Directory

Contact	Company
Janice Derby – Deputy Project Manager	AGVIQ-CH2M HILL Cell 617-416-1211 FAX 773-695-1331

2.4 Traffic Control Plan

Overall project traffic control will be the responsibility of the AGVIQ-CH2M HILL representative. AGVIQ-CH2M HILL will minimize disturbance to surrounding area traffic patterns during project activities. All trucks will be issued route maps based on ABL facility requirements. Truck drivers will be instructed to follow specific routes to access and depart the facility as quickly and efficiently as possible.

Adherence to facility traffic requirements will be everyone's responsibility. The following ABL requirements will be followed:

- The ABL speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed.
- Any vehicle on plant displaying a flashing red light or any forklift truck (loaded or empty) shall be given the right-of-way.
- When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes.
- When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.

All contractors riding in the rear (bed) of a pickup must be seated below the bed rails.

2.5 Accident Prevention Plan

AGVIQ-CH2M HILL and its subcontractors will comply with the health and safety requirements prescribed by 29 CFR 1910 and 29 CFR 1926, as well as those outlined in the project Accident Prevention Plan (Appendix A). All workers involved in any intrusive work or those who may be exposed to subsurface soils, or contaminant-impacted materials will provide evidence of medical certification, and 40-hour or 8-hour refresher Hazardous Waste Operations and Emergency Response (HAZWOPER) training to AGVIQ-CH2M HILL prior to the start of work. No onsite work will be allowed until all the information required by 29 CFR 1910.120 is provided to AGVIQ-CH2M HILL. In addition to these requirements, PPE will be used by AGVIQ-CH2M HILL personnel and subcontractors (if required) as specified in AGVIQ-CH2M HILL's APP.

One draft and one final APP will be prepared and submitted separately to NAVFAC for review and comment.

2.6 Construction Completion Report

A CCR will be submitted to NAVFAC MIDLANT to document the activities and will include the following:

- Boring logs
- Geotechnical field data and analytical results
- Well and boring abandonment documentation
- Soil stabilization structure design/build documents
- Summary of completed activities and corresponding observations
- Representative site photographs
- Sample result summaries and analytical results
- Copies of the environmental survey
- Disposal documentation (weight tickets, waste profiles, manifests, land disposal restriction forms, certificates of disposal/treatment/recycling, etc.)
- Baseline, construction and post-construction topographic survey as-builts
- Submittal Register
- Testing Plan and Log

3.0 Sampling and Analysis Plan

This SAP describes the tasks and responsibilities of AGVIQ-CH2M HILL with respect to the sampling and analysis associated with the work described in this WP. AGVIQ-CH2M HILL intends this section to be a site-specific guide for use by the field team while performing the required sampling and analysis. Any changes to the activities described in this SAP must be documented as a deviation to this SAP and approved by the project manager, project chemist, and NAVFAC MIDLANT.

Sampling will be performed as specified in this SAP. All sample analyses will be performed by a subcontracted laboratory approved by the WVDEP and the DoD Environmental Laboratory Accreditation Program (ELAP).

3.1 Data Quality Levels for Measurement Data

The data use determines the required levels of data quality. The two categories of data quality established by the EPA, ***screening*** and ***definitive***, are defined below.

Screening data are generated by rapid methods of analysis with less rigorous sample preparation, calibration and/or quality control (QC) requirements as compared to the requirements for producing definitive data. Sample preparation steps commonly are restricted to simple procedures such as dilution with a solvent, instead of elaborate extraction/digestion and cleanup. Screening data may provide analyte identification and quantitation, although the quantitation may be relatively imprecise, unless EPA reference methods are used. Physical test methods such as dissolved oxygen measurements, temperature and pH measurements, moisture content, turbidity, conductance, etc., have been designated by definition as screening techniques. Depending on the data quality objectives (DQOs), screening methods may require confirmation samples that generate definitive data (see Table 3-1). DoD ELAP accreditation is advised but not required for screening level data.

Definitive data are generated using rigorous analytical methods such as approved EPA reference methods. Data are analyte-specific, and both identification and quantitation are confirmed. These methods have standardized QC and documentation requirements. Definitive data are not restricted in their use unless quality problems require data qualification. They are available for project use and decision-making. DoD ELAP accreditation is required for definitive data.

Four levels of data reporting may be performed as part of typical field efforts, with each level having different supporting Quality Assurance (QA)/QC documentation. The four levels correspond to QC Levels I, II, III, and IV. For this project, Level IV and Level III reporting will be provided. Each is described below:

- Level IV– Laboratory Analysis
  - Case Narrative
  - Sample Identification (ID) Cross Reference Sheet (Lab IDs and Client IDs)
  - Completed Chain of Custody form and any sample receipt information

TABLE 3-1
Data quality Objectives

Number	Problem Statement	Decision to be Made	Inputs to Decision	Decision Rule	Acceptable Limits on Decision Error
1	A NTCRA is required for FDP1 & FDP3 to removed contaminated soils by excavating to 14 feet bgs (average), or to the water table, whichever occurs first.	What area will be excavated?	The project objective is to remove the material within the geographical boundaries of FDP1 and FDP2 and, as a conservative measure, also remove a 2-foot buffer area around the perimeter of FDP1 and FDP3 to a depth of 14-foot bgs (average), or to the water table, whichever occurs first.	A topographic baseline survey will be used to field demarcate and document the geographical boundaries of FDPs 1&3 using known coordinates. A 2-foot buffer area around the perimeter of both FDP1 and FDP3 will also be demarcated/surveyed. This will identify the excavation areas.	The geographical boundaries of FDPs1&3 as well as the 2-foot buffer area require excavation. Acceptable limits on the decision error will be + 6-inches (~.5 feet over-excavation of this area) based upon the GPS points provided on Figure 2-3 from the Draft EECA (March 2012).
			Additional excavation outside of the 2-foot buffer is required at FDP1 and most of FDP3 to safely complete the excavation and enable personnel access to the excavation as necessary for monitoring well removal, placement of geotextile fabrics, sidewall sampling, surveying the limits of the completed excavations and completing the backfill and site restoration.	Additional excavation outside of the 2-foot buffer will be conducted on a 1:1 slope. The additional excavation anticipated is identified in Figure 2-3 of the WP.	Only a competent person will evaluate the excavation and authorize entry.
			The presence of site obstructions may result in an inability to perform all intended excavation. The site survey will be used to proactively identify any potential site obstructions.	Site obstructions will be identified during the topographic survey to allow for development of a plan to mitigate any constraints caused by these obstructions on the project objectives.	If site obstructions that prevent the removal of material inside the geographical boundaries of FDPs1&3 and the 2-foot buffer zone, the AGVIQ-CH2M HILL PM will discuss with client.
2	F002 listed waste, potentially characteristically hazardous waste, non-hazardous waste, and reuse soil will be generated during this NTCRA.	How will the F002 listed waste, characteristically hazardous waste, non-hazardous waste, and reuse soil be properly managed onsite?	F002 Listed Waste: The ABL partnering team agreed during the October 2012 meeting that the material within the geographical boundaries of FDPs1&3 as well as the 2ft buffer area will automatically be characterized as a F002 Listed Waste, regardless of the analytical sample results. The material will be sampled in-situ for the parameters listed in Section 3.0 and in accordance with the requirements of the accepting disposal facility. Potentially characteristic hazardous waste, non-hazardous waste and reuse soil: Upon generation, this material will be field screened with a PID and assessed for staining/odors.	F002 Listed Waste: The material inside the geographical boundaries of FDPs1&3 as defined by the GPS points shown on Figure 2-3 of this WP as well as the 2-foot buffer area will automatically be characterized as a F002 Listed Waste, regardless of the analytical sample results. Upon generation, this material may be directly loaded for disposal or may be immediately staged in the hazardous soil stockpile area. Potentially characteristic hazardous waste: The material will be excavated with an excavator. Each bucket will be screened with a PID instrument. If the PID reading > 10ppm, the material will be temporarily staged in the potentially hazardous waste staging area until it gets sampled. If material is also heavily stained or odorous, it will also be placed in the potentially characteristic hazardous waste stockpile. Non-hazardous waste and re-use soil: The material will be excavated with an excavator. Each bucket will be screened with a PID instrument. If the PID reading ≤ 10ppm, the material will be temporarily staged in the non-hazardous waste staging area until it gets sampled.	To avoid erroneous decisions based on inaccurate PID readings, the PID unit will be calibrated daily and the calibration will be documented.

TABLE 3-1
Data quality Objectives

Number	Problem Statement	Decision to be Made	Inputs to Decision	Decision Rule	Acceptable Limits on Decision Error
3	F002 listed waste, potential characteristically hazardous waste, and potential non-hazardous waste will need to be characterized and disposed offsite.	How will the F002 listed waste, characteristically hazardous waste and non-hazardous waste be characterized and disposed offsite?	F002 Listed waste: The material inside the geographical boundaries of FDPs1&3 as shown in Figure 2-3 as well as the 2-foot buffer area will automatically be characterized as a F002 Listed Waste, regardless of the analytical sample results. In-situ samples will be collected from each pit at a frequency of one sample per 500 tons. Upon generation, the material may be sampled at a frequency determined by the disposal facilities if doing so is required for disposal purposes. Potential characteristic hazardous waste – one initial sample may be collected from the potentially hazardous material stockpile for every 250 tons of potentially hazardous material generated to assess suitability for onsite reuse. Otherwise, the material will be sampled for disposal purposes at a frequency of one sample per 500 tons. Samples will be collected and laboratory analyzed in accordance with the SAP. Potential non-hazardous waste: one initial sample will be collected from the non-hazardous material stockpile for every 250 tons of material generated to assess suitability for onsite reuse. Otherwise, the material will be sampled for disposal purposes at a frequency of one sample per 500 tons. Samples will be collected and laboratory analyzed in accordance with the SAP.	If based on the analytical sample results, the material is determined to be a RCRA hazardous waste per RCRA CFR 261, it will be disposed as such. If the material is not suitable for onsite reuse but is not F002 listed waste and is not characteristic hazardous waste, then it will be profiled and properly disposed offsite as non-hazardous waste. The goal is to remove F002 listed waste and characteristic hazardous waste within 90-days and to remove non-hazardous material as soon as practical.	Analytical data must meet the quality requirements in the DoD QSM and the data validation must determine if the data meet quality objectives for precision, accuracy, representativeness, comparability and completeness to be used in the assessment of potential contamination. Hazardous waste is not planned to be onsite for > 90 days. However, if it is, additional sampling/ management requirements may apply.
4	The excavation lateral and vertical limits need to be documented.	How will the lateral and vertical excavation limits be documented?	Feasibility of surveying the lateral and vertical excavation boundaries and health and safety aspects of surveying the boundary.	Unless a health and safety risk exists, the post excavation topographic survey will be used to document the lateral and vertical excavation limits.	Standard industry survey tolerances will be applied to this work.
5	The COCs that are absent or present upon completion of excavation activities need to be documented.	How will the absence or presence of site COCs be documented after construction activities?	Post excavation sidewall samples will be collected and analyzed as identified in the SAP. The feasibility of collecting the samples from the sidewalls at the depths indicated will be considered as will any health and safety aspects (excavation stability, ambient air action levels, etc.) pertaining to the sample collection.	Unless a health and safety risk exists, post excavation sidewall samples will be collected from the sidewalls at the depths identified in the SAP using the means and methods identified in the SAP. If necessary, an excavator may be used to collect the samples to eliminate personnel having to enter the excavation area. The laboratory analytical results will be compiled and presented in the CCR.	Analytical data must meet the quality requirements in the DoD QSM and the data validation must determine if the data meet quality objectives for precision, accuracy, representativeness, comparability and completeness to be used in the assessment of potential contamination.
6	A soil stabilization structure needs to be constructed adjacent to Burn Pad to facilitate FDP3 excavation and ensure excavation stability. The structure will prevent the collection of post excavation sidewall samples from two of FDP3's sidewalls.	How can the FDP3 sidewalls be sampled?	Immediately after the baseline topographic survey and before any excavation occurs, three borings will be advanced as shown on Figure 1-3 of the WP for the collection of samples 12GE-01 and 12CH-01 (both of these samples will be analyzed for the COCs identified in the SAP).	The borings will be advanced as close as feasible to the planned locations on Figure 1-3. If site obstructions exist that make it infeasible to collect the samples at these planned locations, the samples will be collected as feasible while ensuring to the extent possible that one sample is collected behind the northern wall of the planned soil stabilization structure and one sample is collected east of the planned soil stabilization structure wall.	For soil boring location, as long as the boring is collected north and east of the planned soil stabilization structure wall, the data quality objectives will be considered to be achieved. For the sample results, analytical data must meet the quality requirements in the DoD QSM and the data validation must determine if the data meet quality objectives for precision, accuracy, representativeness, comparability and completeness to be used in the assessment of potential contamination.

TABLE 3-1
Data quality Objectives

Number	Problem Statement	Decision to be Made	Inputs to Decision	Decision Rule	Acceptable Limits on Decision Error
7	Some of the excavated material may be suitable for onsite reuse. Need to determine what is acceptable to reuse onsite as backfill	What criteria will be used to determine if excavated material is acceptable for reuse onsite as backfill material?	Soil being assessed for onsite reuse will be sampled using the means and methods identified in the SAP for the constituents identified in Table 3-3. One sample will be collected for every 250 tons. The criteria that will be used to determine if soil can be reused onsite is identified in Table 3-3 of the SAP. For cost efficiency, soil being assessed for potential onsite reuse will first be analyzed for the select VOCs identified in Table 3-3. If the select VOC concentrations are > the SRGs identified in Table 3-3, the soil is not acceptable for onsite reuse and it will be analyzed for the WC constituents identified in Table 3-3 at a frequency of one sample per 500 tons. If the select VOC concentrations are ≤ the SRGs identified in Table 3-3, the soil being assessed for potential onsite reuse will then be analyzed for the remaining "reuse" constituents identified in Table 3-3 at a frequency of one sample per 250 tons.	If the analytical results indicate that soil being assessed for onsite reuse contains select VOC and remaining "reuse constituent" concentrations ≤ the SRGs in Table 3-3, the soil will be determined suitable for onsite reuse.	Analytical data must meet the quality requirements in the DoD QSM and the data validation must determine if the data meet quality objectives for precision, accuracy, representativeness, comparability and completeness to be used in the assessment of potential contamination.
8	Additional material may be needed to backfill FDPs 1 & 3. Need to ensure the additional material is suitable to use onsite.	What criteria will be used to determine if imported fill material or ABL facility material is acceptable for reuse onsite as backfill material?	Sources of potential backfill material include gravel that has not come into contact with contaminated material such as material used during support activities such as haul road construction, underneath poly from soil stockpiles, etc. This material will not be sampled. In addition, imported fill and fill that is onsite from other ABL Facility construction projects may also be considered for use as backfill. If a clean fill certificate cannot be provided, one sample will be collected for every 500 tons.	Gravel that has not come into contact with potentially hazardous material may be used as backfill material. Imported fill may be certified clean and if so, may be imported to the site after PM approval and used onsite as backfill without sampling. If the imported fill cannot be certified clean, it will be sampled in accordance with the SAP for the constituents identified in Table 3-3. If the imported fill analytical results are ≤to the EPA Region 3 RSLs, the material will be determined to be suitable for use onsite as backfill. Any material that is stockpiled at the ABL facility and is associated with another project must be sampled in accordance with the SAP for the COCs identified in Table 3-3. If the imported f fill analytical results are ≤ to the EPA Region 3 RSLs, the material will be determined to be suitable for use onsite as backfill.	Analytical data must meet the quality requirements in the DoD QSM and the data validation must determine if the data meet quality objectives for precision, accuracy, representativeness, comparability and completeness to be used in the assessment of potential contamination.

  - Any analytical/procedural changes (copies of "Confirmation of Communication")
  - Copies of non-conformance memos and corrective actions
  - All Contract Laboratory Program (CLP)-like Forms
  - Electronic Data Deliverable (EDD)
  - All raw data from bench logs, instrument printouts

- Level III– Laboratory Analysis
  - Case Narrative
  - Sample ID Cross Reference Sheet (Lab IDs and Client IDs)
  - Completed COC form and any sample receipt information
  - Any analytical/procedural changes (copies of "Confirmation of Communication")
  - Copies of non-conformance memos and corrective actions
  - All CLP-like Forms
  - Electronic Data Deliverable (EDD)

The data quality and data package levels are listed in Table 3-2. The laboratory-specific quantitation limits, project action limits, and QC limits by which the data will be evaluated will be provided by the selected laboratory and approved by AGVIQ-CH2M HILL's Project Chemist prior to any analytical testing.

TABLE 3-2
Data Quality and Package Levels

Sampling Activity	Data Quality Level	Data Package Level
Soil boring geotechnical and chemical sampling (offsite laboratory analysis)	Definitive	IV
Fill material (backfill/topsoil) sampling (offsite laboratory analyses)*	Definitive	IV
Reuse sampling (offsite laboratory analysis)	Definitive	IV
Post excavation sidewall sampling (offsite laboratory analysis)	Definitive	IV
Waste characterization sampling (offsite laboratory analyses)	Definitive	III
PID field screening of excavated material	Screening	N/A

*Not required if clean fill certification is provided for imported fill

3.2 Sampling Objectives

The project sampling objectives are described below.

- Soil boring geotechnical data - obtain geotechnical data to support soil stabilization structure design to ensure the structural integrity of Burn Pad D will be maintained during excavation at FDP3.

- Soil boring chemical analytical data – obtain definitive data to document the presence or absence of site COCs in advance of soil stabilization structure placement.

- Fill material analytical data – obtain definitive data to document the presence or absence of contaminants in imported fill or available onsite fill/material to ensure against potential cross contamination.
- Reuse material analytical data – obtain definitive data to document the presence or absence of contaminants in material generated from excavation outside of the 2-foot buffer zone.
- Post excavation analytical data – obtain definitive data to document the presence or absence of site COCs remaining after the NTCRA.
- Waste characterization analytical data – obtain definitive data to support the proper transport and disposal of waste generated from this NTCRA.

3.2.1 Soil Boring Geotechnical Samples

Soil boring geotechnical samples will be analyzed in accordance with the requirements identified in Table 3-3 using the following procedures:

1. Borings can be drilled using hollow-stem augers, mud rotary drilling technique, or rotosonic drilling methods.
2. The drilling rigs shall be equipped with SPT hammer, which is calibrated for energy transfer ratio within 1 year.
3. SPTs shall be performed using split spoon sampler continuously within the soil for to the top of rock.
4. Disturbed samples shall be stored in 12 or 26-ounce (oz) glass jars with moisture-tight screw tops. Jars shall be contained in boxes with the capacity to hold no more than twelve 16-oz jars, or 24 twelve-oz jars, and boxes must have the strength to contain the project jars under ordinary shipping and handling conditions.
5. Up to four undisturbed samples shall be retrieved if cohesive soils are encountered. The undisturbed samples shall be retrieved using Shelby tubes or Pitcher/Denison sampler, which will be used to retrieve undisturbed samples in stiff clays or silts. The undisturbed samples shall be properly sealed with wax to preserve the moisture immediately after the retrieval of the sample in the field. One SPT shall be performed immediately following the sampling of the undisturbed sample. Undisturbed samples will be handled and transported in a manner that ensures the sample's structural integrity and natural moisture condition. Specimens shall not be exposed to direct sun, freezing or precipitation.
6. Pocket penetrometer readings will be taken by AGVIQ-CH2M HILL when cohesive soils are encountered.
7. Rock coring using minimum NQ-size core barrel shall be conducted to a maximum depth of 30 feet bgs or 10 feet of rock coring which ever shallower.
8. Cores will be stored in 5-foot-long timber boxes to store the cores.

9. Before transporting the box to the laboratory, AGVIQ-CH2M HILL will mark the box with project name, boring number, top elevation, recovery in inch and percentage, and Rock Quality Designation (RQD) in inches and percentage. A photograph of each box shall be taken by AGVIQ-CH2M HILL.

10. Driller will notify AGVIQ-CH2M HILL with any loss of circulation of drilling or any rod drop.

11. Ground water table will be recorded in each boring when encountered, and at the end of drilling.

12. The borings will be logged by AGVIQ-CH2M HILL in the field. The soil classification and field description of soils shall follow ASTM standards.

3.2.2 Soil Boring Chemical Samples

Soil boring chemical samples will be analyzed in accordance with the requirements identified in Table 3-3.

Up to four samples will be collected from each boring (total of eight samples). Samples will be collected at vertical intervals of approximately 3.5 feet to allow for assessment of vertical soil profile at various depths (3.5 feet bgs, 7 feet bgs, 10.5 feet bgs, and 14 feet bgs).

Each grab sample will be collected as follows:

1. The drilling subcontractor will carefully remove the sleeve of the core sampler from the geoprobe and place it horizontally on poly sheeting for sample collection by AGVIQ-CH2M HILL personnel.

2. Using a knife or blade, AGVIQ-CH2M HILL personnel trained in sample collection will cut the sampling sleeve to allow access to the soil core. The direction of the knife will be away from the body.

3. The cores will be carefully assessed for staining and/or odor. Material that is stained or odorous will be preferentially selected for placement into the jar.

4. For Non-VOC analysis: Using a disposable plastic spoon/scooper or similar dedicated collection device, soil that corresponds to each of the discrete sampling depths (3.5 feet bgs, 7 feet bgs, 10.5 feet bgs, and 14 feet bgs) will be placed into separate sampling jars (one jar for each sampling depth).

5. For VOC sample collection, an Terracore or equivalent sampler will be used to collect the sample for analysis once the core sleeve is open. Personnel will quickly collect a soil sample using the sampling device by pushing the T-handle with the sampler attached directly straight down into the soil. As the soil is collected in the sampler, the plunger on the sampler will be pushed up. Refer to the individual sampling device documentation to determine the appropriate sample level in the sampling device. When using any low-concentration sampling device, make sure that the area to be sampled is free of stones or other objects that may hinder the advancement of the sampler. Immediately cap or transfer the sample to the 40-ml vial as soon as it is collected. Fill out a label and attach to sampler or vial.

Field QC samples will include one matrix spike (MS) sample, one matrix spike duplicate (MSD) sample, one field duplicate (FD), and one trip blank (TB).

3.2.3 Fill Material Sampling

If a clean fill certification can be provided for imported fill material, it may not require sampling to meet the sampling objectives. Otherwise, imported fill material as well as fill material available within the ABL facility will be sampled as identified in Table 3-3. It is anticipated that up to 1087 tons of backfill/topsoil will be required. Each material will be sampled at a frequency of one sample for every 500 tons. Up to three 5-point composite samples (for non-VOC analysis) and up to three discrete samples (for VOC analysis) will be collected from the backfill/topsoil material and analyzed as indicated herein before it is mobilized to the site. Two samples (two composite samples for non-VOCs and two discrete samples for VOCs) will be collected from the general fill material and one composite (for non-VOCs) and one discrete sample (for VOCs) will be collected from the topsoil. Samples will be collected as follows:

Non-VOC analysis:

1. For each stockpile, grab samples will be collected from five randomly selected locations using a disposable plastic scooper.
2. For each grab soil sampling location, approximately 4 to 6 oz of soil will be collected and placed into a disposable bowl.
3. After five soil grab samples have been collected and the material has been placed into the disposable bowl, the soil will be homogenized. The appropriate amount (as determined by the contracted laboratory) of homogenized soil will be placed into the appropriate sample vial(s) as determined by the laboratory.

VOC analysis:

For VOC sample collection, a Terracore or equivalent sampler will be used to collect the sample for analysis. Personnel will quickly collect a soil sample using the sampling device by pushing the T-handle with the sampler attached directly straight down into the soil. As the soil is collected in the sampler, the plunger on the sampler will be pushed up. Refer to the individual sampling device documentation to determine the appropriate sample level in the sampling device. When using any low-concentration sampling device, make sure that the area to be sampled is free of stones or other objects that may hinder the advancement of the sampler. Immediately cap or transfer the sample to the 40-ml vial as soon as it is collected. Fill out a label and attach to sampler or vial.

Field QC samples will include one M) sample, one MSD sample, one FD and one TB.

TABLE 3-3

ABL TO-WE28, Site 1 FDP1 & FDP3 NTCRA Sampling

Analysis/Test	Sample Matrix	Holding Time	Sampling Frequency	Sample Type	Sampling Equipment	Site Remediation Goals (SRG) mg/kg	Field Samples	Field Duplicates	Matrix Spikes	Matrix Spike Duplicates	Trip Blanks
Soil Boring Geotechnical Samples											
Mechanical Sieve Analysis by ASTM D422	Soil and/or Rock	None	Field Determined	Discrete sample at each depth	Shelby tubes or Pitcher/Dension sampler	NA	4	NA	NA	NA	NA
Hydrometer analysis by ASTM D422	Soil and/or Rock	None					4				
Atterberg Limits by ASTM D4318	Soil and/or Rock	None					6				
Water Content by ASTM D698	Soil and/or Rock	None					20				
3-Point Consolidated Undrained triaxial shear tests with pore pressure measurements by ASTM D4767	Soil and/or Rock	None					1				
Unconsolidated-Undrained (UU) triaxial shear tests by ASTM D2850	Soil and/or Rock	None					2				
Rock uniaxial compressive strength w/o measurement of modules by ASTM D7012	Soil and/or Rock	None					3				
Rock Point load test by ASTM D5731-95	Soil and/or Rock	None					2				
Soil Boring Chemical Samples											
Select VOCs by SW-846 8260C using TerraCores			3.5 ft. bgs, 7 ft. bgs, 10.5 ft. bgs, 14 ft. bgs		Disposable trowel			1 field duplicate per 10 samples collected	1 MS per 20 samples collected	1 MSD per 20 samples collected	
1,1-Dichloroethene	Soil	14 days		Discrete sample at each depth		0.18	8				1- per cooler
Tetrachloroethene	Soil					0.22					
Trichloroethene	Soil					0.16					
Dioxins/ Furans by SW-846 8290	Soil	30 days; if frozen, 1 year		Composite sample at each depth		1.8×10^{-4}	8				NA
Select Metals by SW-846 6010C											
Manganese	Soil	180 days		Composite sample at each depth		1,090 (SS) 852 (SB)	8				
Copper	Soil					253 (SS)					
Lead	Soil					160					
Mercury by SW-846 7471B	Soil	28 days		Composite sample at each depth		1.61 (SS)	8				
Select Explosives by SW-846-8330											
HMX	Soil	14 days to extraction/ 40 days to analysis		Composite sample at each depth		10 (SS)	8				
RDX	Soil	14 days to extraction/ 40 days to analysis				10 (SS)					
Nitroglycerin by SW-846 8332/8330	Soil	14 days to extraction/ 40 days to analysis				65 (SS)	8				
Perchlorate by SW-846 6850	Soil	28 days				0.85	8				

TABLE 3-3

ABL TO-WE28, Site 1 FDP1 & FDP3 NTCRA Sampling

Analysis/Test	Sample Matrix	Holding Time	Sampling Frequency	Sample Type	Sampling Equipment	Site Remediation Goals (SRG) mg/kg	Field Samples	Field Duplicates	Matrix Spikes	Matrix Spike Duplicates	Trip Blanks
Concrete Waste Characterization Samples											
TCL VOCs by SW-846 8260C	Concrete	14 days	1 - at soil structure concrete pad / 1 - at fence concrete post	Collect composite concrete chip sample	Dedicated equipment	NA	2	NA	NA	NA	NA
Post-Excavation Sidewall Soil Samples											
Select VOCs by SW-846 8260C using TerraCores			From each of the 6 sidewalls, collect a samples at: 3.5-ft bgs, 7-ft bgs, 10.5-ft bgs, 14-ft bgs and/or from preferentially stained area		Disposable trowel			1 field duplicate per 10 samples collected	1 MS per 20 samples collected	1 MSD per 20 samples collected	
1,1-Dichloroethene	Soil	14 days		Discrete sample at each depth		0.18	24				1- per cooler
Tetrachloroethene	Soil					0.22					
Trichloroethene	Soil					0.16					
Dioxins/ Furans by SW-846 8290	Soil	30 days; if frozen, 1 year		Composite sample at each depth		1.8×10^{-4}	24				NA
Select Metals by SW-846 6010C											
Manganese	Soil	180 days		Composite sample at each depth		1,090 (SS) 852 (SB)	24				
Copper	Soil					253 (SS)					
Lead	Soil					160					
Mercury by SW-846 7471B	Soil	28 days		Composite sample at each depth		1.61 (SS)	24				
Select Explosives by SW-846 8330											
HMX		14 days to extraction/ 40 days to analysis		Composite sample at each depth		10 (SS)	24				
RDX	Soil	14 days to extraction/ 40 days to analysis				10 (SS)					
Nitroglycerin by SW-846 8332/8330	Soil	14 days to extraction/ 40 days to analysis				65 (SS)	24				
Perchlorate by SW-846 6850	Soil	28 days				0.85	24				

TABLE 3-3

ABL TO-WE28, Site 1 FDP1 & FDP3 NTCRA Sampling

Analysis/Test	Sample Matrix	Holding Time	Sampling Frequency	Sample Type	Sampling Equipment	Site Remediation Goals (SRG) mg/kg	Field Samples	Field Duplicates	Matrix Spikes	Matrix Spike Duplicates	Trip Blanks
Fill Material Samples											
Grain Size by ASTM D422	Soil	None	1-sample from topsoil and 2 samples from general fill	5 point composite soil sample	Disposal trowel	EPA Region 3 RSLs	3	NA	NA	NA	NA
TCL VOCs by SW-846 8260C using TerraCores	Soil	14 days	1-sample from topsoil and 2 samples from general fill	Discrete sample			3	1 field duplicate per 10 samples collected	1 MS per 20 samples collected	1 MSD per 20 samples collected	1 - per cooler
TCL Pesticides by SW-846 8081B	Soil	14 days to extraction/ 40 days to analysis	1-sample from topsoil and 2 samples from general fill	5 point composite soil sample			3				NA
TAL Metals by SW-846 6010C	Soil	180 days					3				
Mercury by SW-846 7471B	Soil	28 days	1- sample from topsoil and 2 samples from general fill				3				
TCL SVOCs by SW-846 8270D	Soil	14 days to extraction/ 40 days to analysis					3				
Chlorinated Herbicides by SW-846 8151A	Soil	14 days to extraction/ 40 days to analysis					3				
TCL PCBs by SW-846 8082A	Soil	14 days to extraction/ 40 days to analysis					3				
Excavated Stockpiled Soils											
Initial Analysis to Assess for Reuse - Select VOCs by SW-846 8260C using TerraCores											
1,1-Dichloroethene	Soil	14 days	1 sample per 250 tons of soil	1 Discrete sample	Disposal trowel	0.18	6	1 field duplicate per 10 samples collected	1 MS per 20 samples collected	1 MSD per 20 samples collected	1 - per cooler
Tetrachloroethene	Soil					0.22					
Trichloroethene	Soil					0.16					
If Select VOCs are ≤ SRGs, Analyze for Additional Reuse Constituents; Otherwise Analyze for WC											
Additional Reuse Constituents; Otherwise Analyze for WC											
Dioxins/ Furans by SW-846 8290	Soil	30 days; if frozen, 1 year	Sample if initial analysis ≤ SRGs - 1 sample per 250 tons of soil	1, 5 point composite soil sample		1.8×10^{-4}	6				NA
Select Metals by SW-846 6010C											
Manganese	Soil	180 days				1,090 (SS) 852 (SB)					
Copper	Soil					253 (SS)					
Lead	Soil					160					
Mercury by SW-846 7471B	Soil	28 days				1.61 (SS)					
Select Explosives (HMX, RDX) by SW-846 8330	Soil	14 days to extraction/ 40 days to analysis				10 (SS)					
Nitroglycerin by SW-846 8332/8330	Soil	14 days to extraction/ 40 days to analysis				65 (SS)					
Perchlorate by SW-846 6850	Soil	28 days				0.85					

TABLE 3-3

ABL TO-WE28, Site 1 FDP1 & FDP3 NTCRA Sampling

Analysis/Test	Sample Matrix	Holding Time	Sampling Frequency	Sample Type	Sampling Equipment	Site Remediation Goals (SRG) mg/kg	Field Samples	Field Duplicates	Matrix Spikes	Matrix Spike Duplicates	Trip Blanks
Soil Waste Characterization Analysis											
TCL VOCs by SW-846 8260C using TerraCores	Soil	14 days	1 sample per 500 tons of soil for the FDP1 & FDP3 material and 2-ft buffer material (to be disposed as F002 regardless of analytical results) or as required by the accepting disposal facility. For the potential reuse material that contained initial analysis constituents > SRGs, 1 sample for every 500 tons of soil.	1, 5 point composite soil sample per 500 tons	Disposal trowel	NA	6	NA	NA	NA	NA
Full TCLP by SW-846 1311/ 8260C, 8270D, 8081B, 8151A, 6010C, 7471B	Soil	14 days									
TCL PCBs by SW-846 8082A	Soil	14 days to extraction/ 40 days to analysis									
Ignitability by Pensky Martens	Soil	14 days									
Corrosivity as pH by SW-846 9045D	Soil	7 days									
Reactivity to Cyanide by SW-846 9012B	Soil	14 days									
Reactivity to Sulfide by SW-846 9030	Soil	28 days									

Notes:
FDP - Former Disposal Pits
NA - not applicable
mg/kg - milligram per kilogram
SB - subsurface soil
SS - surface soil
SVOCs - semi-volatile organic compounds
TCL- target compound list
TAL - target analyte list
TCLP - toxicity characteristic leaching procedure
VOCs - volatile organic compounds

3.2.4 Excavated Stockpile Soil Sampling for Reuse and Disposal

All soil stockpiles, with the exception of the material excavated from inside the geographical boundary of FDP1 and FDP3 as well as the 2-foot buffer zone around each FDP, will be sampled as described below. These stockpiles include the potentially hazardous material, the potentially non-hazardous material, and the potential reuse soil. For each of these stockpiles, one sample will be collected for every 250 tons of soil generated.

3.2.4.1 Potentially Hazardous, Potentially Non-Hazardous, and Potential Reuse Soil

Because it is anticipated that up to 1,475 tons of soil will be excavated outside of the 2-foot buffer zone around each FDP, up to six 5-point composite samples (for non-VOC analysis) and up to six discrete samples (for VOC analysis) will be collected from the four soil stockpiles and analyzed for potential onsite re-use as backfill material or for disposal purposes. The number of stockpiles may increase depending on disposal facility acceptance of the in-situ samples collected from FDP1 and FDP3 for waste disposal purposes and based on actual site conditions. Reuse samples will be analyzed for the same parameters as the post excavation sidewall samples. The parameters and turnaround times (TATs) are identified in Table 3-3. The parameters to be analyzed for disposal purposes and the associated TATs are shown in Table 3-3.

For the potentially non-hazardous and potential reuse soil, the soil will be analyzed for the select VOCs in accordance with Table 3-3 to determine if these select VOCs are present. If the concentration of any of these select VOCs are above the Site Remediation Goal (SRGs) identified in Table 3-3, the soil will be considered unsuitable for onsite reuse. Once considered unsuitable for onsite reuse, the soil will be sampled for the waste characterization parameters in accordance with Table 3-3. If the concentrations of the select VOCs are less than or equal to the SRGs in Table 3-3, the soil will be sampled for the remaining reuse parameters identified in Table 3-3. If the results of the remaining reuse parameters are less than or equal to the respective SRGs identified in Table 3-3, the soil will be considered suitable for onsite reuse.

For the potentially hazardous soil, if the condition of the soil suggests that it is unsuitable for reuse, it may be immediately sampled for the waste characterization parameters in accordance with Table 3-3. If the Navy so chooses, the material may be evaluated using the same approach outlined above for the potentially non-hazardous and potential reuse soil using the following procedures:

Non-VOC analysis:

1. For each stockpile, grab samples will be collected from five randomly selected locations using a disposable plastic scooper.
2. For each grab soil sampling location, approximately 4 to 6 oz of soil will be collected and placed into a disposable bowl.
3. After five soil grab samples have been collected and the material has been placed into the disposable bowl, the soil will be homogenized. The appropriate amount (as determined by the contracted laboratory) of homogenized soil will be placed into the appropriate sample vial(s) as determined by the laboratory.

VOC analysis:

1. For VOC sample collection, a Terracore or equivalent sampler will be used to collect the sample for analysis. Personnel will quickly collect a soil sample using the sampling device by pushing the T-handle with the sampler attached directly straight down into the soil. As the soil is collected in the sampler, the plunger on the sampler will be pushed up. Refer to the individual sampling device documentation to determine the appropriate sample level in the sampling device. When using any low-concentration sampling device, make sure that the area to be sampled is free of stones or other objects that may hinder the advancement of the sampler. Immediately cap or transfer the sample to the 40-ml vial as soon as it is collected. Fill out a label and attach to sampler or vial.

For the reuse samples, field QC samples will include two MS samples, two MSD samples, two FDs, and two TBs.

3.2.4.2 F002 Waste

The material excavated from inside the geographical boundary of FDP1 and FDP3, as well as the 2-foot buffer zone around each FDP, will be characterized and disposed of as F002 listed waste. To facilitate acceptance of this material at a disposal facility, analytical data will be required. Therefore, this material will be sampled in-situ by advancing one 2-inch diameter direct push soil boring within FDP1 and one 2-inch diameter direct push soil boring within FDP3 to an approximate depth of 14 feet bgs to obtain composite (non-VOC parameters) and discrete (VOC-parameters) representative samples. The F002 waste will be sampled at a frequency of one sample per 500 tons as described below:

1. The drilling subcontractor will carefully remove the sleeve of the core sampler from the geoprobe and place it horizontally on poly sheeting for sample collection by AGVIQ-CH2M HILL personnel.

2. Using a knife or blade, AGVIQ-CH2M HILL personnel trained in sample collection will cut the sampling sleeve to allow access to the soil core. The direction of the knife will be away from the body.

3. The material will be homogenized in a dedicated sampling bag and placed into the sample jars.

4. For VOC sample collection, a Terracore or equivalent sampler will be used to collect a discrete sample for analysis from a subsurface location within the core once the core sleeve is open. Personnel will quickly collect a soil sample using the sampling device by pushing the T-handle with the sampler attached directly straight down into the soil. As the soil is collected in the sampler, the plunger on the sampler will be pushed up. Refer to the individual sampling device documentation to determine the appropriate sample level in the sampling device. When using any low-concentration sampling device, make sure that the area to be sampled is free of stones or other objects that may hinder the advancement of the sampler. Immediately cap or transfer the sample to the 40-ml vial as soon as it is collected. Fill out a label and attach to sampler or vial.

In addition, portions of the 4-inch soil cores advanced for geotechnical sample 12GE-02 (to an approximate depth of 14 feet bgs) will be collected to obtain additional material

representative of FDP3 to meet the sample frequency requirements. For non-VOC parameters, material representative of the 0- to 14-foot interval will be homogenized in a dedicated sampling bag and placed into the sample jars. For the VOC analyses, a Terracore or equivalent sampler will be used to collect a discrete sample for analysis from a subsurface location once the core sleeve is open following the guidance identified in Step 4 above.

No QC samples will be collected.

3.2.5 Post Excavation Sidewall Sampling

Up to 24 discrete soil samples (4 samples from each of 6 sidewalls) will be collected from exposed sidewalls at vertical intervals of approximately 3.5 feet to allow for assessment of the vertical sidewall at 3.5 feet bgs, 7 feet bgs, 10.5 feet bgs, and 14 feet bgs.

Each sidewall will be visually assessed to determine if staining is present. If no staining is identified, each sample will be collected from the approximate center of the sidewall at the depths indicated, using the methods below. If staining is identified, the stained area(s) will be preferentially sampled with up to four samples collected, as described below, from each sidewall. Field judgment will be used to ensure that the stained area(s) are sampled while also ensuring that representative samples are collected from the entire vertical sidewall depth.

For each sample location, the horizontal and vertical coordinates will be surveyed and documented during the post excavation topographic survey. If the coordinates cannot be documented during the topographic survey, the distance from the excavation base and sidewalls will be measured and recorded as feasible given the vertical length/height of the sidewalls.

If greater than four samples are necessary to ensure collection from both stained area(s) and the vertical extent of each sidewall, the construction manager will notify the AGVIQ-CH2M HILL Project Manager, who will seek direction from the Navy on how to proceed.

It is preferred that the excavator bucket be used to collect the material to be collected for laboratory analysis however, there are times when it would be beneficial for personnel to enter the excavation area. Therefore, both methods may be used. Personnel will enter the excavation area only when necessary and only after it has been cleared by the onsite competent person. The following procedure will be used to collect the samples:

Non-VOC analysis:

1. When using the excavator bucket, it will be carefully raised to ground surface. At ground surface, field personnel trained in sample collection will obtain the appropriate amount of material (as determined by the contracted laboratory) from the middle of the bucket from soil that has not been in contact with the metal bucket. The soil will be placed into a properly labeled sampling jar for analysis. When personnel are collecting the sample directly from the sidewall, the appropriate amount of material will be placed directly into the sample jar.
2. No samples of the excavation floor will be collected.

VOC analysis:

1. When using the excavator bucket, it will be carefully raised to ground surface, a Terracore or equivalent sampler will be used to collect the sample for analysis from soil that has not been in contact with the metal bucket. Personnel will quickly collect a soil sample using the sampling device by pushing the T-handle with the sampler attached directly straight down into the soil. As the soil is collected in the sampler, the plunger on the sampler will be pushed up. Refer to the individual sampling device documentation to determine the appropriate sample level in the sampling device. When using any low-concentration sampling device, make sure that the area to be sampled is free of stones or other objects that may hinder the advancement of the sampler. Immediately cap or transfer the sample to the 40-ml vial as soon as it is collected. Fill out a label and attach to sampler or vial. When personnel are collecting the sample directly from the sidewall, the same method will be used.

Field QC samples will include one MS sample, one MSD sample, one FD, and one TB.

3.2.6 Soil Stabilization Wall Waste Characterization Sampling

One 5-point composite sample will be collected from the FDP3 soil stabilization structure to be removed and one 5-point composite samples will be collected from the concrete associated with the fence posts. For each sample, a hammer or chisel will be used to obtain a small chip of the structure or concrete for containerization in an appropriately labeled sampling jar for laboratory pulverization and analysis. Stained or odorous materials will be preferentially sampled.

Each composite chip sample will be sent to the analytical laboratory to be pulverized and analyzed for TCL VOCs using SW846-8260C. The laboratory will provide the sample analytical results within 14 calendar days of sample receipt. No field QA/QC samples will be collected.

No field quality control samples will be collected on the waste characterization samples.

3.2.7 Staging Area Samples

The stockpile staging area will be constructed as indicated in Section 2.1.4.2. Upon completion of waste management and disposal activities the liner will be inspected. If the liner is intact and no evidence of waste release from the liner is observed, no samples will be collected. Discrete samples will be collected and analyzed for the select VOCs using SW846-8260C first to determine if they are present at any location where evidence of liner breach is observed.

3.3 Field Quality Control

The total quantity of QC samples to be collected is listed in Table 3-3. Full QA/QC will be collected for soil boring chemical samples, post-excavation sidewall soil samples, fill material samples, and excavated stockpile soil samples. Disposable sampling equipment will be used; therefore, equipment blanks will not be collected.

3.3.1 Field Duplicate Samples

Field duplicates are two field samples taken at the same time in the same location. They are intended to represent the same population and are taken through all steps of the analytical procedure in an identical manner. These samples are used to assess precision of the entire data collection activity, including sampling, analysis, and site heterogeneity.

Duplicate samples are collected simultaneously or in immediate succession, using identical recovery techniques, and are treated in an identical manner during storage, transportation, and analysis.

Field duplicates are collected at a frequency of one per ten field samples. The precision of field duplicate reproducibility is monitored by comparing the relative percent difference (RPD) of parent and duplicate results. For this project, an acceptable RPD should be less than 35 percent.

3.3.2 Trip Blank

The TB consists of a VOC sample vial filled in the laboratory with organic-free water, transported to the sampling site, handled like an environmental sample, and returned to the laboratory for analysis. TBs are not opened in the field.

TBs are used to assess the potential introduction of contaminants from sample containers or during the transportation and storage procedures.

One TB will be included in each cooler containing volatiles. TB detections will be used to assess potential contamination in field samples. A TB will be acceptable if no analytes are detected greater than one-half the Limit of Quantitation (LOQ), except for common laboratory/ field contaminants, which should not be detected greater than the LOQ.

3.3.3 Matrix Spike/Matrix Spike Duplicate

MS/MSD is a field sample which is collected in triplicate; at the laboratory, an aliquot of sample is spiked with known concentrations of all target analytes. The spiking occurs before sample preparation and analysis.

The MS/MSDs are used to document potential matrix effects associated with a site. The MS/MSD shall be designated on the chain of custody.

One MS/MSD pair will be collected in the field for every 20 samples (including blanks and duplicated). MS/MSD's will be considered acceptable if they meet the analyte-specific criteria in the DoD Quality Systems Manual (QSM), version 4.2, where applicable. If the DoD QSM does not apply to a particular method, the laboratory's statistical limits will apply.

3.4 Laboratory QC Samples

3.4.1 Laboratory Method/Preparation Blanks

Laboratory method blanks are blank matrices (such as ASTM Type II water or Ottawa sand) that are treated as environmental samples, being prepared and analyzed along with the field samples. Laboratory method blanks are used to monitor laboratory performance and to check for contamination introduced during the preparation and analytical procedures. A

method blank is required for every 20 field samples or for each analytical batch, whichever is more frequent.

Blank samples should not contain any target parameter of interest. There are certain organic compounds known to be common laboratory contaminants, such as acetone, methylene chloride, 2- butanone, and the common phthalates. However, the laboratory must make all efforts to eliminate these compounds as contaminants. The concentration of all target compounds must be less than one half of the LOQ, except for the common contaminants; the concentration of the common contaminants must be less than the LOQ.

3.4.2 Surrogate Spikes

Surrogate spike compounds are added to each sample for the organic analytical methods. Surrogate spike compounds are structurally similar (but not identical) to target compounds and should behave in a similar manner during analysis. Surrogate spike recoveries are used to monitor both laboratory performance and matrix interferences. Surrogate spike recoveries from field and laboratory blanks are used to evaluate laboratory performance because these blanks represent an ideal sample matrix. Surrogate spike recoveries for lab QC and field samples are used to evaluate the potential for matrix interferences. Surrogate results will be considered acceptable if they meet the criteria in the DoD QSM, version 4.2, where applicable. If the DoD QSM does not apply to a particular method, the laboratory's statistical limits will apply.

3.4.3 Laboratory Control Samples

The laboratory control samples or blank spikes (LCSs or BSs) are analyte-free water (for aqueous analyses) spiked with all target analytes. The appropriate spiking concentration will be spiked at a level less than or equal to the midpoint of the calibration curve for each analyte.

The LCS will be carried through the complete sample preparation and analysis procedure. The LCS is used to evaluate each preparation and analytical batch and to determine if the method is in control. The LCS cannot be used as the continuing calibration verification. One LCS will be included in every preparation and analytical batch. If more than on LCS is analyzed in an analytical batch, results from all LCSs analyzed will be reported. LCS results are used to evaluate the potential for matrix interferences. LCS results will be considered acceptable if they meet the criteria in the DoD QSM, version 4.2, where applicable. If the DoD QSM does not apply to a particular method, the laboratory's statistical limits will apply.

3.4.4 Interference Check Samples

The interference check sample (ICS), used in ICP analyses only, contains both interfering and analyte elements of known concentrations. The ICS is used to verify background and interelement correction factors and is run at the beginning and end of each run sequence.

ICS results will be considered acceptable if they meet the criteria in the DoD QSM, version 4.2, where applicable. If the DoD QSM does not apply to a particular method, the laboratory's statistical limits will apply.

3.4.5 Internal Standards

Internal standards (ISs) are known amounts of certain compounds added after preparation or extraction of a sample. These compounds are used in an IS calibration method to correct sample results affected by column injection losses, purging losses, or viscosity effects. ISs will be added to environmental samples, control samples, and blanks in accordance with the method requirements.

IS results will be considered acceptable if they meet the criteria in the DoD QSM, version 4.2, where applicable. If the DoD QSM does not apply to a particular method, the laboratory's statistical limits will apply.

3.5 Equipment Decontamination

Sampling methods and equipment have been selected to minimize decontamination requirements and the possibility of cross-contamination. It is anticipated that disposable equipment will be used. The following procedures will be used to decontaminate sampling equipment if needed.

In the event that reusable sampling equipment is utilized, it will be decontaminated before the initial sample is collected and periodically between sampling locations using the following procedure:

1. Clean with potable water and Alconox® or equivalent laboratory grade detergent using a brush, if necessary, to remove particulate matter and surface films.
2. Rinse thoroughly with potable water.
3. Rinse thoroughly with analyte-free water.
4. Rinse thoroughly with isopropanol (pesticide-grade). Do not rinse polyvinyl chloride (PVC) or plastic items with isopropanol.
5. Rinse thoroughly with organic/analyte-free water.
6. Allow equipment to air dry completely.

3.6 Field Sample Documentation

Sampling documentation will include the following:

- Numbered Chain-of-Custody 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)

  - Details of QC samples obtained
  - Sample collection equipment and containers, including their serial or lot numbers
  - 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 (rain, extreme heat or cold, wind, etc.)
- Sample Labels
- Custody Seals (minimum of two on each shipping container)

3.7 Data Package Deliverables

Samples will be collected for analytical methods summarized in Table 3-3. All analytical results will be internally validated by an AGVIQ-CH2M HILL Project Chemist.

Preliminary analytical results will be emailed to the project chemist per the TAT listed in Table 3-3 from day of sample receipt. The final hard copy data and electronic file will be delivered within 29 calendar days of sample receipt. The electronic data deliverable will be uploaded to Naval Installation Restoration Information Solution (NIRIS).

4.0 Waste Management Plan

This WMP identifies the onsite management and disposal requirements for wastes generated during this project.

The following waste streams are anticipated to be generated:

- Non-hazardous construction debris (fencing, non-impacted concrete, etc.)
  - Up to 5 tons of construction debris from demolished fencing
  - Up to 70 tons are anticipated to be generated from removal of the top 3 feet of the concrete soil stabilization structure (if concrete is used; if not this may be other materials such as wood, steel, etc.) at FDP3 and from removal of the existing fence post stabilization concrete.
- Non-hazardous soil, characteristically hazardous soil and PPE - up to 1,474 tons
  - 938 tons (670 loose cubic yards [yd^3]) are anticipated to be generated from excavation of FDP1 soils
  - 536 tons (383 loose yd^3) are anticipated to be generated from excavation of FDP3 soils
- F002 listed waste, and PPE – up to 975 tons
  - 359 tons (256 loose yd^3) are anticipated to be generated from excavation of FDP1
  - 616 tons (440 loose yd^3) are anticipated to be generated from excavation of FDP3
  - Up to five drums of soil cuttings generated during the collection of geotechnical samples required to support the soil stabilization design activities
- Impacted water - generated from decontamination activities, excavation area dewatering as needed to address seepage and collected rain water to allow for excavation safety (excavation will not proceed into the water table), staged material dewatering, etc. Water generated during these activities will be collected and stored in a frac tank for initial settling of solids. Incidental amounts of aqueous waste may be added to the hazardous soil and non-hazardous soil stockpiles as long as adding water does not create a slurry or cause erosion of the stockpiles. Water from the frac tank after settling will be treated via a bag filter system prior to pumping either directly into the groundwater treatment collection system at ABL or transferred via vacuum truck from the frac tank directly to the GWTP. No waste characterization or offsite transport/disposal of water is anticipated.)
- Sampling and operational-related waste including, but not limited to gloves, PPE, bag filter, staging area liners will be characterized based on their onsite use and exposure to site contaminants and disposed of accordingly.

4.1 Waste Characterization

Wastes will be sampled and analyzed as identified in the SAP. The soil within the geographical boundaries of FDPs 1 and 3 as well as the 2-foot buffer soil will be characterized as F002 listed waste and sampled to provide supporting analytical data to the disposal facilities as a requirement of acceptance. Soil that contains COC concentrations less than the Site Remediation Goals identified in Table 3-3 will be considered either non-hazardous waste or soil suitable for onsite reuse, depending on the COCs and their respective concentrations.

Waste characterization information will be documented on a waste profile form provided by the offsite disposal facility as part of the waste acceptance process. The profile will be reviewed and approved by the AGVIQ-CH2M HILL ABL Environmental Manager prior to submission to the Navy and ATK for review and generator signature. On behalf of the Navy, ATK personnel will provide any required generator certification and/or signature. The signed profile will then be submitted to the disposal facility for approval.

The profile typically requires the following information at a minimum:

- Generator (Navy) information including name, address, contact, and phone number
- Site name including street/mailing address
- Process generating waste
- Source of contamination
- Historical use for area
- Waste composition (e.g., 95 percent soil, 5 percent debris)
- Physical state of waste (e.g., solid, liquid, etc.)

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

4.2.1.1 Non-hazardous Soil Stockpiles and Drums

There is no regulatory limit of the staging of non-hazardous waste, however AGVIQ-CH2M HILL intends to remove the material from the site and properly dispose as soon as practical.

4.2.1.2 Hazardous Soil Stockpiles and Drums

Hazardous wastes will primarily be managed in a staging pile. The regulatory limit on hazardous waste staging piles allows for the waste to be managed onsite for up to 2 years; however, AGVIQ-CH2M HILL plans to remove the hazardous waste from the site within 90 days from the date of generation. The drums may remain onsite for up to 1 year if staged in ATK's RCRA storage area in accordance with the ATK RCRA permit.

4.2.2 Labels

Containerized waste if generated (waste in drums, roll-off boxes, tanks, etc.) and staging piles will be labeled. Labels will include the type of waste, location from which the waste was generated, and accumulation start date.

Labels will read as follows:

- "Analysis Pending" or "Waste Material" - Temporary or handwritten label until analytical results are received and reviewed. This label will include the accumulation start date.
- "Non-Hazardous Waste" - Preprinted labels with the following information:
  - Accumulation start date
  - Generator name
  - Waste-specific information (e.g., contaminated soil)
- "Hazardous Waste" - Preprinted labels with the following information:
  - Accumulation start date
  - Generator name
  - Waste-specific information (e.g., contaminated soil)

Where applicable, the major hazards (e.g., flammable, oxidizer, and carcinogen) will be included on the label. All waste will be tracked using the Waste Transportation and Disposal Tracking Log contained in the CQP, Section 6.0. Waste information will be entered onto the tracking log the day it is generated or as soon as practical.

4.2.3 General Waste Management Requirements

The soil staging area requirements are defined in Section 2.1.4 of this WP. Wastes will be accumulated in an area identified or approved by ATK/ Navy and the accumulation areas will contain appropriate emergency response equipment.

Incidental amounts of aqueous waste generated during the NTCRA (e.g., decontamination water or stormwater accumulations within the berm) may be added to the soil stockpiles provided the addition of water does not create a slurry or cause erosion of the stockpiles. Aqueous wastes that cannot be added to the soil stockpiles will be containerized for settling pending pre-treatment prior to discharge and treatment at the onsite GWTP. Wastes will be accumulated in an area identified or approved by ATK/ Navy. Settled waste (sediment, etc.) will be combined with the soil stockpiles accordingly and sampled with the stockpiles in accordance with Table 3-3.

The Accident Prevention Plan (Appendix A) identifies the specific emergency response procedures and equipment. **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.**

4.2.3.1 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.

- 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.
- Empty drums not in use will be appropriately labeled as "EMPTY".
- Drums will remain covered except when removing or adding waste to the drum. Covers will be properly secured at the end of each workday. Closed means rings on, bolts tightened down.
- Drums will be disposed of with the contents.
- Drums containing liquids will be provided with secondary containment while stored on site.
- Drums and waste containers will not be placed over or within 50 feet of a storm drain.

4.2.3.2 Soil Stockpiles

Soil stockpiles will be covered daily with poly sheeting to prevent wind erosion and to prevent contact with precipitation. The poly sheeting will be secured in a manner that ensures the stockpiles are properly covered and material is contained. The stockpile covers shall not cover the stockpile labels.

Inspection of Waste Storage Areas

Waste accumulation areas will be inspected weekly for malfunctions, deterioration, discharges, drum accumulation start date, integrity and functionality of stockpile covers, the presence of spill kit supplies, training records, and leaks that could result in a release. Any deficiencies observed or noted during inspection will be rectified immediately. Appropriate measures may include transfer of waste from the leaking container to a new container.

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

4.3 Shipping Documentation

Prior to offsite disposal of any waste, AGVIQ-CH2M HILL will provide the Navy and ATK 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, a completed waste manifest, and any other applicable information necessary for the Navy to complete its review of the disposal package and for ATK to sign on behalf of the Navy (Navy is the generator).

The signed profile will then be submitted to the disposal facility for acceptance. 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
- Transporter information including name, address, contact, and phone number, EPA ID number
- Facility information including name, address, phone number
- Site name including street/mailing address
- U.S. Department of Transportation (DOT) proper shipping name
- Type and number of container
- Quantity of waste (volumetric estimate)
- Profile number
- 24-hour emergency phone number

The generator (Navy) or ATK (on behalf of the generator) and the transporter must sign the manifest prior to the load of waste leaving the site. A copy of the manifest will be retained onsite and included with the daily Quality Control Report. The original signed manifest will be returned to ATK and the Navy will be notified. The disposal facility will provide a copy of this signed manifest to AGVIQ-CH2M HILL for the CCR. The CCR will include copies of the facility-signed manifest, haul/weight ticket, and the Certificate of Disposal.

4.4 Transportation

All solid wastes will be transported in accordance with DOT requirements. Each transportation vehicle and load of waste will be inspected and documented before leaving the site. The quantities of waste leaving the site will be recorded, at a minimum, on the T&D Log. A contractor licensed for commercial transportation will transport non-hazardous wastes. A copy of the documentation indicating that the selected transporter has appropriate licenses will be received and approved by AGVIQ-CH2M HILL 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. Disposal quantities will be based on the difference of weight measurements between the full and empty container. Weights will be recorded on the waste manifest. The transporter will provide copies of weight tickets to AGVIQ-CH2M HILL.

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

- Inspect all trucks for cleanliness and correct liners and covers prior to being loaded.
- Minimize impacts to general public traffic.

- Repair road damage caused by construction and/or hauling traffic.
- Clean up 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 APP.

No materials from other projects will be combined with materials from ABL.

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. A blank T&D Log is provided in Appendix C.

4.4.3 Disposal

Offsite treatment, disposal, or recycling facilities will use the waste profile and supporting documentation (e.g., analytical data) to determine whether a waste will be accepted. Under CERCLA, non-hazardous and hazardous wastes must be disposed of in a facility that has been reviewed by EPA and found to be acceptable for "CERCLA offsite wastes" under the OSR (40 CFR300.440).

5.0 Environmental Protection Plan

The purpose of this EPP is to provide specific requirements and procedures to protect the environment during sampling and excavation activities.

5.1 Regulatory Drivers

Contaminated soils associated with FDPs 1 and 3 will be excavated and disposed offsite as described earlier and in the WMP, Section 4 of this WP, in accordance with requirements pertaining to NTCRA under CERCLA. Onsite removal actions are exempt from permitting and other administrative or procedure requirements under CERCLA 121(e).

5.2 Spill Prevention, Response, and Reporting Requirements

The provisions for spill prevention and control establish minimum site requirements. All spills will be reported to the AGVIQ-CH2M HILL Project Manager, who will report spills to ATK and the Navy. The number for reporting spills is **1-800 642-3074**. Refer to the APP for emergency response procedures and further reporting requirements.

The definition of release includes any "spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed containers)" of any potentially hazardous chemical, substance, and/or material.

It is important that the ABL Site Environmental Manager also be immediately notified of spills/releases and other environmental compliance-related incidents (e.g., permit exceedance, notice of violation, regulatory violation) or near-loss environmental incidents. The ABL Site Environmental Manager will evaluate the spill or release to determine agency (e.g., National Response Center or state) reporting requirements. Immediate internal spill reporting is critical to assure compliance that agency spill reporting requirements (EPA requires reporting certain spills/releases within 15 minutes).

All fuel, chemical, and waste storage areas will be properly protected from on site and off site vehicle traffic. All tanks (including fuel storage) will be equipped with secondary containment. It is anticipated that less than 500 gallons of fuel will be stored on site. These tanks will be inspected daily for signs of leaks. Accumulated water must be inspected for signs of contamination (for example, product sheen, discoloration, and odor) before being discarded. Fire protection provisions outlined in the APP 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.

5.3 Water Management Inside Staging Area

Water management inside the waste staging area is discussed in Section 2.1.4.2 Contaminated Soil Staging Area. Onsite management and offsite transport for disposal of waste is discussed in the WMP (Section 4.0 of the WP).

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 using sorbent booms, pads, or other material.
- Use proper PPE in responding to spills.

5.5 Spill Cleanup and Removal

All spilled material, contaminated sorbent, and contaminated media will be cleaned up and removed as soon as practical. Contaminated spill material will be contained, labeled, and properly stored until the material is disposed. Contaminated spill material will be managed as waste and disposed according to applicable, federal, state, and local requirements. In the event of a hazardous substance spill or release, the AGVIQ-CH2M HILL representative will immediately notify the NAVFAC MIDLANT RPM.

5.6 Hazardous Material Management

AGVIQ-CH2M HILL will maintain an inventory of chemicals and hazardous materials brought onsite.

The SSHO will request Material Safety Data Sheets (MSDSs) from the subcontractors and the vendors for chemicals delivered to the site by AGVIQ-CH2M HILL and its subcontractors.

The SSHO will perform the following activities:

- Train employees on required site-specific hazard communication (HAZCOM).
- Confirm that the inventory of chemicals brought on site by subcontractors is available.
- Obtain an MSDS for each hazardous chemical before or as the chemicals arrive on the site.

- Label chemical containers with the identity of the chemical and with hazard warnings, if applicable.

The volume of chemicals and hazardous materials used will be tracked and documented in the daily quality or production reports.

A hazardous material is defined as any material that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may pose a substantial hazard to human health or the environment. The following is a list of hazardous materials or chemicals that may be brought onsite and incorporated as part of the final completion of the work, generated during the execution of the work for offsite disposal or recycling or otherwise used to facilitate site work, as defined in the Accident Prevention Plan (Appendix A). These hazardous materials or chemicals require spill prevention, spill control, and countermeasure processes to ensure sensitive environmental receptors are not adversely impacted in the event of a spill or release of these materials.

- Gasoline (small metal safety containers less than 55 gallons for fueling small engine equipment)
- Diesel fuel in heavy equipment or double-walled above ground storage tank
- Minor quantities of grease, motor oil and hydraulic oil for heavy equipment maintenance
- F002 listed waste generated from excavation at FDP1 and FDP3
- Characteristically hazardous waste generated from excavation of soil from outside a 2-foot buffer zone about the geographical areas of FDPs 1 and 3

The handling and storage of hazardous materials will be minimized to the extent possible to limit potential environmental and health impacts. Hazardous materials will be stored in the contractor staging area according to fire safety and environmental regulatory requirements. Incompatible materials will be segregated, and flammable materials will be kept in flammable materials storage lockers when not in use.

Personnel will be responsible for ensuring that these hazardous materials are properly maintained and not spilled. If a spill should occur, the spill procedures in the APP must be adhered to, including notification requirements.

5.7 Erosion Control

It is not anticipated that this NTCRA will cause erosion or releases of sediment or other pollutants to storm drain or sanitary sewer systems. While a formal Stormwater Pollution Prevention Plan is not required because less than 1 acre is to be disturbed, erosion and sediment controls (ESCs) will be implemented as necessary to prevent erosion and the discharge of pollutants from the NTCRA site. In addition, the ESCs will be inspected if a storm event occurs during the NTCRA.

5.8 Environmental Conditions Report

The environmental conditions survey for this work will be conducted by AGVIQ-CH2M HILL during the pre construction activities. Photographs will be taken to document the existing environmental conditions of the site.

6.0 Quality Control Plan

This Quality Control Plan identifies the quality processes and the project organization for the remediation activities to be completed at the ABL facility.

The Submittal Register, included in Appendix C, documents submittals in accordance with AGVIQ-CH2M HILL's Contract Management Plan (dated July 2010). AGVIQ-CH2M HILL or the Navy will approve submittals as identified in the Submittal Register. All approved submittals will be distributed by AGVIQ-CH2M HILL to the appropriate Navy personnel (CO, Resident Officer in Charge of Construction [in duplicate], etc.), the project site, and the project file.

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

6.1 Project QC Manager

The Project QC Manager for this project is to be determined. The appointment letter for the Project QC Manager will be provided after he/she has been selected.

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 work plans and specifications.

The project tasks for this TO 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:

- Pre-construction soil sampling for geotechnical and chemical analysis.
- Mobilization and Site Preparation (including removal of fencing, establishing 2 new access roads, building decontamination pad)
- Field Surveying
- Soil Excavation, Backfilling, and Site Restoration
- Field Sampling
- Engineered Soil Stabilization Structure (NOTE: The inspection and construction controls for the Engineered Soil Stabilization Structure will be provided in a work plan revision document following completion of the structure design)
- Well Abandonment

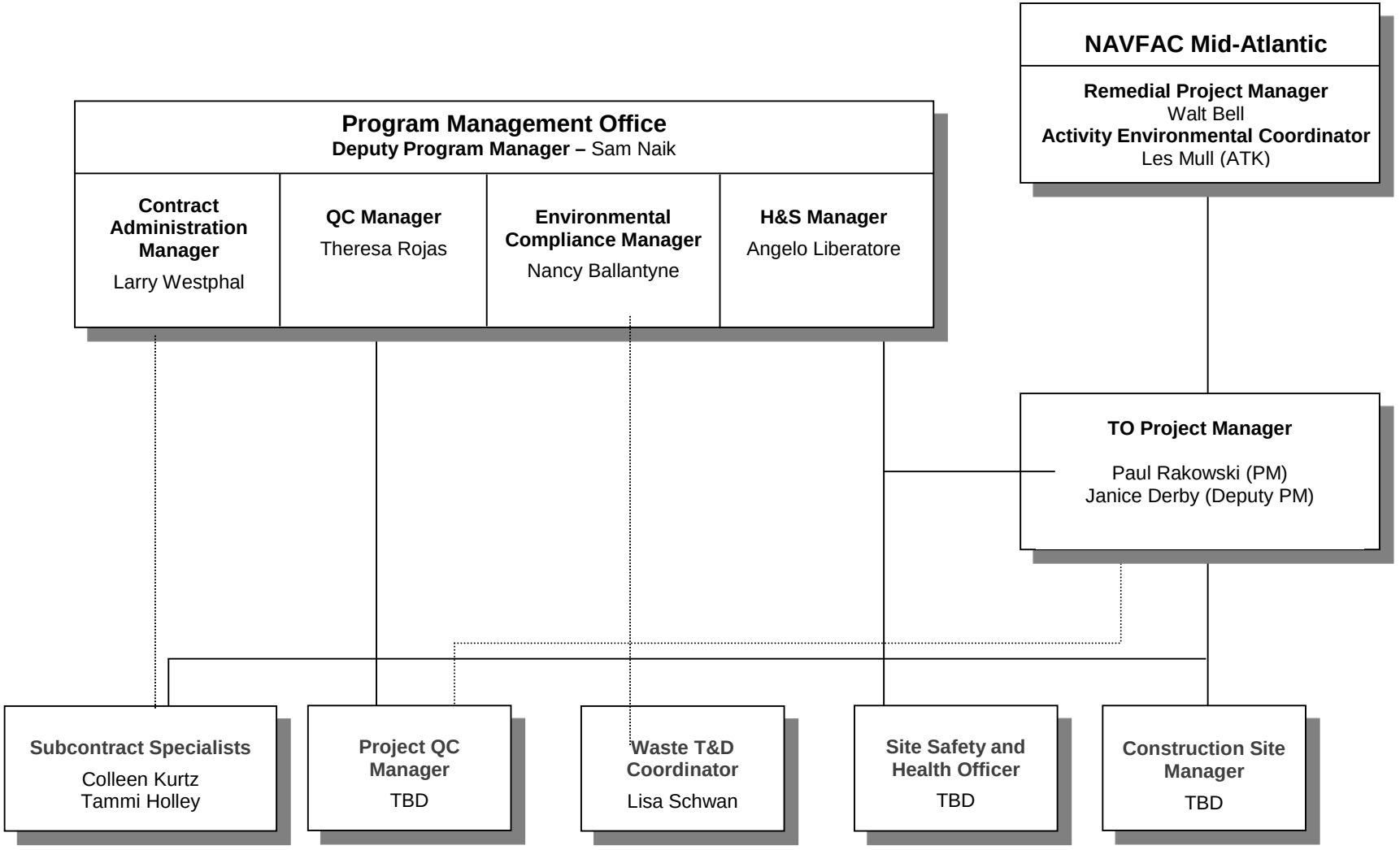

FIGURE 6-1
Project Organization Chart

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

Role	Responsibility	Authority
PM	Management and technical direction of work Communicate with Navy Remedial PM and Navy technical representative Subcontractor management Select TO staff Develop TO Work Plan and supporting plans Meet TO performance objectives Prepare status reports Prepare field change requests	Approve subcontractor selection Approve invoices to the Navy Approve TO baseline schedule Stop work at the site for any reason Approve payment to vendors and suppliers Approve payment to subcontractors Review technical qualifications of subcontractors Respond to Change Notices
Site Superintendent/ Construction Manager	Responsible for all site activities Provide direction to field personnel and subcontractors Onsite construction management Provide daily status reports Implement TO Work Plan Review subcontractor qualifications Stop work for unsafe conditions or practices	Stop site work as necessary Approve corrective action for site inspections and assessments Approve materials and labor costs for site operations Resolve field personnel and/or subcontractor interface issues Approve daily and weekly status reports
Project QC Manager	Monitor and oversee implementation compliance with scope of work Document inspections to ensure compliance Review requests for changes in scope of work Recommend improvements in work techniques or metrics Monitor and report on subcontractor quality and quantities Maintain Submittal Register	Complete daily quality report Monitor and report on subcontractor quality and quantities Conduct inspections to ensure compliance Stop work for non-compliant operations Maintain rework items list
Site Safety and Health Officer	Monitor and report on field personnel and/or subcontractor safety and health performance Record and report safety statistics Conduct needed site safety and health orientation and daily safety meetings Maintain environmental log Stop work for unsafe practices or conditions	Stop work for unsafe practices or conditions Enforce site-specific Accident Prevention Plan Set weekly safety objectives Approve resumption of work for resolved safety issues
Program Quality Manager	Coordinate with the Project QC Manager on QCP implementation Provide oversight of the Project QC Manager's role Monitor and audit project quality implementation	Review and oversight of QCP implementation Coordination with Project Quality Manager and PM on corrective actions
Program H&S Manager	Coordinate with the SHSO on H&S implementation Provide oversight of the SHSO's role Monitor and audit project H&S implementation	Review and oversight of H&S Plan implementation Coordination with SHSO and PM on H&S corrective actions

- 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.

6.2.1 Mobilization and Site Preparation

As part of the pre-mobilization activity, a pre-construction meeting and Operation Readiness Review meeting will be held to review the project team's preparedness to begin the project. Once determined prepared for mobilization, the team will plan and coordinate staff, subcontractors, equipment, materials and staff required for the respective mobilizations. The second mobilization will require the more extensive coordination for conducting the remediation work activities that will follow baseline data collection planned for the initial mobilization.

Mobilization and site preparation will consist of mobilizing personnel and equipment to the work site and establishing temporary facilities, a decontamination area, site support area, and equipment staging area. As part of the mobilization, a pre-construction meeting will be held with the project team and ABL personnel to review the project objectives, the overall project scope and schedule, lines of communications, and reporting. A preparedness check will verify that site preparation provisions, such as permitting/ approvals, utility clearances, demarcating the work zones, and staging of equipment and material, are in place to begin the work. Additionally, requirements for equipment and material deliveries will be discussed.

6.2.1.1 Preparatory Phase

The preparatory phase will include a review of the APP and relevant AHAs, this WP, communications matrix, project schedule, and submittal status, as well as confirmation of appropriate materials and equipment. The meeting will verify that site preparation provisions such as utility clearances, demarcating the work zones, and staging areas for equipment and material are in place to begin the work activities. Additionally, equipment will be verified functional and in good working condition prior to starting the project.

6.2.1.2 Initial Phase

Inspections will be conducted as necessary to verify that construction limits are defined, utilities are marked, and material is staged in the designated areas. Evaluation of work area signage, demarcation of the construction work areas, and evaluation of environmental-best management practices will be performed. Communications with facility personnel regarding general site conditions, traffic flow and control will be documented; any deficiencies will be noted and corrected as deemed necessary.

6.2.1.3 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 WP. Deficiencies will be noted and corrected.

The table that follows lists the QC procedures that will be implemented during mobilization and site preparation activities.

Task	Inspection/Control
Preparatory	• Conduct a preparatory meeting and prepare meeting minutes. • Obtain subcontractor insurance certificates and personnel training records. • Verify dig permit and utility clearance from the facility and utility locates, respectively. • Verify designated locations of equipment layout, material and waste staging areas, and decontamination. • Verify locations of 2 access roads • Verify location of decontamination pad • Verify location of fencing to be removed
Initial	• Verify site layout plan. • Verify Environmental Conditions Report – for documenting existing conditions. • Identify all associated utilities. • Update plan drawings with any known utilities. • Inspect access roads are built according to specifications and drawings and workmanship • Inspect decontamination pad to verify conformance with specifications and drawings and workmanship • Verify removal of fencing
Follow-Up	• Check plans and specifications (including subcontractor plans) • Review Submittal Register • Accident Prevention Plan with AHAs. • Personnel qualification and certifications, including subcontractor personnel. • Inspect access roads are built according to specifications and drawings and workmanship • Inspect decontamination pad to verify conformance with specifications and drawings and workmanship • Verify removal of fencing

6.2.2 Field Surveying

A professional land surveyor registered in the State of West Virginia will perform surveying. Well (those planned for abandonment) locations and the limits of intrusive work areas will be surveyed. Coordinates will be verified by locating monuments with known coordinates. The surveying subcontractor will also generate as-built drawings at the completion of remediation activities. Multiple mobilizations will be required as the post excavation limits of FDP1 and FDP3 will be surveyed. No other permanent site features, with the exception of any new utilities identified during the utility clearance will be surveyed. The AGVIQ-CH2M HILL Site Superintendent is responsible for verifying all features are located and coordinating confirmation with the AGVIQ-CH2M HILL Project QC manager.

6.2.2.1 Preparatory Phase

The preparatory phase for site survey activities includes a review of the relevant AHAs and the license of the selected surveyor, as well as confirmation that the correct drawings are being used, locations to be surveyed match the specified well locations and verifying the horizontal and vertical control points to be used.

6.2.2.2 Initial Phase

Inspections will be conducted to ensure that the surveyors are in compliance with safety and quality standards, pre-survey contract submittals, and survey data is consistent with monuments with known coordinates.

6.2.2.3 Follow-up Phase

The AGVIQ-CH2M HILL Project QC manager will observe surveying activities and review the associated deliverables for accuracy and quality. Daily reports (surveyor notes) will be provided by the surveyor.

The table that follows lists the QC procedures that will be implemented during surveying.

Task	Inspection/Control
Field Surveying	• Map and label the well locations planned for abandonment • Coordinate each phase of survey associated with remediation areas • Verify surveyor license and maintain copy in project files • Verify usage of proper reference datum • Verify existing monuments correspondence with contract plans • Verify the correct drawings and reference points are being used • Ensure establishment and protection of temporary control points • Ensure establishment of project limits • Ensure adequacy of vertical and horizontal control • Ensure instruments calibration and accuracy necessary to meet surveying tolerances • Verify the legibility, accuracy, and completeness of surveyor's notes • Ensure delivery of electronic and hard copy data deliverables • Ensure accuracy and completeness of as-built drawings

6.2.3 Soil Excavation, Backfill, and Site Restoration

Contaminated soil will be removed from pre-determined horizontal limits of FDP1 and FDP3. The average excavation depth will not exceed 14 feet bgs or the 1foot below the water table, whichever elevation is most shallow will dictate the final depth. Removed soil will be temporarily staged onsite in stockpiles lined and enveloped with plastic sheeting. The results of geotechnical analysis will be used to dictate the excavation plan for layback or sloping excavation walls to conduct the removals with sidewalls preventive of cave-in.

Following soil removals, surveying will be conducted to collect post excavation coordinates. Backfill will begin with placement of aggregate onto geotextile lining the excavation floor. Another layer of geotextile will be placed followed with crusher run aggregate in loose lifts of approximately 12 inches thick. Compaction will be achieved by either the bucket of an excavator or a remote controlled machine compactor. Placement and compaction will continue to within 2 to 3 inches of land surface. Given there is no future construction planned for the areas, no compaction testing is planned.

Restoration will be accomplished by placing soil capable of supporting vegetative growth into the backfilled areas to grade. Fertilizer, seeding and mulch will be placed to promote seed germination. Others will water as needed.

6.2.3.1 Preparatory Phase

The preparatory phase will include the following: reviewing the relevant AHAs, reviewing the requirements provided in this WP and the APP; verifying acceptance and approval of the utility clearance; determining status of borrow sources for use as backfill; and confirming that craftsmen are available to complete the work. The excavation competent person will be identified and the logistical approach for conducting the excavations and site restorations will be discussed. Containers and waste staging areas will be prepared and managed in accordance with the protocols of the WMP.

6.2.3.2 Initial Phase

As the excavation activities proceed, the Project QC Manager will conduct initial inspections and monitor the work completed to verify conformance with this WP. Initial inspections will include the following items to ensure that they are completed as required:

- Appropriate steps are taken to protect the perimeter fence sections that will remain.
- All open excavations are protected by fences and covered with polyethylene liners until backfilled to minimize the collection of water in the event of rain.
- Necessary dust control and suppression measures are taken (e.g., wetting, covering stockpiles with plastic sheeting, minimizing the number of open excavations at a given time, and backfilling excavation immediately after excavation is complete).
- Backfill is placed in approximately even layers.
- Backfill is not to be placed in excavations with standing water or unstable sub-grade conditions.
- Backfill is placed in a manner that does not disturb or damage surrounding structures or utilities.
- Soil moisture content and compaction of backfilled material is maintained.
- Excavated areas are graded to provide positive stormwater drainage and prevent ponding or pooling.
- Any deficiencies noted will be documented and corrected as necessary.

6.2.3.3 Follow-up Phase

The Project QC Manager will be responsible for the ongoing inspection of excavation and site restoration activities. Surveillance will verify that the work is being completed according to the Work Plan provisions. The following quality checks will be completed:

- Measure and record horizontal and vertical boundaries to verify excavation depth and width.
- Inspect placement of erosion control measures.
- Maintain chronological journal of visual observations while work activities progress.
- Monitor segregation and management of wastes.

The table that follows lists the QC procedures that will be implemented during excavation, backfill, and site restoration.

Excavation, Backfill and Restoration	• Inspect placement of erosion control/best management practices (BMPs) and sidewall sloping measures. • Monitor excavation for evidence of groundwater elevation and depth • Ensure horizontal control is acceptable during excavation • Coordinate surveying activities • Verify backfill materials and sources approved for use • Inspect material staging area for proper segregation and control of spread of contamination • Control devices properly installed. • Control devices are adequate to minimize run-on and run-off. • Damaged areas are noted and repaired in a timely manner. • Monitor the weather to plan for preventive actions at the stockpile area. • Maintain chronological journal of visual observations while work activities progress. • Monitor segregation and management of wastes. • Update waste tracking forms • Monitor backfill activities for degree of compaction and achieving firm, non-yielding subgrades • Verify seed, fertilizer, and mulch application in accordance with recommendations of county extension office or department of transportation recommendations • Verify vegetation coverage meeting 90 percentile coverage • Ensure silt fence removal following establishment of vegetation coverage

6.2.4 Well Abandonment

Monitoring wells will be abandoned by a well driller licensed in the State of Virginia in accordance with requirements provided in West Virginia regulations #47-60-19. All well abandonments will be overseen by an AGVIQ-CH2M HILL geologist. The well driller shall submit Well Abandonment Records to the WVDEP.

6.2.4.1 Preparatory Phase

The preparatory phase will include a review of the relevant AHAs, requirements provided in this WP, and well abandonment regulations; confirmation of acceptability of well abandonment materials and approach, and other required materials; and confirmation that appropriate equipment (personal protective equipment, liquid and solid handling, etc.) are available to complete the work.

6.2.4.2 Initial Phase

As the well abandonment activities are underway, the AGVIQ-CH2M HILL Project QC Manager will complete the initial inspection to verify that the techniques and quality of workmanship meet the requirements of the scope of work. Well closure materials will be inspected upon acceptance onto the project and periodically as work proceeds. Any deficiencies will be documented and corrected as necessary.

6.2.4.3 Follow-up Phase

The Project QC Manager will be responsible for the ongoing inspection of well installation activities. Surveillance will verify that the work is being completed according to project specifications.

The table that follows lists the QC procedures that will be implemented during well abandonment.

Task	Inspection/Control
Well Abandonment	• Ensure survey of well locations was completed • Inspect each well location to verify identification correct • Review well abandonment records for accuracy and completeness • Obtain record of well driller certification • Verify driller's qualifications (license/certification in the State of Virginia) and drill rig inspection • Verify appropriate equipment and materials per the project Submittal Register • Verify well ID /labeling • Maintain red-lined mark-ups of abandoned wells • Verify appropriate means, methods, and materials used to close wells • Verify that recording forms, including all of the test documentation requirements, have been prepared and are accurate and complete

6.2.5 Field Sampling

AGVIQ-CH2M HILL will sample various media for offsite laboratory analyses and perform onsite screening of soils using an organic vapor analyzer. Environmental samples will be collected in accordance with the SAP of this WP. Other controls will include, but are not limited to, maintaining a chain of custody; proper handling, packing, and shipping; and the use of a certified offsite laboratory.

6.2.5.1 Preparatory Phase

The preparatory phase for sample collection activities includes a review of the sampling frequency and procedures provided in the SAP of this WP, verifying acceptance of the selected laboratory for offsite sample testing, and confirming that the appropriate equipment and materials are available to complete the sampling activities.

6.2.5.2 Initial Phase

Samples will be collected and subsequently analyzed at an approved laboratory in accordance with methods outlined in the SAP. Sample collection activities including proper chain-of-custody documentation will follow the protocols outlined in SAP.

6.2.5.3 Follow-up Phase

Sample collection locations and activities will be properly documented during soil collection activities. Analytical reports from the approved laboratory will be reviewed for accuracy and completeness. If required, data quality and quality assurance information from the laboratory will be reviewed to verify discrepancies in the analytical data. AGVIQ-CH2M HILL QA personnel will review and tabulate laboratory confirmation data and field sampling results.

The quality controls that will be implemented during the sample collection and analysis activities are listed below.

Task	Procedures/Construction Details
Field Sampling	• Sampling equipment decontamination (if disposable equipment is not used) • Document existing monuments and structures • Acquire copy of offsite laboratory certification • Implement sampling approach as described in the SAP • Verify appropriate facilities, testing equipment, and field sampling equipment are available and comply with testing standards • Verify the field instruments are calibrated in accordance with manufacturers' recommendations • Verify recording forms, including all of the test documentation requirements, have been prepared and are accurate and complete

6.2.6 Waste Management

6.2.6.1 Preparatory Phase

The Preparatory Phase for transportation and disposal of waste materials includes reviewing the treatment, storage, and disposal facility (TSDF) qualifications; reviewing the transportation schedule for hauling material offsite; and confirming that the appropriate equipment and materials are available to begin the work activity. 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.

6.2.6.2 Initial Phase

This phase includes inspecting the waste storage vessels prior to accepting on the job. 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 TSDF, and volume and/or weight of material. Any discrepancies on waste manifest documents will be corrected.

6.2.6.3 Follow-up Phase

This phase includes verifying that the designated TSDF has accepted the waste material at the facility and has sent the required completed manifest to the generator or the generator's technical representative. A field logbook and an electronic log of all transportation and disposal shipments will be maintained. Waste storage areas will be visually inspected on a daily basis for releases or signs of corrosion, deterioration, or other conditions. The results of all inspections will be recorded. Procedures are listed below:

Task	Procedures/Waste Management
Waste Management	• Verify that waste storage vessels are of the correct type • Verify that waste material storage is in accordance with this work plan and local, state and federal guidelines • Verify waste manifests are complete and accurate • Verify the field logbook was completed properly • Visually inspect the waste storage area • Verify the field logbook was completed properly

6.2.7 Decontamination and Demobilization

Equipment utilized to perform intrusive work will be decontaminated in accordance with the provisions of the Accident Prevention Plan. Pre-final inspection for cleanliness will be performed by the Project QC Manager and the Construction Manager.

Equipment and personnel will demobilize from the site following the completion of the work activities identified in this WP. 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 site walk-through inspection.

6.2.7.1 Preparatory Phase

The preparatory phase will include a review of decontamination procedures, the Accident Prevention Plan, and relevant AHAs.

6.2.7.2 Initial Phase

The Construction Manager 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 the Navy.

6.2.7.3 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 this Work Plan. Deficiencies will be noted and corrected. Procedures are listed below:

Task	Procedures/Construction Details
Decontamination/ Demobilization	• Confirm that equipment is decontaminated according to this Work Plan and the Accident Prevention Plan. • Perform final inspection of site to verify completion of all project activities. • Verify proper equipment installed • Verify waste collection system in place and appropriate for the job • Verify spill prevention and recovery plan in place • Verify sufficient equipment and supplies on hand • Verify waste is correctly staged, labeled, and inventoried • Inspect work areas to ensure all temporary facilities, equipment, and materials are safely removed from the site • Inspect Work areas provided to ensure proper housekeeping and cleaning • Verify pre-final inspection when work is substantially complete • Review punch lists on outstanding items • Verify final Inspections--all task order areas • Document orderly site demobilization • Collate site records & documents • Ensure records and documentation transfer to home office • Perform purchase order closeouts • Review final reports & deliverables

6.3 Testing

Laboratories performing testing or analysis of materials and environmental samples, or craftsman performing independent testing will be certified or qualified to perform the respective testing. This section summarizes the onsite field testing planned for the project. Details of equipment, materials, products, and construction activities are outlined in the final design documents. Samples of media requiring definitive chemical analyses will be performed by an approved offsite laboratory.

Individuals performing sampling shall provide evidence of meeting the experience and training requirements in the Navy's *Installation Restoration Program Chemical Data Quality Manual* (IR CDQM) (FESC SP-2056-ENV, Naval Facilities Engineering Service Center [NFESC], 1999).

6.3.1 Certification of Chemical Laboratories

Environmental testing laboratories that will be used for this TO will function as a subcontractor or a lower-tier subcontractor to AGVIQ-CH2M HILL. The analytical laboratory, yet to be contracted, will be NFESC-approved, will maintain National Environmental Laboratory Accreditation, accredited by the Department of Defense Environmental Laboratory Accreditation Program, and will be certified by the State of Virginia for all sample analyses.

6.3.2 Certification of Geotechnical Laboratories

Testing laboratory(ies) used will be certified by NIST, NVLAP, AASHTO, or AALA; or they may be actively participating in another accreditation program that may be evaluated for acceptance.

6.3.3 Testing Plan and Log

The field testing requirements are shown in Table 3-2 of the SAP. The Testing Plan and Log (provided in Appendix C) will be used to record the results of testing. Detailed records of testing will be included in the daily report as testing is performed and will be summarized in the Monthly Summary Report of Field Tests.

6.4 Pre-final Inspection

The Navy may perform a pre-final inspection to verify that the facility or work area is complete and ready to be occupied. A government "pre-final punch list" may be developed as a result of this inspection. Each deficiency noted in the punch list will reference the applicable specification paragraph, or drawing number that the deficiency stems from. The Project QC Manager will ensure that items on this list are corrected before notifying the Navy that a final inspection with the stakeholders can be scheduled. Items noted on the "pre-final" inspection will be corrected in a timely manner and will be accomplished within the time slated for completion of the entire work or a particular increment thereof if the project is divided into increments by separate completion dates.

6.5 Final Acceptance Inspection

The Project QC Manager, Construction Manager, other project technical personnel, and Navy representatives will be in attendance at the final acceptance inspection. Other government personnel and stakeholders may be in attendance. A final acceptance inspection will be considered closed when the work has been accepted by the Navy technical representative or designated representative.

7.0 References

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Appendix A
Accident Prevention Plan

Accident Prevention Plan

Soil Removal Action
Former Disposal Pits (FDP) 1 and 3

Revision No. 00

Allegany Ballistics Laboratory
Rocket Center, West Virginia

Contract No N62470-08-D-1006
Task Order No. WE28

Submitted to:

NAVFAC
Naval Facilities Engineering Command

Prepared by:

AGVIQ LLC
ENVIRONMENTAL SERVICES
CH2M HILL
JOINT VENTURE

March 2013

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8 Loss Prevention Observation (LPO) Form
9 Incident Report Form (IRF)
Loss/Near Loss Incident (L/NLI) Report Form
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Acronyms and Abbreviations

ABG	Active Burning Ground
ABL	Allegheny Ballistics Laboratory
ACGIH	American Conference of Governmental Industrial Hygienists
AGVIQ-CH2M HILL	AGVIQ-CH2M HILL Constructors Inc. Joint Venture III
AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
ATK	Alliant Techsystems, Inc.
BBLPS	Behavior Based Loss Prevention System
bgs	below ground surface
BLS	United States Bureau of Labor Statistics
CBRNE	Chemical, Biological, Nuclear, Radiological, Explosive
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
COC	Contaminant of Concern
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
CSIR	Contractor Significant Incident Report
CSM	Conceptual Site Model
DART	Days Away, Restriction, or Transfer
DEET	N, N-diethyl-meta-polyamide
DFOW	Definable Feature of Work
DFWP	Drug Free Workplace Program
DoD	Department of Defense
DOT	U.S. Department of Transportation
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
ER	Emergency Response
EZ	Exclusion Zone
FA	first aid
FDP	Former Disposal Pit
ft	feet
FTL	Field Team Leader

GFCI	ground fault circuit interrupter
GDA	Government Designated Authority
GOCO	government-owned, contractor-operated
GPM	gallons per minute
GFCI	ground fault circuit interrupter
GPR	ground penetrating radar
H&S	Health and Safety
HS&E	Health, Safety, and Environment
HITS	Hours and Incident Tracking System
HPP	Hurricane Preparedness Plan
HR	heart rate
HSP	Health and Safety Program
HSPA	Health and Safety Program Administrator
HS&E	Health, Safety, and Environment
IR	Incident Rate
IRF	Incident Report Form
kV	kilovolt
LLC	Limited Liability Company
LOTO	Lock-Out/Tag-Out
LPO	Loss Prevention Observation
mg/m^3	milligrams per cubic meter
MIDLANT	Mid-Atlantic Division (NAVFAC)
MIP	membrane interface probe
MPPEH	Materials Presenting a Potentially Explosive Hazard
MSDS	Material Safety Data Sheet
NAICS	North American Industry Classification System
NAVFAC	Naval Facilities Engineering Command
NIOSH	National Institute for Occupational Health
OABG	Outside Active Burning Ground
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration

PCE	tetrachloroethene
PEL	Permissible Exposure Limit (OSHA)
POC	Point of Contact
PPE	Personal Protective Equipment
ppm	parts per million
PRCSE	Permit-Required Confined Space Entry
PTSP	Pre-Task Safety Plan
QCM	Quality Control Manager
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
RF	radio frequency
RMP	Risk Management Process
RPM	Remedial Project Manager
RAWP	Remedial Action Work Plan
SB RAC	Small Business Remedial Action Contract
SOP	Standard of Practice
SPCCP	Spill prevention, control, and countermeasure plan
SSHO	Site Safety and Health Officer
SSHSP	Site Specific Health and Safety Plan
SWO	Stop Work Order
SZ	Support Zone
TCA	trichloroethane
TCE	trichloroethylene
TO	Task Order
TSCA	Toxic Substances Control Act
VOC	volatile organic compound

1.0 Signature Sheets

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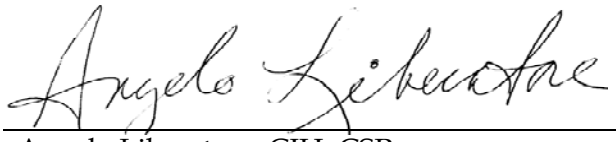
Signature: 

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1.1 Revisions

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Revisions to Plan:

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1.2 Introduction

AGVIQ-CH2M HILL has been contracted by the United States Navy, Naval Facilities Engineering Command (NAVFAC), to perform a Non-Time Critical Soil Removal Action at the Former Disposal Pits (FDP) 1 and 3, at the Allegany Ballistics Laboratory ABL in Rocket Center, West Virginia. This work will be performed under the terms and conditions of Contract Number N62470-08-D-1006, Task Order (TO) No. WE28.

This Accident Prevention Plan (APP) has been developed to address applicable requirements set forth by 29 Code of Federal Regulations (CFR) 1910, 29 CFR 1926 and the U.S. Army Corps of Engineers, EM 385 1-1, "Safety and Health Requirements Manual". For clarification, this APP and the Site Specific Health and Safety Plan (SSHSP), included herein, shall be collectively referenced as the APP throughout, but implemented together as a single document, in their entirety. It is understood that NAVFAC prime contract # N62470-08-D-1006 issued for the AGVIQ-CH2M HILL Small Business Remedial Action Contract (SB RAC) was issued prior to September 15, 2008, and as such the **3 November 2003 version of the EM 385 1-1** shall be applicable the execution of this Task Order (TO) work. However, AGVIQ-CH2M HILL will endeavor to implement the September 15, 2008 version for this project where ever it is feasibly possible. The content requirements of this APP has been to prepared to address the requirements set forth by EM 385 1-1, Appendix A, September 15, 2008.

This APP must be available onsite for reference by site personnel. Means and methodology for execution of contract work which are detailed in the project Remedial Action Work Plan (RAWP) will not be significantly elaborated upon herein.

All site personnel, including AGVIQ-CH2M HILL and subcontractor personnel, who may be covered by this APP, must review or be provided a detailed briefing on the contents of this document and sign the Acknowledgement Form (**Attachment 1**).

2.0 Background Information

PROJECT NAME: Soil Removal Action at Former Disposal Pits (FDP) 1 and 3
Allegany Ballistics Laboratory
Rocket Center, West Virginia

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CONTRACT#: N62470-08-D-1006
(PRIME) Task Order WE 28

2.1 Facility and Site Background

Allegany Ballistics Laboratory (ABL) is located at Rocket Center, West Virginia. ABL is a 1,628-acre facility in West Virginia in the flood plain of the North Branch Potomac River, along the West Virginia and Maryland border. The land surrounding the site is primarily agricultural with some forestry use.

ABL was constructed in 1942 by the Kelly Springfield Engineering Company for the U.S. Army. At that time, the facility was used as a loading plant for 50-caliber machine gun ammunition for the U.S. Army. In 1943, George Washington University assumed management of the facility to conduct research and development of ballistic devices, primarily solid propellant for bazooka ammunition, until 1945. The Navy assumed property management responsibility of the 400-acre Plant 1 portion of the facility in 1945 and the Aerospace Division of Hercules assumed management of the facility. In 1962, the United States government acquired an additional 1,177 acres of undeveloped land adjacent to Plant 1. In 1964, Hercules signed a Facilities Use Contract and began operating ABL as a government-owned contractor-operated (GOCO) facility. In 1995, Alliant Techsystems, Inc. (ATK) acquired the Aerospace division of Hercules and assumed operation of ABL.

Since 1943, the facility has been used primarily for the research, development, production, and testing of solid propellants and motors for ammunition, rockets, and armaments. Currently, the facility is operated as a highly automated production facility for tactical propulsion systems and composite and metal structures. ABL is a leading producer of tactical rocket motors, gas generators, and conventional warheads for the Department of Defense (DoD). The rocket motors produced vary in size and configuration, allowing for a wide range of applications including: air-to-air, air-to-surface, surface-to-surface, and surface-to-air missions. Work in other fields, including hazards analysis and risk control, gun control, gun propellant, and automotive testing, also is ongoing at ABL.

2.1.1 CERCLA Site 1 and Disposal Pits Soil Removal

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Site 1 is adjacent to the North Branch Potomac River, which borders the site to the north, along the northern border of the developed portion of Plant 1, a GOCO facility, operated by ATK. Site 1 contains several historical and active waste disposal units located within the 8-acre Active Burning Ground (ABG) area, which are currently permitted under the Resource Conservation and Recovery Act (RCRA) (Permit WV0170023691). The remaining area of Site 1 is identified as the Outside Active Burning Ground (OABG) area. The ABG is used to burn reactive waste in designated areas. Historical disposal of spent acid and solvents occurred in three disposal pits located inside the boundary of the ABG area. After the materials percolated into the ground, it was reported that the pit was ignited to burn off reactive filtrate. The pits were operated during the 1970s and 1980s and have since been backfilled. Reportedly, trichloroethylene (TCE) was the primary spent solvent that was disposed in the pits and is believed to be a source of volatile organic compounds (VOCs) at Site 1. TCE has been detected at elevated concentrations (relative to the remainder of the ABG) in the soil beneath FDPs 1 and 3. FDP 2 does not contain detectable chlorinated solvents. These findings were supported as a result of a membrane interface probe (MIP) study done over this area. Therefore, FDPs 1 and 3 and the unsaturated soil in these pits are being addressed under an EE/CA. FDP 2 is not considered further.

The project objective is to implement "Alternative 2 - Excavation and Offsite Disposal," as a NTCRA under CERCLA at FDPs 1 and 3, as described in the Final EECA. Contaminated soils associated with FDPs 1 and 3 will be removed by excavating to 14 feet below ground surface (bgs), or to the water table, whichever occurs first (Figure 2-1). The objective of the NTCRA is to remove the unsaturated soil beneath the FDP1 and FDP3 where elevated levels of VOCs have been detected, thereby eliminating the potential leaching of VOCs from the unsaturated soil at the FDPs to groundwater.

As shown on Figure 2-2 of the Navy Statement of Work, FDPs 1 and 3 are located in the southwestern portion of the ABG area. The size and location of the FDPs are based upon the historical boundaries of the FDPs documented in the Confirmation Study (Weston, 1987). This document identified the pits using visual observation of ground scarring, as well as a geophysical investigation of the pit areas. The disposal pits are described as being approximately 10 feet wide and ranging in length from approximately 15 to 40 feet (Figure 2-1). The depths of the pits were estimated at 3 to 5 feet bgs.

Removal Area Boundary at FDP-1
(coordinates in State Plane, feet)

	Northing	Easting
1-1	388658.03	2155963.09
1-2	388657.24	2155972.97
1-3	388653.32	2155982.18
1-4	388646.06	2155988.67
1-5	388639.76	2155982.33
1-6	388643.21	2155973.23
1-7	388645.67	2155963.76
1-8	388651.49	2155956.68

Removal Area Boundary at FDP-3
(coordinates in State Plane, feet)

	Northing	Easting
3-1	388576.03	2156254.24
3-2	388574.91	2156264.13
3-3	388572.92	2156272.84
3-4	388570.31	2156283.36
3-5	388565.51	2156287.09
3-6	388560.83	2156282.80
3-7	388561.33	2156272.57
3-8	388563.65	2156262.58
3-9	388565.41	2156252.59
3-10	388572.18	2156245.83

Legend

- Removal Area Boundary Vertex
- Engineered Excavation Stabalization
- Excavation Cross Sections
- Proposed Relocated Fence Line
- Existing Fence Line
- Approximate Limits of Excavation (Including Sloping for Excavation Sidewall Stablization)
- Former Disposal Pits (FDP)
- Removal Area
- Active Burning Ground
- Boring Proposed Location

N

0 15 30 60 Feet

1 inch = 30 feet

Figure 2-1
Removal Areas
Allegany Ballistics Laboratory, Rocket Center, West Virginia

CH2MHILL

ES102611182620VBO Figure2_3_Removal_Areas_rev1.ai 10/26/11 LED

According to facility personnel, approximately 1,000 pounds of TCE per month were disposed of in the pit(s) between 1970 and 1978. Disposal of tetrachloroethene (PCE) and 1,1,1-trichloroethane (TCA) in the pit(s) was less than 5 pounds per year. From 1972 to 1982, waste acids and bases generated by laboratory operations were disposed of by pouring them into pit(s) that had been lined with limestone. According to facility personnel, approximately 1 gallon of waste acid per month was disposed of in the pit(s) until disposal practices ceased.

2.2 General Task Order Scope of Work

FDP 1 & 3 excavation locations and existing conditions are shown on Figure 2-1. The activities associated with the scope of work at FDP 1 & 3 include the following:

1. Mobilization and demobilization
    a. Intrusive site preparation work (erosion sediment control measures, etc.)
    b. Initial site survey to establish the limits of excavation and site layout drawing(s).
    c. Non-intrusive site preparation activities (constructing decontamination pad and material staging areas, haul road construction, etc)
2. Onsite decontamination
3. Pre-excavation soil boring advancement and sample collection for geotechnical and chemical analyses.
4. Abandonment of up to 12 alluvial and 5 bedrock wells that may be impacted by the excavation work.
5. Installation of an engineered soil stabilization structure at the FDP3 excavation to protect the adjacent Burn Pad D.
6. Excavation of the FDPs to a depth of up to 14 feet bgs or until the water table is encountered, whichever occurs first.
7. Implementation of MEC awareness program for all intrusive activities.
8. Soil sampling of FDP sidewalls
9. Installation of gravel bedding and geotexile marker fabric in each completed excavation
10. Post excavation, pre-backfill survey of the limits of excavation.
11. Waste management and offsite disposal of contaminated soil at FDP 1 and 3.
12. Backfill, seeding and site restoration.
13. Final topographic survey

On completion of the above specified items, the site will be allowed to stabilize prior to completing the extraction well installation objectives in the original TO No. WE28 scope of work.

All Activity Hazard Analysis documents associated with the execution of this TO are included in Section 10.6, Project Specific Activity Hazard Analyses of this APP.

2.3 Health and Safety Plan Assumption Set

The following assumptions apply to this project:

- There is no potential Chemical, Biological, Nuclear or Radioactive (CBNR) weapon/agent or waste exposure to AGVIQ-CH2M HILL or subcontractor personnel who may be associated the execution of this contract work. Although no MEC items are known to be present at the site, 3R Munitions Safety Awareness training is required by all field personnel including subcontractors prior to conducting any soil intrusive activities. All site operations will be secured immediately with an "All Stop" if explosive hazards are encountered. Explosive hazards will be assessed and cleared from the work area prior to AGVIQ-CH2M HILL or subcontract personnel resuming work.
- Site personnel shall execute good personal hygiene practices to facilitate a negative exposure to dust/particulate, water or waste materials via incidental dermal or ingestion exposure vectors.
- Where use of personal protective equipment (PPE) equipment is specified, it will be used in accordance with Section 9.33 of this APP.
- Site work will be performed in an open air work environment.
- Where the use of air monitoring equipment is specified, it shall be in accordance with Section 9.33 of this APP. Action levels and action level responses defined by this APP shall be adhered to. Air monitoring data collected during the execution of the task order work phases shall be documented and included for the project file.
- Where content in this APP is marked as (Reserved) or otherwise defined as not applicable, then activities associated with these areas, activities or hazards are not specifically covered under this APP and must not be performed unless this APP is amended, as necessary.

In the event that the above assumption set is not verified, the conditions of this APP will be re-evaluated and amended as necessary to address applicable hazards that may be associated with newly encountered project conditions or newly defined project tasks. In the event that it is determined that site soil, groundwater, or sediment may be impacted by COCs concentrations in excess of established Occupational Exposure Limits (OELs) or CBRN exposure at any level, work shall cease until such engineering or administrative control measures and/or Personnel Protective Equipment (PPE) are implemented to reduce potential worker exposures to acceptable levels.

Adjustments to this APP to address or mitigate potential OEL/CBRN/MEC exposure to workers or involving modifications to worker PPE or worker/site exposure monitoring (air monitoring) requirements will require review and approval by the Program Certified Industrial Hygienist (CIH). All amendments to this APP must be performed by a designated AGVIQ-CH2M HILL Program HSPA, the Program CIH or other duly authorized professional.

2.4 HAZWOPER-Regulated Tasks

Where certain work tasks include the handling, removal, containment, investigation or other physical site management of hazardous waste/material or other regulated materials, execution of such tasks and potential employee exposure to chemical hazards associated with these tasks may be regulated under 29CFR1910.120/29CFR1926.65. For this task order, the following activities will be considered Hazardous Waste Operations (HAZWOPER)-regulated tasks because of the potential worker exposure to identified site contaminants.

- Mobilization and Demobilization
    - Intrusive site preparation work (erosion sediment control measures, etc.)
    - Onsite decontamination
- Pre-excavation soil boring advancement and sample collection for geotechnical and chemical analyses.
- Abandonment of up to 12 alluvial and 5 bedrock wells that may be impacted by the excavation work.
- Installation of an engineered soil stabilization structure at FDP3
- Excavation of the FDPs
- Soil sampling of FDP sidewalls
- Installation of gravel bedding and geotexile marker fabric in each completed excavation
- Waste management and offsite disposal of contaminated soil at FDP 1 and 3.
- Post excavation, pre-backfill survey of the limits of excavation.

2.5 Non-HAZWOPER-Regulated Tasks

HAZWOPER regulations under 29 CFR 1910.120/29 CFR 1926.65 may be not applicable. Where this is considered, it must be demonstrated that the assigned tasks can be performed without the possibility of exposure to chemical hazards to use personnel who do not meet the criteria established by these standards. A determination from the AGVIQ-CH2M HILL Program Certified Industrial Hygienist (CIH) is required before project tasks are conducted by personnel who do not meet the requirements of 29CFR1910.120/29CFR1926.65 and where there is question to potential exposure to chemical hazards by site workers. Where it is unlikely or not possible that workers could not be exposed to site chemical hazards during the normal execution of assigned tasks, the task can be considered a Non-Hazwoper Regulated Task. For this project, the following activities can be considered Non-Hazwoper Regulated Tasks.

- Mobilization and Demobilization
    - Initial site survey to establish the limits of excavation and site layout drawing(s).
    - Non-intrusive site preparation activities (constructing decontamination pad and material staging areas, haul road construction, etc)

- Removal and Installation of the Burning Ground Fence located outside of the site boundary.
- Backfill, seeding and site restoration.
- Final topographic survey

3.0 Statement of Safety and Health Policy

The measurement of a successful program includes our ability to execute profitably, on schedule, safely and without violations. Success can only be achieved when all four components are integrated; therefore, health and safety must be part of every operation, at every responsibility level. It is the intent of AGVIQ-CH2M HILL to comply with established standards concerning the health and safety of our employees and create work environments that are free of recognized hazards that may result in an accident, injury or illness. To do this, we must be vigilant in the identification and elimination of acts and conditions that can produce or lead to accidents, injuries, and illnesses in our workplace.

Knowledge of an unsafe act or condition does not make the work "safe". When an act or work area condition is identified that is not consistent with the established practices of the AGVIQ-CH2M HILL Health and Safety Program (HSP), it is the inherent responsibility of each employee to report such inconsistencies to a supervisor so the act or condition may be evaluated, corrected, controlled, or engineered to a status that does not pose a significant threat. Where an act or condition in the workplace is determined to be Immediately Dangerous to Life and Health of AGVIQ-CH2M HILL employees, work must stop until the condition has been abated.

Management, supervisory, and worker personnel are all entrusted with implementing the policies and procedures of the AGVIQ-CH2M HILL HSP and prepared site specific health and safety documents. Prevention of accidents, injury, and illness is an achievable objective for all employees, at all responsibility levels, for all program operations. It is a basic requirement that each manager and supervisor make the safety of employees under their tenure an integral component of his or her regular management practices. Additionally, it is the duty of each employee to accept and follow established safety policies and procedures established by AGVIQ-CH2M HILL.

No employee shall be required to work at a location that would jeopardize their life or health. Employee cooperation in detecting, controlling, and reporting workplace hazards is a condition of participation in the AGVIQ-CH2M HILL Program. It is critical for AGVIQ-CH2M HILL personnel to immediately inform their supervisor of any situation or work area condition that is beyond their ability to correct or control. AGVIQ-CH2M HILL personnel will not be disciplined or suffer any retaliation for reporting acts or conditions that are not consistent with the policies and procedures required by the AGVIQ-CH2M HILL HSP or project specific health and safety documents.

Every effort should be made to provide adequate training to our program participants; however, if an employee is ever in doubt about how to do a job or task safely, it is his or her duty to ask a qualified person for help. Fellow team members that need help should be assisted. Program participants are expected to assist management in accident prevention activities. Everyone is responsible for executing their assigned duties in a safe manner. Every incident (including a near-miss) that occurs in the workplace shall be reported to a first-line supervisor, as soon as possible. Under no circumstances, except in the instance of emergency medical care, should an employee leave the work site without reporting an accident, injury, or illness that occurs in the workplace. When a workplace accident, injury, or illness occurs, everyone is affected. The success and longevity of our program is directly related to maintaining a healthy and safe working environment for everyone.

3.1 Objective

The objective of AGVIQ-CH2M HILL is to provide a place of employment free of all recognized hazards that are causing or will likely cause death or serious physical harm to our employees. This objective can be facilitated by developing and administering an overall health and safety program, which establishes written policies and procedures, to serve as vehicles through which the program requirements will be implemented.

3.2 Purpose

The purpose of this project APP in conjunction with the project specific or program health and safety documents, is to define the policies, procedures, and requirements that must be implemented for the AGVIQ-CH2M HILL projects and to establish the requirements, responsibilities and expectations for management, supervisors, employees, and subcontractors that may participate in the execution of the program projects. It is the intent of this APP to address applicable requirements set forth by 29 CFR 1910, 29 CFR 1926, EM 385 1-1, and AGVIQ-CH2M HILL policies and procedures incorporated by reference, herein.

3.3 Goals

The health and safety goal for this project and the overall goal for the AGVIQ-CH2M HILL program is to eliminate workplace accidents, gain worker acceptance through cooperation and training, and provide our clients with a responsible, well-trained, safety-oriented work force.

AGVIQ-CH2M HILL considers safety the highest priority during work at all project sites and its business offices and has established a goal of zero incidents. Projects will be conducted in a manner that minimizes the probability of near misses, injury, illness, and equipment/ property damage.

4.0 Responsibilities and Lines of Authorities

The following listed AGVIQ-CH2M HILL personnel will have the authority to intervene and suspend work in the interest of ensuring adherence to Health and Safety policies and procedures defined by the APP and/or the AGVIQ-CH2M HILL SB RAC Program.

AGVIQ-CH2M HILL SBRAC Program Manager
Sidney Allison: (843) 242-8018/(843) 813-2672 (cell)

AGVIQ-CH2M HILL SBRAC Deputy Program Manager
Sam Naik: (678) 530-4248/(678) 860-9626 (cell)

AGVIQ-CH2M HILL Project Manager (overall)
Paul Rakowski: (757) 213-8581/ (757) 544-6744 (cell)

AGVIQ-CH2M HILL Technical Support Lead
Janice Derby: (617) 416-1211 (cell)

AGVIQ-CH2M HILL CIH
Angelo Liberatore, CIH, CSP: (678) 530-4210/ (770) 335-2076 (cell)

AGVIQ-CH2M HILL Field Team Leader/SSHO
TBD

AGVIQ-CH2M HILL Alternate SSHO
TBD

AGVIQ-CH2M HILL H&S Program Administrator(s)
Rachel Francis: (757) 213-8592/ (757) 354-5820 (cell)
Joshua Painter, CSP: (303) 993-9274 (cell)
Mark Orman, CSP, CHMM: (414) 847-0597/ (414) 712-4138 (cell)

4.1 Organization and Responsibility for Health and Safety

The safety and protection of employees, clients, and the community is the first priority. If an activity or condition at a location under control of AGVIQ-CH2M HILL is determined to be inconsistent with our health and safety policies and procedures, all efforts shall be made to correct the situation immediately or as soon as feasibly possible. At no time should any AGVIQ-CH2M HILL personnel perform or be allowed to perform duties in a work environment that is immediately dangerous to life and health (IDLH) or in an imminently dangerous situation. In these situations, the task will not proceed until the situation is corrected.

4.1.1 Program Manager

The AGVIQ-CH2M HILL Program Manager is the primary operational and safety official of AGVIQ-CH2M HILL and has overall responsibility for ensuring that AGVIQ-CH2M HILL program participants implement the established health and safety policies and procedures adopted by AGVIQ-CH2M HILL. The deputy program manager supports the execution of all operations required of the Program Manager.

4.1.2 Project Manager

The AGVIQ-CH2M HILL Project Manager is responsible for providing adequate resources (budget and staff) for project-specific implementation of the Health, Safety and Environment (HS&E) management process. The Project Manager has overall management responsibility for the project tasks identified herein and reports to Program Management on all matters and to the Program CIH on matters involving the health and safety of program participants, project incidents or other health and safety related matters. The Project Manager may explicitly delegate specific tasks to other staff, but retains ultimate responsibility for completion of the following in accordance with this APP or other established health and safety requirements. Designated project coordinators, technical leads, engineers and other administrative staff support the execution of all operations required of the Project Manager. In general, the Project Manager's responsibilities include but are not limited to the following:

- 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 AGVIQ-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 AGVIQ-CH2M HILL as named additional insured), bond, contractor's 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 interface with third parties in a manner consistent with our contract and subcontract agreements and the applicable standard of reasonable care.
- Ensure that both the overall and job-specific HS&E goals are fully and consistently implemented.

4.1.3 Certified Industrial Hygienist

The AGVIQ-CH2M HILL Program Certified Industrial Hygienist (CIH) meets the established qualification, training and experience criteria requirements and exhibits sufficient knowledge in health, safety and/or industrial hygiene matters to manage and oversee the AGVIQ-CH2M HILL health and safety program. The CIH acts as the responsible program officer to review and approve all developed project specific APP's and provides consultation, recommendations or requirements with regard to project worker protection and exposure issues. The CIH may also be required to perform the project/program roles and responsibilities of the Health and Safety Program Administrator(s) HSPA, where required. The Program Certified Industrial Hygienist (CIH) responsibilities include, but are not limited to the following:

- Review and approve the project specific APP for field implementation.
- Be available for consultation/direction with regard to project Industrial Hygiene and worker exposure matters, as may be required by the project team, SSHO or the AGVIQ-CH2M HILL Health and Safety Program Administrator(s) (HSPA) and review and approve any changes to the APP which alters established requirements for worker exposure or perimeter air monitoring or Personal Protective Equipment (PPE).
- Perform the same roles and responsibilities as the HSPA, where required.
- Meets the requirements of a "Health and Safety Manager", where required.
- Coordinate with the Program Manager, Deputy Program Manager and the Project Manager (Program CIH, HSPA or SSHO, as necessary) on all site or worker health and safety matters.

4.1.4 Health and Safety Program Administrator(s)

The AGVIQ-CH2M HILL Health and Safety Program Administrators (HSPAs) administers the overall health and safety program for the AGVIQ-CH2M HILL program and reports directly to the Program Management and the Program CIH with regard to AGVIQ-CH2M HILL program or significant project matters. The HSPA is responsible for supporting and assisting the AGVIQ-CH2M HILL program staff in executing the required health and safety policies and procedures adopted by the program, for implementation. The HSPA responsibilities include, but are not limited to the following:

- Develop and/or review the project APP for final approval by the CIH.
- Provide review and comment on subcontractor pre-qualification questionnaires that fall outside the performance range delegated to the Contracts Administrator (KA) and request corrective actions, where required.
- Provide review and comment on subcontractor training records and site-specific safety procedures prior to start of subcontractor's field operations and request corrective actions, where required.
- Support the SSHO's oversight of subcontractor (and lower-tier subcontractors) Health, Safety, and Environment (HS&E) practices and interface with third parties, as necessary.

- Support and assist program staff in executing the HS&E policies and procedures adopted by the program for implementation, including the program Behavior Based Loss Prevention System (BBLPS) and overall Risk Management Process (RMP). Provide consultation and direction to project staff with regard to HS&E project and program requirements and industrial hygiene practices.

4.1.5 Site Supervisors

Site supervisors are entrusted with special duties concerning the safety and health of employees. They are critical links to the success of the injury and illness prevention program and are key components assisting with Loss Prevention goals. For this project, the site supervisor reports to the AGVIQ-CH2M HILL overall Project Manager on all project matters. Site supervisor responsibilities include but are not limited to the following:

- Providing adequate pre-project planning to allow for the effective procurement of appropriate equipment, materials, safety related systems or documents to facilitate the execution of individual project tasks in a safe and efficient manner;
- Coordinating the equipment and material needs to be procured by AGVIQ-CH2M HILL for the proper execution of the project.
- Promotes proper field communication and coordination with the overall project manager, field staff and client, as necessary, to personnel assigned to promote the proper execution of the project.
- Implementing the health and safety aspects of the AGVIQ-CH2M HILL program and ensuring that any onsite AGVIQ-CH2M HILL personnel adhere to the requirements of this (APP), the host facility security rules, or other applicable health and safety requirements (i.e. “3R Training”) identified for this project;
- Conveying hazard information, to which they are advised of, to subordinate employees at the contract project site or facility locations;
- Investigating AGVIQ-CH2M HILL accidents, injuries and illness, that occur under their supervision at the contract project site, in accordance with the accident investigation procedures identified for the program;
- Implementing the components of the AGVIQ-CH2M HILL Behavior Based Loss Prevention System (BBLPS) including the execution of routine pre-job safety overviews at AGVIQ-CH2M HILL contract project locations as the project begins, as new tasks are planned, as new project hazards are identified or when new project team members are assigned to the project site;

- Taking prompt action to correct identified acts or conditions that are personally observed by a supervisor or brought to the attention of a supervisor that are not consistent with the conditions of this APP or AGVIQ-CH2M HILL health and safety program requirements ;
- Promoting and ensuring an appropriate project safety culture for subordinate site personnel by positive example; and
- Stopping or correcting questionable acts or identified conditions that are under a supervisor's responsibility that are inconsistent with established safety standards, AGVIQ-CH2M HILL policies and procedures, and requirements established by this APP.

4.1.6 Site Safety and Health Officer

The SSHO is responsible for verifying that the project is conducted in a safe and healthy manner and individuals functioning in this role must:

- Verify this APP remains current and amended when project activities or conditions change.
- Coordinate with the Site Supervisor and the Project Manager (overall) on all site matters and report to the Program CIH (or HSPA as an alternate) on all health and safety matters.
- Verify AGVIQ-CH2M HILL site personnel and subcontractor personnel read, or have been briefed on the contents of this APP, and sign **Attachment 1**, APP "Acknowledgement Form" prior to commencing field activities.
- Verify AGVIQ-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 6.0, and maintain the Subcontractor H&S Tracking Form, where applicable (see **Attachment 2**).
- Verify adherence with the requirements of this APP and applicable the subcontractor's health and safety plan(s).
- Act as the project "Hazard Communication Coordinator".
- Act as the project "Emergency Coordinator" and perform the responsibilities outlined in this APP or as maybe required to properly coordinate the onsite response of emergencies, as they arise.
- Verify that safety meetings are conducted at least daily or more frequently as project tasks or hazards change and documented for the project record in accordance with the requirements of the BBLPS.
- Verify that project H&S forms and permits, found in **Attachment 3**, are being used as intended.
- Verify that Project Activity Self-Assessment Checklists, found in the CH2M HILL, Inc. SOPs referenced in this APP, are being used as intended.

- Verify that the Drug-Free Workplace Program is being implemented.
- Verify that project files available to site personnel include copies of executed subcontracts and subcontractor certificates of insurance (including named additional insured), bond, contractor's license, training and medical monitoring records, and site-specific safety procedures prior to start of subcontractor's field operations.
- Manage interface with third parties in a manner consistent with our contract/ subcontract agreements and the applicable standard of reasonable care.
- Coordinate with the HSPA(s) or Program CIH regarding AGVIQ-CH2M HILL and subcontractor operational performance, and third-party interfaces.
- Ensure that the overall, job-specific, HS&E goals are fully and continuously implemented.
- The SSHO is responsible for coordinating with the AGVIQ-CH2M HILL individual responsible for site operations (i.e., Site Supervisor/Manager or Field Team Leader) and Project Manager, as necessary. In general, the Project Manager will contact the client in the event accidents, injuries or property damage occurs on the project site. The Program CIH or HSPA(s), as necessary, should be contacted by the SSHO as appropriate.

4.1.7 AGVIQ-CH2M HILL Program Participants

All AGVIQ-CH2M HILL Program participants (i.e. "employees"), regardless of job title, share the responsibility for executing their assigned tasks in a healthy and safe manner and must report any or acts or conditions that are not consistent with established health and safety procedures and protocols at the project site without fear of reprisal. It is imperative that AGVIQ-CH2M HILL Program participants observe the following minimum requirements to achieve a safe and healthy workplace:

- Each employee must familiarize themselves with the contents this APP and the general safety rules herein.
- Each employee will practice procedures and follow all safety rules and regulations for the successful completion of any job task.
- All employees will wear the necessary PPE required for the job or task as specified by the APP or other applicable program requirements.
- The employee will notify their immediate supervisor of any potential workplace hazard or work practice that is not consistent with the AGVIQ-CH2M HILL health and safety policies and procedures and could result in an accident, injury, illness, environmental releases or destruction of property.
- The employee will report all accidents to an immediate supervisor regardless of whether injury or property damage resulted. This includes all near misses (accidents without injury or damage). This requirement serves to bring unsafe conditions to the attention of management.
- Each employee will be subject to contraband search for safety purposes and for the safety of fellow employees.

- Violations of published safety policies and procedures may be cause for disciplinary actions up to and including dismissal.
- Each employee that is taking any prescription or over the counter medications that could alter the manner in which they could be treated in an emergency or effect their job performance/safety of the employee or other employees in the work environments (i.e. via heavy equipment operations) shall notify their supervisor prior to beginning work.

4.2 Employee Competency

Employee competency, as defined by 29 CFR 1926.32(f) and for areas of executable contract work for which an employee has responsibility, shall be established by the appropriate employer only (i.e. AGVIQ, LLC. or CH2M HILL, Inc.). Employee competency is determined by employee training, total work experience and/or on the job training, professional certification and/or educational degrees.

It is the opinion of AGVIQ-CH2M HILL that the professionals identified in this APP are competent in their areas of expertise with regard to the management, field execution of the specified contract work, or in the implementation of AGVIQ-CH2M HILL site specific or program health and safety requirements, as applicable.

Executable onsite contract work for which there is a specific requirement for a competent person to oversee (i.e. excavation, scaffolding etc.); will not be conducted unless a competent person is available onsite.

In addition to the above, the AGVIQ-CH2M HILL Health and Safety Program utilizes a team of Health and Safety Professionals who are qualified by experience, training, educational degrees and professional certification (CIH, CSP, CHST, ASP) to act as the responsible program officers with regard to the overall project specific and program wide implementation of the AGVIQ-CH2M HILL Health and Safety policies and procedures.

4.3 Requirements for Pre-task Safety and Health Analysis

Requirements for completing Pre-Task Safety and Health Analysis prior to the execution of onsite work must, at a minimum, abide by Section 10 of this APP. Activity Hazard Analysis (AHA) documents applicable to this project are included in Section 10.6 this APP.

The AGVIQ-CH2M HILL site supervisor/FTL or SSHO will conduct daily safety meetings at the start of each work shift for onsite personnel and periodic "work phase" meetings (i.e. AHAs) in accordance with Section 10 of this APP. The site supervisor/FTL or SSHO must require subcontractors to follow similar meeting procedures or participate in the AGVIQ-CH2M HILL daily safety meetings or work phase meetings, as necessary. It is expected that for the execution of this particular contract, conducting joint AGVIQ-CH2M HILL and subcontractor daily safety and work phase meeting will be integral to the proper implementation of established general and specific health and safety procedures.

4.4 Primary Lines of Authority

The duty for employee disciplinary action must be exercised by the employee's company line manager, supervisor, or corporate official only, as appropriate. Verbal or written

reprimands, suspensions, or terminations shall be in accordance with the requirements established by the AGVIQ, LLC. or CH2M HILL, Inc. employee's Corporate Employee Handbook**,** or internal policies and procedures and Standard Operating Procedures (SOPs). The content of these documents applies to employees of the specific employer and its authorized subsidiaries.

To ensure seamless project operations and the best possible work environment for AGVIQ-CH2M HILL personnel, both AGVIQ, LLC. and CH2M HILL, Inc. in its business partnership (AGVIQ-CH2M HILL), expects its employees to follow rules of conduct and established site procedures that will protect the health and safety of all AGVIQ-CH2M HILL personnel.

Where unacceptable employee behavior or workplace actions are identified, it will be the intent of the employer to administer equitable and consistent disciplinary actions. It is in the best interest of AGVIQ, LLC and CH2M HILL, Inc. to ensure fair treatment of all employees by making certain that disciplinary actions are prompt, uniform, and impartial. The major purpose of any disciplinary action is to correct the problem, prevent recurrence, and prepare the employee for satisfactory service in the future.

Employee disciplinary actions are "typically" exercised in a three (3) steps process;

- verbal warning,
- written warning,
- suspension with or without pay or up to termination of employment, depending on the severity of the problem and re-occurrences of similar unacceptable employee behavior or workplace actions.

Both AGVIQ, LLC. and CH2M HILL, Inc. recognize that there are certain types of employee problems that are serious enough to justify either a suspension, or, in extreme situations, termination of employment, without going through the usual progressive discipline steps, but this decision shall be solely determined by the employee's respective employer and not AGVIQ-CH2M HILL.

By using progressive discipline, most employee problems can be corrected at an early stage, benefiting both the employee, AGVIQ, LLC., CH2M HILL, Inc. and the AGVIQ-CH2M HILL Program.

4.5 Managers and Supervisors Safety Accountability

It is the duty of the first line supervisor to motivate employees to adhere to AGVIQ-CH2M HILL's safety policy and procedures and established hazard control measures for each work environment. A first line supervisor, for these purposes, is defined as that person designated to give immediate onsite supervision to personnel involved in a task.

All manager and supervisors must endeavor to implement complete established health and safety policies, procedures, and hazard control measures for all projects and tasks under their supervision. When in doubt, they should seek the assistance of the Program CIH/HSPA, or other authorized program safety professional, prior to initiating a task. This is the only acceptable manner in which to perform the task. If the task cannot be

accomplished in a manner that is consistent with established program, regulatory or contract health and safety requirements, it will not be attempted.

Managers and supervisors will:

- Explain the safety procedure involved with a task to each employee and check frequently to see that the employee understands and works as instructed.
- Allocate sufficient time for the training and coaching of all employees to ensure that everyone knows the correct procedure for safely accomplishing required tasks.
- Prevent new employees from performing any tasks until required training is completed.
- Immediately correct unsafe conditions that involve AGVIQ-CH2M HILL employees or contractors.
- Ensure that the employees are outfitted with and wear PPE as specified by this APP other AGVIQ-CH2M HILL procedures, or as directed by the Program CIH, HSPA, Project Manager, or SSHO.
- Set a good safety example.
- Obtain the cooperation of employees and contractors.
- Provide a safe work environment for employees and contractors.
- Confirm contractor safety performance records have been verified prior to contract award and monitor contractor performance during operations.
- Report all accidents, near misses, and property damage in accordance with the Incident Management and Reporting Procedure.
- Establish a safety culture, using the elements of the AGVIQ-CH2M HILL Safety Improvement process, which promotes awareness, encourages participation, and recognizes excellence.

5.0 Subcontractors and Suppliers

5.1 Subcontractor/Supplier Coordination and Control

AGVIQ-CH2M HILL subcontractor safety performance and adherence to established industry standards and project policies and procedures will be reviewed prior to being issued a contract for Site work. AGVIQ-CH2M HILL subcontractors must be required to comply with the most stringent requirements defined by the Subcontractor's own policies and procedures, or requirements outlined in this APP, regulations or other requirements applicable to a project, such as contract flow-down requirements.

All subcontractors who may be required to execute this contract may not be identified at the time that health and safety documents are prepared for submission or implementation. Because of the potentially dynamic and evolving nature of contract requirements and resultant project scheduling at many points during the project evolution, only partial identification of potential subcontractors who may be selected for our project is likely. To this end, continuously updating and amending this APP with potentially selected or newly selected subcontractors would not be practical or cost effective for all parties concerned.

The AGVIQ-CH2M HILL procurement/contracting team maintains an extensive and detailed process for subcontractor procurement with the Federal Acquisition Regulations (FAR) as the primary driver. Subcontractor selection is based on scope of work pricing, qualifications, current and historical safety performance data and best value evaluations.

5.2 Subcontractor/Supplier Responsibilities

All subcontractor personnel actively engaged in onsite operations will be required to sign in daily at AGVIQ-CH2M HILL controlled project sites (see **Attachment 1** of the APP) and either attend an AGVIQ-CH2M HILL sponsored daily safety meeting and work phase meeting or complete their own meeting of similar intent.

The details of the each daily safety meeting or work phase meeting will be documented prior to the start of work at the daily site operations. At the discretion of the AGVIQ-CH2M HILL Site Supervisor, this function may be completed by the SSHO to facilitate the requirement. However, where AGVIQ-CH2M HILL and subcontractor personnel are engaged in integral site operations, it is recommended that joint meetings are conducted. In addition, Subcontractors must develop and provide AHAs for their work activities to AGVIQ-CH2M HILL for review, which depending upon contract conditions, may also be required to be forward to NAVFAC for review as well.

Typically, the subcontractor reports directly to the AGVIQ-CH2M HILL Project Manager. The AGVIQ-CH2M HILL Project Manager may designate subcontractor reporting requirements to the AGVIQ-CH2M HILL site supervisor (i.e. Superintendent, foreperson, Field Team Leader or other appropriate designee).

All incidents involving subcontractor personnel must be reported to the AGVIQ-CH2M HILL site supervisor and a copy of the subcontractor's incident or injury/illness report will be submitted to the AGVIQ-CH2M HILL site supervisor, Project Manager, program Manager and Program CIH as soon as possible, but no later than 24 hours.

AGVIQ-CH2M HILL subcontractors may be required to acknowledge and adhere to the requirements of the AGVIQ-CH2M HILL APP. Subcontractors covered by this APP must be provided a copy of it to read and accept prior to initiating work on this Site or be provided a briefing of its contents. However, if the AGVIQ-CH2M HILL APP does not address specific hazards associated with specialty tasks and equipment that the subcontractor has expertise in (e.g., electrical, scaffold erection, demolition),. a subcontractor will be required to provide their corporate Health and Safety Plan for AGVIQ-CH2M HILL's records. Subcontractors will also be required to proved specific AHA's for their specialty hazards in current EM 385 1-1 format that will be submitted to AGVIQ-CH2M HILL's Health and Safety Coordinator for review. These AHA's will also be sent to the client for review and approval.

Subcontractors are responsible for the health and safety procedures specific to the work, but it is critical that subcontractor work be performed in a manner that is consistent with applicable OSHA standards (29CFR1910, 29CFR1926, as applicable), EM 385 1-1 or other applicable health and safety plan(s)/protocols. Identified subcontractor health and safety performance or site conditions that are not consistent with established procedures must be corrected.

AGVIQ-CH2M HILL continuously endeavors to observe a subcontractors' safety performance. This process should be reasonable and include observing site hazards, practices and procedures that are not consistent with established HS& E requirements that are both readily observable and occur in common work areas. AGVIQ-CH2M HILL oversight does not relieve subcontractors of their responsibility for effective implementation and compliance with the established plan(s), protocols, or established safety regulations or contract conditions.

In addition to this level of observation, the site supervisor or SSHO should confirm AGVIQ-CH2M HILL subcontractor performance against both the subcontractor's safety plan and standard industry procedures or contractual requirements.

Health and safety related communications with AGVIQ-CH2M HILL subcontractors should be conducted as follows:

- Request subcontractor personnel to read this APP and then require them to sign the APP Acknowledgement Form included in **Attachment 1** of this APP, as applicable.
- Request subcontractor(s) to brief the project team on the hazards and precautions related to their work.
- Verify and supply valid, applicable subcontractor employee training documents. For all HAZWOPPER tasks as defined in Section 2.2, subcontractors will provide copies of 29CFR1910.120 forty hour and current eight hour training certificates and documentation that workers are in a medical surveillance program.

- When apparent conditions, actions, or practices are observed that are not consistent with this APP, AGVIQ-CH2M HILL Health and Safety Program protocols or project/regulatory requirements, notify the subcontractor safety representative and require corrective action—the subcontractor is responsible for determining and implementing necessary controls and corrective actions.
- When identified conditions or practices/actions that are not consistent with AGVIQ-CH2M HILL health and safety policies and procedures, or other applicable Health and Safety protocols or project/regulatory requirements, are repeated or persist, notify the subcontractor safety representative, individual responsible for site operations and/or Project Manager and stop affected work until adequate corrective measures are implemented. See Stop Work Order (SWO) Form in **Attachment 3** of the APP.
- When an apparent imminent danger exists, immediately remove all affected AGVIQ-CH2M HILL employees and subcontractors, notify subcontractor safety representative, individual responsible for site operations and/or Project Manager and stop affected work until adequate corrective measures are implemented (see SWO form). Notify the Project Manager (overall) and Program CIH (or HSPA if necessary), as appropriate.
- Document all oral health and safety related communications in project field logbook, daily reports, or other records.
- All subcontractor employees are subject to the same training (or medical surveillance requirement, where applicable) as AGVIQ-CH2M HILL personnel, depending on job activity and OSHA requirements.

6.0 Training

6.1 New Hire SOH Orientation Training

New Hire Safety and Occupational Health (SOH) orientation will be performed by an employee's line supervisor, human resource representative, intranet training, or by employee review of information provided by the employer.

Because AGVIQ-CH2M HILL is composed of two separate and distinct corporations operating together in a business partner arrangement, both corporations separately conduct new hire safety and occupational health (SOH) orientation training in accordance with each employer's (AGVIQ, LLC. or CH2M HILL) established processes. Typically such orientations would be performed by an employee's line supervisor, human resource representative, intranet training or by employee review of information provided by the employer. In general, new hire SOH orientation training would most likely include the following components, depending on the employee's hire category.

1) Completion of hire evaluation new any employer specific Drug Free Work Place (DFWP) requirements
2) Introduction to company/corporate history
3) Organizational Structure
4) Briefing on job functions and employee performance expectations
5) Time keeping and/or expense reporting
6) Provision, review and acknowledgement of Corporate Policies and Procedures Manual (aka Employee Manual) or equivalent
7) Provision, review and acknowledgement of Corporate Health and Safety Program Plan or equivalent
8) Verification and update (as necessary) of prerequisite training and medical surveillance testing, where applicable for field work (Hazwoper/Construction)
9) Management and Supervisor training, as applicable

To promote the seamless operation of the AGVIQ-CH2M HILL program as a single entity, orientation of management and supervisory personnel who have not previously participated in the AGVIQ-CH2M HILL program is provided. This orientation typically would include, but not be limited to the following:

1) Background history of the development and functionality of the AGVIQ-CH2M HILL Programs
2) Organizational Structure
3) Project and Program reporting requirements (incident, financial and chain of command)
4) Fund allocation, cost tracking, forecasting and invoicing procedures
5) Review processes for Client Request For Proposal (RFP) responses and project deliverables
6) Project concurrence or changed conditioned processes

7) Expectations with regard to Client/Customer and project team communications, project performance, Client/Customer expectations, health and safety and quality control performance
8) Resource allocation

All designated AGVIQ-CH2M HILL personnel, regardless of assignment responsibilities, who are engaged in site operations must review or be provided a detailed briefing on the contents of site specific health and plans, APP's, task specific Activity Hazard Analyses (AHAs) and daily safety briefings and must acknowledge such documents by signature.

6.2 Requirements for Mandatory Training and Certificates

AGVIQ-CH2M HILL engages in construction, environmental remediation and other consulting services and endeavors to comply with the health and safety training requirements mandated by governmental agencies, internal policies and client requirements.

Personnel will be provided sufficient training to execute their jobs in a safe and healthy manner. It is the responsibility of each employer (AGVIQ, LLC. and CH2M HILL, Inc.) to ensure that their employees maintain the appropriate training requirements to complete their assigned duties.

Direct supervisors, with support by the Senior Management and Health and Safety professionals, are responsible for determining the training requirements for a specific project or task and ensure that personnel assigned to AGVIQ-CH2M HILL operations have the necessary training to complete the project/task safely. Senior management and the Program CIH or HSPAs (or outside vendors) will assure with the delivery of identified required training.

Designated employer personnel and electronic databases facilitate the maintenance of training records and applicable experience documentation. When an employee training is identified being insufficient to perform an assigned task, every effort will be made to provide the necessary training or to provide a trained and experienced alternate until the employee has achieved the required criteria.

Employee training records are available at corporate offices, by electronic means, and generally maintained on the project site. Depending on the size of the project crew and because of work crew dynamics and scheduling, the provision of hard copy employee training records (and medical surveillance records where applicable) for all anticipated personnel who may be assigned to this project, within the content of this APP is impractical. AGVIQ-CH2M HILL endeavors to maintain these documents onsite for review and will provide them to government officials for verification, upon request.

All AGVIQ-CH2M HILL personnel performing Hazardous Waste Operations and Emergency Response (HAZWOPER) Regulated Tasks are enrolled in a comprehensive health and safety program, which at a minimum, meets the requirements of 29CFR1910.120/29CFR1926.65 or 29CFR1910.134.

Training or Medical Surveillance Requirement	Applicability
• 29CFR1910.120(e)(3)/29CFR1926.65(e)(3) Note: 40 hr or 24 training as applicable to employee assigned duties. No periodic refresher performance provided the requirements of 29CFR1910.120(e)(8)/ 29CFR1926.65(e)(8) are maintained.	• All site personnel performing Hazwoper regulated activities identified in Section 2.4 of this APP.
• 29CFR1910.120(e)(8)/29CFR1926.65(e)(8) Refresher training required on an annual basis	• All site personnel performing Hazwoper regulated activities identified in Section 2.4 of this APP.
• 29CFR1910.120(e)(4)/29CFR1926.65(e)(4) No specific recertification requirements.	• All site manager, supervisory or SSHO personnel performing Hazwoper regulated activities identified in Section 2.4 of this APP.
• First Aid/CPR 1st Aid – typically 3 yr renewal CPR – 1 or 2 yr renewal (depending on sponsor)	• All designated manager, supervisory or SSHO site personnel (2 per site).
• 29CFR1910.120(f)/29CFR1926.65(f) On an annual basis under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine	• All site personnel performing Hazwoper regulated activities identified in Section 2.4 of this APP.
• 29CFR1910.134(e) On an annual basis under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine	• All site personnel performing Hazwoper regulated activities identified in Section 2.4 of this APP and required to utilize respiratory protection
• 49CFR172.700 Renewal, every 3 years	• Each person who offers transportation in commerce or transports in commerce hazardous materials
• 10 Hour Construction Safety Course	• Site manager and SSHO
• 29 CFR 1910.146(g) Permit Confined Space Entry	• Personnel entering any Confined Spaces
UXO Avoidance Awareness Training	• All non-UXO Tech site personnel engaged in site operations

- Initial training required by 29CFR1910.120(e)(3)/29CFR1926.65(e)(3) shall be 40-hour or 24-hour training initial training, and 3-day/1 day on-the-job experience in accordance with employee's normal assigned duties and anticipated site conditions as applicable to the requirements of CFR1910.120(e)(3)(i)-(iv)/29CFR1926.65(e)(3) (i)-(iv). Site personnel performing operations falling under the requirements of 29CFR1910.120/29CFR1926.65 shall also have 8 hours of "refresher training" on an annual basis, in accordance with 29CFR1910.120(e)(8)/29CFR1926.65(e)(8).

- Onsite management and supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations and individuals designated as an SSH) shall also have an additional 8 hours of "management and supervisor" training defined by 29CFR1910.120(e)(4)/29CFR1926.65(e)(4).

- It is our intent to require site personnel designated with management, site supervisor, or SSHO responsibilities to maintain current American Red Cross or American Heart Association sponsored First Aid and Cardio-Pulmonary Resuscitation (FA-CPR) certifications. When a medical facility or physician is not accessible within 5 minutes of an injury to a group of two or more employees for treatment of injuries, at least two employees on each shift shall be trained to administer First Aid and CPR. These individuals have also been provided training in exercising universal precautions against exposure to blood borne pathogens as a component to FA/CPR training which meets the intent of 29CFR1910.1030. This employee training is also regularly complemented by other regularly scheduled employer training curriculums that are typically executed for the HAZWOPER industry, regulated under 29CFR1910.120/29CFR1926.26.
- All employees who perform work at hazardous waste sites or perform emergency response operations meeting the criteria of 29CFR1910.120(a)(1)(i)-(v)/ 29CFR1926.65(a)(1)(i)-(v) standards will be subject to the individual employer medical surveillance program requirements. AGVIQ, LLC. and CH2M HILL, Inc. medical surveillance programs conform to the requirements established by 29 CFR 1910.120(f)/1926.65 (f) and/or 29CFR1910.134(e).
- In addition, each AGVIQ-CH2M HILL project site manager or supervisor with SSHO responsibilities or construction oversight responsibilities on construction related projects shall have received an OSHA 10-hour Outreach Construction Safety training course (OSHA 10hr), or equivalent (i.e. CH2M HILL Site Safety Coordinator (SSC) training.
- Certain key project site personnel that may be responsible for packaging, labeling hazardous materials for transportation will have received training in accordance with 49 CFR 172.700
- Employees being exposed to certain air borne chemicals or contaminants may require medical monitoring requirements defined by OSHA standards but outside of the medical monitoring requirements defined by 29CFR1910.120(f) or 29CFR1910.134(e), as applicable to anticipated site conditions.
- Where it is determined that employees will be performing certain assigned tasks (e.g., confined-space entry, scaffold, fall protection, forklift operations etc.), then training, additional to that identified above, will be applicable and must be provided by the employer.

6.3 Procedures for Periodic Safety & Health Training of Supervisors and Employees

Supervisor and employee training is established as a routine training provided by the employee's employer (AGVIQ, LLC. or CH2M HILL, Inc.) as method of adhering to OSHA, DOT or other which is required to be provide by an employer to an employee. The types and frequency of routine training provided to AGVIQ-CH2M HILL program participants by AGVIQ, LLC. or CH2M HILL, Inc. is identified in Section 6.2 of this APP.

Additional supervisor and employee training is supplemented by the implementation of the Risk Management Process (RMP) (implemented by AGVIQ-CH2M HILL), which is detailed in Section 10.0 of this APP. Execution of the AGVIQ-CH2M HILL RMP provides a means and method to achieve overall project "goals" established by the project/program. Implementation of AHAs and daily safety meetings as part of the RMP provides a method for routine supervisor and employee "awareness training." The desired result of the implementation of the RMP is to facilitate the identification and control of certain risks (or liabilities) that may be encountered during the execution of the project. Additionally, the implementation of our RMP processes establishes and maintains a level of expectation with regard to overall project and program health and safety performance.

6.4 Requirements for Emergency Response Training

There are no specific requirements for emergency response training for this project other than the following:

- 29 CFR 1910.120(e)(3)/29CFR1926.65(e)(3) standard
- On the job experience associated with operations regulated by 29 CFR 1910.120(e)(3)/29CFR1926.65(e)(3) standard
- First Aid and CPR training and Blood Bourne pathogen training

7.0 Safety and Health Inspections

The AGVIQ-CH2M HILL site supervisor/FTL or SSHO are required to perform site inspections using the checklists/forms included in **Attachment 3** of this APP. The forms included in **Attachment 3**, herein, are not intended to be an all inclusive detail of inspection forms/checklists which may be needed during the execution of this project, but is intended to a representation for a submittal basis only. Other applicable forms or checklists are contained in CH2M HILL Standards of Practice (SOP), referenced through Section 9.0 of this APP, which are available in electronic format for AGVIQ-CH2M HILL program participants.

Site inspections/evaluations will be made by the site supervisor/FTL, SSHO or other designated AGVIQ-CH2M HILL representative, depending on assigned job function. Discrepancies or HS&E inconsistencies identified during inspection and evaluation process will be corrected as soon as practicable and documented on the Loss Prevention Observation (LPO) form and/or Deficiency Tracking System form included in **Attachment 8** of this APP. Serious inconsistencies that represent potential immediate harm or danger to an employee will be corrected immediately or controlled to a condition where it does not represent a threat to the potentially effected personnel. Inspections that identify Imminent Danger or Immediately Dangerous to Life and Health (IDLH) situations will require that work be immediately stopped and personnel removed from the work area until the situation is abated, corrected, or controlled to a non-hazardous condition.

The site supervisor/FTL or SSHO (when designated by the Project Manager or site supervisor) is responsible for conducting and preparing reports of inspections of work processes, site conditions and maintaining these documents for the project record, as necessary. Heavy equipment operators who are assigned to operate onsite heavy equipment are responsible for inspecting their assigned equipment on a daily basis. Corrective actions resulting from discrepancies identified during inspections will be reviewed with the Project Manager and implemented, as necessary. Copies of these reports are maintained on file at the project locations.

A member of AGVIQ-CH2M HILL senior management or their designated representative may periodically conduct site visits and perform additional assessments of project health and safety performance, at their own discretion or at the request of a corporate official employee, site supervisor or manager. Any discrepancies identified as part of these inspection processes will be addressed with the Project Manager by the senior management team and may be corrected in the field if minor in nature.

The following is a typical list of the type and frequency of inspections that may be associated with this project and what individuals should perform such inspections.

Inspection Type	Designated Person	Frequency
Heavy Equipment	Designated Heavy Equipment Operator	Daily when operated
Loss Prevention Observation	Any site personnel, but typically the Site Supervisor, SSHO or QCM	Weekly
Deficiency Tracking Log (includes general site inspection)	Any site personnel, but typically the Site Supervisor, SSHO or QCM	Entered Daily
Fire Extinguishers	Any site personnel, but typically the Site Supervisor, SSHO or QCM	Once Monthly Once Annually
Excavations	Excavation Competent Person	Daily with open excavations
Project Audits	Program level: managers, health and safety professionals or quality control managers	Typically once per project but is dependent upon project complexity and size
First Aid Kits	Any site personnel, but typically the Site Supervisor, SSHO or QCM	Before onsite use and at least every 3 months or more frequently depending on use
Hand and Power Tools	Individual using tool	Before Use
Electric Cords and GFCI's	Individual using electric cord and GFCI	Before Use
Confined Space	Confined Space Entry Superintendent	Pre- Entry
Waste Containers	Site Supervisor/FTL, SSHO/QCM	Daily

7.1 External Inspections/Certifications

The following is a list of potential external inspections that may be or will be required by NAVFAC.

- Issuance of Miss Utility of West Virginia permit #/clearance report
- Issuance of NAVFAC/ATK ABL Excavation Permit
- ATK Hot Work Permit
- ATK Confined Space Permit

8.0 Accident Reporting and Investigation

8.1 Exposure Data (man-hours worked)

Because the AGVIQ-CH2M HILL is composed of two separate and distinct corporations operating together in a business partner arrangement, both corporations separately record and report information related to annual labor hours and workplace injuries and illnesses as required by 29 CFR 1904. Where annual summary postings are required under 29 CFR 1904.32(b)(6), they will be posted as separate documents by AGVIQ, LLC, and by CH2M HILL, Inc., in our appropriate workplace environment(s). In addition, because AGVIQ-CH2M HILL operates as a business partnership and not as a single business entity, AGVIQ-CH2M HILL does not maintain a jointly established Experience Modification Rate.

However, designated employee representatives from the AGVIQ-CH2M HILL programs tabulate and track labor hours posted to the AGVIQ-CH2M HILL program and lost work day and recordable incident information attributable to the execution of all AGVIQ-CH2M HILL program contracts and issued Task Orders. This process is executed for the purpose of establishing a safety performance history associated for our business partnership. AGVIQ-CH2M HILL safety performance data is extrapolated from the following:

- Tabulated Employer Labor Hours
- Established Incident Reporting Processes
- Incident Investigation Reports
- Formal Project Audits

To date, the AGVIQ-CH2M HILL Joint Venture programs has expended over 920,000 labor hours since 2003. Last year the Joint Venture worked 11,444 hours with no OSHA recordable cases, and zero (0) fatalities.

No DART cases or other recordable cases have been experienced for AGVIQ, LLC or CH2M HILL, Inc. employees participating in the AGVIQ-CH2M HILL Joint Venture since 2008.

For the Construction (North American Industry Classification System [NAICS] code -23) and Remediation Services (NAICS code – 56291) industries, which is typical of the contract work that AGVIQ-CH2M HILL typically executes, the AGVIQ-CH2M HILL calculated DART and OSHA Recordable Incident Rates for our entire operating period, are currently well below DART Incident Rate (IR) and OSHA Recordable Incident Rate tabulated by the 2008 United States Bureau of Labor Statistics (USBLS) for these industries (see below).

- USBLS IR Construction Benchmark (2009): 4.2 [1]
- USBLS DART Construction Benchmark (2009): 2.3 [1,2]
- USBLS IR Remediation Services Benchmark (2009): 3.2 [3]
- USBLS DART Remediation Services (NAICS Code 56291) Benchmark (2009): 1.5 [2,3]

[1] NAICS Code 23

[2] DART total "all sizes"
[3] NAICS Code 56291

8.2 Accident Investigations, Reports and Logs

Completion of incident and near-miss incident investigation reports for the AGVIQ-CH2M HILL shall be performed using the forms in **Attachment 9** of this APP and generally via the procedures identified herein. The AGVIQ-CH2M HILL Program CIH, HSPA, or their designee (SSHO, site supervisor, project manager), conducts accident/incident investigations and prepares the required incident or near-miss incident investigation reports for the following conditions:

- Near Miss Incidents
- DART or other OSHA recordable cases
- Spills, releases, discharges, or environmental violations
- Property damage incidents resulting in over $1,000 of loss
- A fatal injury *
- A hospitalization of three or more people resulting from a single occurrence *
- A weight-handling equipment incident
- A permanent total disability
- A permanent partial disability

* Within eight (8) hours after the death of any employee from a work-related incident or the in-patient hospitalization of three or more employees as a result of a work-related incident, you must orally report the fatality/multiple hospitalization by telephone or in person to the Area Office of the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, that is nearest to the site of the incident. You may also use the OSHA toll-free central telephone number, 1-800-321-OSHA (1-800-321-6742).

Completed incident and near miss incident investigation reports are be reviewed by the CIH/HSPA, Project Manager (overall), site management (SSHO, site Supervisor) team and Program Management team. Incident and near-miss incident reports must be submitted to the Project Manager , Program CIH/HSPA and the Program Management team, as soon as possible, but no longer than 24 hours. At a minimum the Project Manager and Program Management personnel, including the Program CIH must be verbally notified, immediately or in a case where emergency medical treatment is required, as soon as injured personnel have been transported to and received by a medical treatment facility.

Except for rescue and emergency measures, an accident scene shall not be disturbed until it has been released by the investigating official. AGVIQ-CH2M HILL remains responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law enforcement, and regulatory agencies. AGVIQ-CH2M HILL shall assist and cooperate with personnel conducting investigations on behalf of NAVFAC. Where an incident has, or appears to have, any of the consequences listed below, these incidents shall be <u>immediately</u> reported to NAVFAC, by the Project Manager (or site supervisor when designated by the Project Manager or Program Management team) and site work shall remain in a stand-down mode until corrective actions are issued by NAVFAC.

a. Fatal injury/illness;

b. Permanent totally disabling injury/illness;
c. Permanent partial disabling injury/illness;
d. Three or more persons hospitalized as inpatients as a result of a single occurrence;
e. $200,000 or greater accidental property damage or damage in an amount specified by USACE in current accident reporting regulations
f. Arc Flash Incident/Accident

If an accident, injury or property damage incident results in an OSHA recordable event, property damage in excess of $2000.00, weight handling equipment (WHE) accidents, or near miss/high visibility mishaps, notification of such incidents shall be made to NAVFAC within four (4) hours. Where conditions of an accident, injury or property damage do not result in require an immediate or four (4) hour notification (as described above) AGVIQ-CH2M HILL site and management personnel should always endeavor to report accident, injury and property damage incidents immediately or as soon as reasonably possible, but no case later than 24 hours.

In addition to the incident and near-miss incident investigation report forms contained in **Attachment 9** of this APP, for all OSHA recordable accidents, property damage in excess of $2,000 weight handling equipment (WHE) accidents, or near miss/high visibility mishaps, a Contractor Significant Incident Report (CSIR) must also be completed. If the CSIR is being used as initial notification of a Fatality or High Visibility Mishap. The initial form is due within 4 hours of a serious accident. A CSIR form marked 'Follow-up' or 'Final' is required within 5 days.

If the condition of a site accident, injury or illness requires input into the Navy Facility Accident and Incident Reporting (FAIR) Database or other Navy required database, then the designated NAVFAC safety POC may provide a website/username/password to the designated AGVIQ-CH2M HILL Program representative for this purpose.

8.2.1 Best Management Practices for Incident Investigation

The causes of loss and near-loss incidents can be similar, so by identifying and correcting the causes of loss and near-loss incidents, future loss incidents may be prevented. When loss or near-loss incidents occur, identifying and correcting conditions or acts that create these incidents can be achieved by engaging the following processes:

1. Gathering all relevant facts, focusing on fact-finding, not fault-finding, while answering the "who, what, when, where, and how" questions.
2. Draw conclusions, putting facts together into a probable scenario.
3. Determine the incident root cause(s) and contributing factors of incidents. These are basic factors on why or how conditions or acts are created that result in incidents.
4. Develop and implement solutions, matching all identified root causes and contributing factors with solutions so that future conditions or acts that have attributed to incidents are eliminated in the future.
5. Communicate incident as a lesson learned to all project personnel.
6. File follow-up on implemented corrective action to confirm solution is appropriate.

The purpose of an incident investigation is to understand how the incident happened, analyze the root causes, and prevent recurrence by implementing corrective actions. To conduct an effective investigation, all information must be as detailed and comprehensive as possible. The investigation must be based on facts that clearly identify the sequence of events and the factors that contributed to the incident. The investigation team should not be involved with any punitive actions resulting from the investigation. Fairness and impartiality are essential. The following provides general Best Management Practice guidance in completing incident investigations.

1. An unbiased approach is necessary to obtain objective findings.
2. Visit the accident scene as soon as possible while the facts are fresh and before witnesses forget important details.
3. If possible, interview the injured worker at the scene of the accident and "talk" through re-enactment.
4. Conduct all interviews as privately as possible. Interview witnesses individually and separately. Talk with anyone who has knowledge of the accident/incident, even if he/she did not actually witness it. Only retrieve witness statement from individuals who actually observed the accident/incident. Document witness interviews.
5. Document details graphically. Use the IRF as well as sketches, diagrams, and photographs as needed. Take measurements where appropriate.
6. Focus on the causes and hazards leading to the accident/incident. Develop an analysis of what happened, how it happened and how it could have been prevented. Determine what caused the accident/incident itself, not just the injury.
7. Include a Corrective Action plan in every investigation. Describe how you will prevent such accidents in the future. Completion of the Root Cause Analysis may assist in the formulation of such plans.
8. Save any evidence if a third party or defective product contributed to the accident/incident. It should be critical to the recovery of claims costs.

9.0 Plans Required by the Safety Manual

9.1 Layout Plans

Site locus maps, layout plans, haul route maps, drawings, or sketches are included in the project RAWP, for which this APP is an integral component. These items will not be duplicated in this APP.

9.2 Emergency Response Plans

9.2.1 Emergency Planning

(Reference CH2M HILL SOP # HSE&Q 106, Emergency Planning)

The site supervisor/FTL and/or SSHO performs the applicable pre-emergency planning tasks before starting field activities and coordinates emergency response with identified onsite parties, the NAVFAC POCs, and local emergency-service providers, as necessary. These pre-emergency planning activities include the following:

- **Review the "*ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors*.", complete and sign required** "CONTRACTOR AND VENDOR CLEARANCE INFORMATION TO ENTER ALLEGANY BALLISTICS LABORATORY" form and forward along with a copy of a driver's license or photo ID to the ABL Security Department prior to mobilizing to the site. Determine what onsite communication equipment is available and can be used at ABL (e.g., two-way radio, air horn, non-camera enabled cell phones).
- Verifying that the "Buddy System" will and is being used for all assigned work unless "working alone" is allowed and the working alone protocol is implemented.
- Determine what offsite communication equipment is needed (e.g., nearest telephone, non-camera enabled cell phone).
- Confirm and post emergency telephone numbers, evacuation routes, assembly areas, and route to hospital; communicate the information to onsite personnel.
- 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 components of the APP and emergency response plan.

9.2.2 Emergency Equipment and Supplies

The site supervisor/SSHO shall verify the availability and readiness of emergency support equipment listed below.

Emergency Equipment and Supplies	Location
20 LB (or two 10-lb) fire extinguisher (A, B, and C classes) w/ annual maintenance and monthly inspection tags	Support Area
First aid kit/CPR Shield	Support Area
Eye wash	Support Area
Potable water	Support Area
Blood borne-pathogen kit	Support Area
Additional equipment (specify): Mobile phone and contact information	Support Area for site supervisor/FTL/site management and SSHO at a minimum
Spill Control/Clean-up Materials/Proper Spill Response PPE	Support Area

9.2.3 ABL Specific Evacuation and Site Control Measures, Procedures and Requirements

The information contained in this section of the APP was excerpted from the *"ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors" April, 2010, revision 6"*. It has been prepared by ATK, the Navy's GOCO manager for the ABL facility to convey to contractor and subcontractor employees specific rules and regulations that must be adhered to while working on ABL. These rules and regulations are in addition to those required by this APP, related project instructions or work/environmental plans and any requirements of applicable project specifications. In addition to the normal security process requirements necessary to gain access to any DoD facility, prior to you being allowed access to ABL, you will also be provided a stand-alone copy of these rules by ABL security personnel, and will be required to acknowledge your adherence to these rules by signature and provision of the signatory section of the document to ABL security personnel. The rules and requirements identified in this section and the similar standalone document apply to all personnel who enter the ABL Facility. Failure to comply with these rules and regulations can result in your permanent removal from the ABL facility.

EMERGENCIES

- **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location. Stay on the line with the Guard unless you are in danger. The**

Guard will immediately dispatch ATK's trained emergency Security Guard personnel to your location.

- **Fire alarm boxes are located in strategic locations throughout Plant One. All fire alarm boxes can be easily identified by the telephone poles that have a painted section (red and white) that extends above and below the alarm box. After pulling the handle on the fire alarm box to alert Emergency/Fire Personnel remain near the alarm box until the Firefighting Guard arrives to provide him/her with additional information concerning the location of the emergency/fire.**
- **ABL has an alarm signal system. The meaning of the alarms that you may hear are as follows:**

Warble Tone	**Test Fire Alarm. Signal given at rocket test area prior to each test firing. *Entry to this area of the Plant is prohibited.***
Wail sound (alternating frequency)	**Plant Fire Alarm. The wail indicates the fire alarm was activated.**
Siren (alternating volume)	**Emergency Alarm. (Approximately 2 minutes) Emergency conditions exist. Take cover.**
Westminster Chimes	**All Clear Signal. Normal activities may resume.**

- **Upon hearing the plant fire or emergency alarm, exit rooftops, scaffolding, ladders, or similar areas and assemble at the jobsite location which will be designated by the ATK Construction Engineer.**
- **When the fire signal sounds, all motor vehicle movement will immediately cease. Park clear of the right-of-way and remain parked until all Emergency Security personnel and emergency fire vehicles have passed.**
- **Subcontractor employees must be accounted for in the event of an emergency/fire on Plant. Subcontractor employees will report the head count to the ATK Construction Engineer in charge.**
- **Subcontractors will remain at their jobsite during an emergency/fire alarm unless the emergency has impacted their immediate work area at which time they would be instructed by a Security Guard to exit to Building 415 (Security) and remain there until the all clear signal has been activated by the Security Department.**

MATCHES AND SMOKING

- **Matches and other spark producing devices, including automobile cigarette lighters, are not allowed on this facility.**
- **SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so.**

PLANT TRAFFIC RULES

- **The Plant speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed.**
- **ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way.**

- **When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes.**
- **When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.**
- **All Contractors riding in the rear (bed) of a pickup must be seated below the bed rails.**

PERMITS

- **Hot work permits must be obtained from the ATK Fire Fighting Guard and signed by the ATK Construction Engineer or Representative before using any electric hand tool or open flame (cutting or welding) or powder actuated device.**
- **Fire extinguishers shall be provided by the Subcontractor where fire hazard type work is performed.**
- **Confined space entry permits must be requested from the ATK Construction Engineer or Representative before entering any enclosed space or depressed work area with a depth of four feet or more. ATK Safety Personnel will perform confined space testing and issue the proper permits as required by OSHA regulations.**
- **Contractors must provide and use continuous monitoring equipment during any confined space entry work.**

VEHICLES

- **When a motor vehicle, except for auxiliary operation, is left unattended (operator is beyond 25 feet or out of view of the vehicle), turn off the ignition, put the transmission in gear or (park) and apply the parking brake.**
- **Any vehicle equipped with a two-way radio must have the radio rendered inoperable by removing the power source to the radio prior to entering the facility.**
- **No vehicle or equipment is to be fueled on the facility while the motor is running.**

SECURITY

- **All subcontractor employees must sign in and out at Building 415 (Security) each day! The accountability list must include all employees, including lower-tier subcontractor employees, who are working on the ABL facility.**
- **Each subcontractor employee will be issued a numbered Identification Badge when reporting for work. Badges will be picked up and returned each time the employee enters or leaves the plant.**
- **Badges must be worn on the outside garment at all times so that they can be readily seen.**
- **Truck drivers entering and exiting the Plant routinely will be excluded from signing in and out each time; however, the driver must sign in on the first trip through the gate and sign out the last trip through the gate.**
- **Drivers must stop at the gate and be recognized by the Guard on duty prior to proceeding in or out of the gate. All vehicles are subject to security inspections by the Security Guard. Failure to comply with "Conditions of Entry" or failure to cooperate with the Security Guard while entering the ABL Facility will result in immediate termination from the plant.**
- **Contraband items including matches, lighters, flares, fuses, firearms, ammunition, knives, (except pocket knives), weapons of any kind, cameras, digital cell phone cameras, tape recorders, laptop computers, narcotics, alcoholic beverages, or**

pornographic material are not allowed to be brought onto this facility. Any violator is subject to permanent removal from the facility.

PROTECTIVE CLOTHING AND EQUIPMENT

- **The minimum protective clothing shall consist of a short-sleeved tee shirt (must be full length in the body and not cut off to expose midriff), full-length pants and construction grade work shoes or boots.**
- **Hard hats, safety glasses, hard-toed work boots, work gloves, ear protection, and respirators shall be worn as called out in your company's Safety Plan or as required by OSHA and the Corps of Engineers Safety Manual.**

GENERAL REGULATIONS

- **Any person found to be under the influence of alcohol or illegal drugs will be permanently barred from working at the facility.**
- **Horseplay and fighting will not be tolerated on the facility. ABL has a "0" tolerance policy for violation of all Safety and Security regulations.**
- **You are permitted only in the areas of the facility indicated by the ATK Construction Engineer. Anyone found outside the permitted areas (work site) is subject to permanent removal from the facility.**
- **Subcontractor employees will not use Government or ATK property (even if discarded) without proper authorization.**
- **Subcontractor employees must adhere to all requirements of their company's Safety Plan, OSHA regulations, the Corps of Engineers Safety Manual, and applicable Environmental Regulations. Conformance is subject to audit by the ATK Construction Engineer or other ABL Facility or Safety personnel.**
- **Additional Safety and/or Environmental requirements for specific work may be specified by the ATK Construction Engineer.**
- **Subcontractors must have available for inspection MSDS's for any hazardous materials brought onsite.**
- **All Contractors performing work at the ATK facility shall have posted in the construction area a list of Emergency Contact Phone Numbers. These contacts and numbers shall be for local people only, not corporate numbers. This same listing shall also be provided to the Security Department.**

ENVIRONMENTAL

- **Subcontractors are responsible for good housekeeping practices and proper area maintenance in and around construction and demolition sites.**
- **Subcontractors shall ensure that all machinery and heavy equipment brought into ABL is maintained in proper working conditions and free of excessive fluid leaks. Any equipment discovered to be leaking must be repaired immediately or removed from the facility.**
- **Subcontractors must implement the following procedures in managing the storage and use materials at ABL:**

    1. **All drums and tanks being used to store liquids (e.g., fuels, solvents, and oils) must be kept within a secondary containment or curbed area when being stored in an outside location.**
    2. **All containers must be kept closed except when being used.**

3. **Raw materials with a potential to contaminate either surface water or ground water must be kept covered (e.g., tarped, under roof) in such a way as to prevent the materials contact with storm water.**
4. **All containers must be properly labeled per DOT and/or EPA requirements.**
5. **All work involving liquid materials (e.g., lubricants, cutting fluids, solvents) should be conducted in such a manner as to minimize or contain any leak or spills.**

- **In the event of a spill or leak, the primary Subcontractor onsite is responsible for determining the source of the spill/leak and preventing further release of material, containing the spilled or leaked material using absorbents and reporting the incident immediately to the ATK Construction Engineer and the ATK Environmental Department.**
- **Subs are responsible for implementing appropriate Best Management Practices for the control of sediments and erosion at jobsites.**
- **Stabilization measures e.g., seeding and mulching, shall be initiated as soon as practicable in areas where construction activity has temporarily or permanently ceased. In no case shall the period from end of construction to stabilization exceed seven (7) days.**
- **On sites where construction activities have been temporarily halted, stabilization shall not be required if activities are scheduled to resume again in 21 days.**
- **Subcontractors involved in demolition activities at ABL are responsible for the proper management of all debris associated with those activities. Following are guidelines for the managing of such materials:**

1. **Removal of asbestos containing materials shall be performed only by Contractors who are properly licensed to do so and then only under the direct supervision of a licensed Industrial Hygienist with oversight by the ATK Construction Engineer and/or Safety Engineer.**
2. **No metal, wood, plastic, synthetic, or asphaltic material may be disposed of, or used, as fill material on ABL property.**
3. **Demolition debris considered acceptable for use as fill material includes stone, brick, concrete, concrete block, and cement. Subcontractors may use these materials as fill only when directed to do so by the ATK Construction Engineer.**

PROCESS SAFETY MANAGEMENT (PSM) REGULATIONS

- **PSM Covered locations contain explosive and or chemicals that fall into the PSM standards regulated by OSHA 29 CFR 1910.119.**
- **Work performed in a PSM covered location will have all explosive/chemical PSM covered materials removed from the building and or area prior to Contractor arrival. In the event that these materials cannot be removed an ATK Construction Engineer will stay with the Contractor while work is being performed to ensure the safety of the Contractor.**
- **Contractors working in PSM covered buildings or areas will be trained on the identification of explosive materials and chemicals.**
- **Training records for Contractors working in a PSM covered Building or on a PSM Covered process will be kept on file at Security and a copy sent to the Safety/PSM Coordinator.**

- **Upon Identifying any material that looks like explosives work shall stop and ABL Construction Engineer responsible for the contractor shall contact the building supervisor and Safety. Work will continue only after material is removed and Safety confirms that it is safe to continue work in the area.**

Any questions during work in the area should be directed to the ABL Construction Engineer or Safety.

9.2.3.1 General Site Evacuation Processes

The Site Supervisor/FTL or SSHO will direct the coordination of response to emergency actions or medical support situations at the project site location. Response considerations include the following elements:

a) **Adhere to ABL Specific Evacuation and Site Control Measures, Procedures and Requirements while responding to ABL or site emergency conditions.**

b) Evacuation routes and assembly areas will be specified at the commencement of field work. Evacuation route(s) and assembly area(s) will be designated by the site supervisor or SSHO before work begins and posted at the designated evacuation rally point or construction support facility.

c) Personnel shall be advised of the assembly and accounting process during emergency conditions, able to understand evacuation signals and know where final evacuation assembly areas are located. The site supervisor or SSHO will account for personnel assembly area(s).

d) Designation of a vehicle to be available to support emergency conditions or response actions.

e) Evaluation of existing and potential hazards that may be associated with any experienced emergency condition and mitigation measures necessary to control hazards so the response measures can be executed without additional danger.

f) Assessment of the situation and condition of any victims.

g) Determination of the resources needed for victim stabilization and transport and additional emergency support.

h) Enforcement of the Buddy System. No one will be permitted to perform a response to an emergency condition alone.

i) Removal of injured personnel from the area and/or control of the emergency condition.

j) Decontamination of injured parties will be accomplished after stabilization of their medical conditions, where necessary. Gross decontamination maybe required if their condition poses immediate threat to the victim's life. If decontamination may cause additional harm to an injured person, then alternate measures such as wrapping the injured person in material to prevent the spread of contamination during extrication and transport may be required. In this situation, emergency medical transport personnel and the receiving medical facility must be advised of potential contamination issues of injured personnel, as early as possible.

Site evacuation signals for the project site are listed below (where ABL specific evacuation or emergency conditions are not in effect).

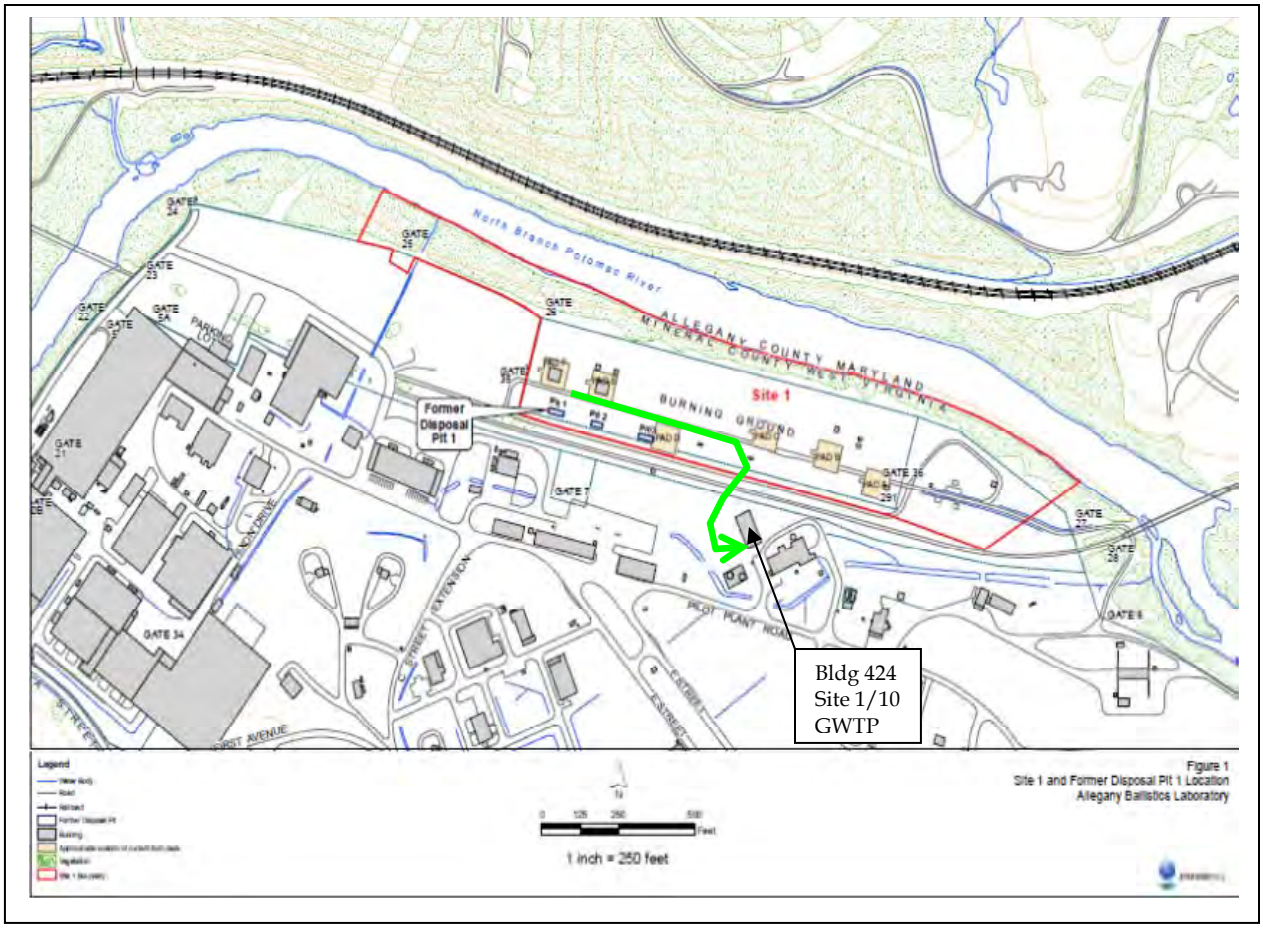
Signal	Meaning
Grasping throat with hand	Emergency-help me.
Thumbs up	OK; understood.
Grasping buddy's wrist	Leave area now.
Continuous sounding of vehicle horn/air horn **(Verify signal does not coincide with evacuation signals for government personnel in close proximity to the site)**	Emergency; leave site now.

Figure 9-1, depicts the proposed evacuation routes for Site 1. This evacuation route map could be used for evacuation due to pending severe weather conditions, site emergency or in the event that the sites were being evacuated and secured due to a to a national or ABL specific emergency.

FIGURE 9-1

Evacuation Route Map – FDP1 & 3 Allegany Ballistics Lab

(Total distance about 0.6 miles @ 4 minutes)



Procedure

When an ABL Emergency Signal **(Warble Tone, Wail Sound, Siren per Section 9.2.3 of APP)** is given or required, all site personnel shall shut down operations and equipment, complete any personnel decontamination procedures, secure the FDP 1 & 3 work areas to the extent possible and proceed to **Initial Rally Point (Building 424, Site 1/10 GWTP Building)**. All site personnel shall be accounted for and await further instruction from ABL/ATK security forces. Site personnel will remain at their jobsite during an emergency/fire alarm unless the emergency has impacted their immediate work area at which time they would be instructed by a Security Guard to exit to Building 415 (Security) and remain there until the all clear signal has been activated by the Security Department. From the initial rally point, utilize the directions below to the **Final Site Evacuation Rally Point (Building 415 – Security Office)** when so directed by ABL/ATK. Notify the AGVIQ-CH2M HILL management team in accordance with Figure 10-3 "Incident Reporting Process and Chain of Command" and Attachment 4 "Emergency Contact List" of this APP and secure further instructions. If just a site emergency occurs the Evacuation Point shall the Site 1/10 GWTP.

AGVIQ-CH2M HILL Project – Emergency Contacts

Sidney Allison – SB RAC Program Manager: Phone (843) 242-8018/(843) 813-2672 (cell)
Sam Naik – SB RAC Deputy Program Manager: Phone (678) 530-4248/(678) 860-9626 (cell)
Paul Rakowski – Project Manager (overall): (757) 213-8581/(757)544-6744 (cell)
Janice Derby– Technical Lead (617) 416-1211 (cell)

9.2.4 Procedures and Tests

It is the intention of the project team to verify that emergency response processes are in place and capable of being executed, prior to the start of field assignments. However, because of the nature of the facility, response to medical or fire emergencies will be supported by ABL/ATK forces or potentially by outside public responders with secured or escorted access. As such, it may be impractical and disruptive to the primary mission of these responders to perform "procedural response testing". In this case, the designated site supervisor or SSHO shall verify that emergency services are available for response, that contact information is appropriate, and that responders know how to access anticipated work areas.

9.2.5 Spill Plans

The initial response to any spill or discharge will be to protect human health and safety, and then the environment. Identification, containment, treatment, and disposal assessment will be the secondary response.

If for some reason a chemical spill is not contained, but inherent process, contained within a dike or sump area, an area of isolation must be established around the spill. The size of the area will generally depend on the size of the spill AND the materials involved. If the spill is large (greater than 55 gallons) and involves a tank or a pipeline rupture, an initial isolation of at least 100 feet in all directions should be used, depending on the hazards posed by the spilled or released material. Small spills (less than or equal to 55 gallons) or leaks from a tank or pipe, depending on the hazards posed by the spilled or released material, will require evacuation of at least 50 ft in all directions to allow cleanup and repair and to prevent exposure. When any spill occurs, only those persons involved in overseeing or performing emergency operations will be allowed within the designated hazard area and must maintain appropriate training, and be enrolled in a medical surveillance program in accordance with the requirements of 29CFR1910.120/29CFR1926.65 and possess proper experience and PPE, to do so. If possible, the area will be roped off or otherwise blocked to provide restricted access to authorized personnel only.

If the spill results in the formation of a toxic vapor cloud (by reaction with surrounding materials or by outbreak of fire) or creates a "toxic" or Immediately Dangerous to Life and Health situation then further evacuation and response procedures must be engaged. In general, an area at least 500 feet wide and 1,000 feet long will be evacuated downwind if volatile materials are spilled. (Consult the Department of Transportation (DOT) Emergency Response Guide for isolation distances for listed hazardous materials.)

If an incident may threaten the health or safety of the surrounding community, the public will be informed (via proper local and state emergency management planning agencies) and possibly evacuated from the area. The onsite emergency coordinator will inform the proper agencies in the event this is necessary. A Project Emergency Contact List is provided in **Attachment 4** of this APP. For work at ABL it is the understanding of AGVIQ-CH2M HILL that such chemicals or materials that could create such a situation are not present on site nor will AGVIQ-CH2M HILL bring such materials onsite as part of its scheduled work.

Reporting of spills or releases of oil or hazardous materials to appropriate agencies and stakeholders (i.e. NAVFAC, EPA, State DEP, the LECA etc.) must be reported when spilled or released quantities of oil or hazardous materials are in excess of established Reportable Quantities (RQs) for the material in questions.

In a spill or release response/containment, personnel shall take the following measures:

- Immediately warn any nearby workers and notify individual responsible for site operations.
- Assess the spill area to ensure that it is safe to respond.
- Evacuate area if spill presents an emergency.
- Provide notification to project stakeholders.
- Ensure all unnecessary persons are removed from the hazard area.
- Put on protective clothing and equipment.
- If a flammable material is involved, remove all ignition sources, and use only spark- and explosion-proof equipment for recovery of material.
- Remove all surrounding materials that could be especially reactive with materials in the waste. Determine the major components in the waste at the time of the spill.
- Stop source of spill and establish site control for spill area.
- If wastes reach a storm sewer, dam the outfall by using sand, earth, sandbags, etc. Pump this material out into a temporary holding tank or drums as soon as possible.
- Place all small quantities of recovered liquid wastes (55 gallons or less) and contaminated soil into drums for incineration or removal to an approved disposal site.
- Spray the spill area with foam, if available, if volatile emissions may occur.
- Apply appropriate spill control media (e.g., clay, sand, lime) to absorb discharged liquids.
- For large spills, establish diking around leading edge of spill using booms, sand, clay, or other appropriate material. If possible, use diaphragm pump to transfer discharged liquid to drums or holding tank. Follow proper ground and bonding procedures of equipment during recovery efforts. Intrinsically safe equipment must be used in recovery operations.
- For small fires or chemical releases, actions to be taken include the following:

    1. Shut down operations and evacuate the immediate work area
    2. Notify appropriate response personnel
    3. Account for personnel at the designated assembly area(s)
    4. Assess the need for site evacuation, and evacuate the site as warranted

Instead of implementing a work-area evacuation, small fires or spills posing minimal safety or health hazards may be controlled by onsite personnel, assuming that personnel who

respond to these emergencies are properly trained to do so and wearing appropriate PPE to protect themselves against hazards that may be associated with the response.

In addition to the above, AGVIQ-CH2M HILL will have project field staff that are trained in accordance with 29CFR1910.120, are enrolled in a medical surveillance program meeting the criteria of 29CFR1910.120(f) and have previous experience training to mitigate unanticipated small releases of materials that could occur on this project (i.e. Petroleum, Oil or Lubricants) with heavy equipment and spill materials that will be readily available at the project site.

9.2.5.1 Anticipated Hazardous Materials

The following is a list of hazardous materials or chemicals that may be brought onsite and incorporated as part of the final completion of the work, generated during the execution of the work for onsite treatment or offsite disposal/recycling or otherwise used to facilitate site work. These hazardous materials or chemicals may require spill prevention and countermeasure control processes to ensure sensitive environmental receptors are not adversely impacted in the event of a spill or release of these materials.

Diesel fuel, oils, and lubricants for heavy equipment.

9.2.5.2 Notification

In the event a spill occurs that requires notification, a project person shall follow the "AGVIQ-CH2M HILL Incident Notification Process and Lines of Authority" organizational chart identified in **Section 4.4** of this APP.

In addition, the AGVIQ-CH2M HILL Project Manager shall make notification to the designated project NAVFAC Point of Contact (POC) (George Colley, NAVFAC representative for the FEAD, at 757-636-7215) and environmental compliance representative(s) or other designated NAVFAC personnel, such that additional appropriate community and/or federal/state agencies may be engaged and notified, as applicable. The AGVIQ-CH2M HILL overall Project Manager shall coordinate with the designated project NAVFAC POC for support with regard to adhering to local, state, or federal regulations for spill notification clean-up and closure requirements.

It is understood that appropriate NAVFAC and ABL/ATK notification contacts shall be identified prior to mobilizing to the site and incorporated for reference, herein in the Emergency Contact List and made available for onsite reference.

9.2.6 Firefighting Plan

AGVIQ-CH2M HILL personnel are not considered Firefighting Organizations or Fire Brigades. Only "small/containable" fires that are containable by the use of first response fire protection equipment (i.e. 2.5 to 10 lb ABC fire extinguishers) may be controlled by AGVIQ-CH2M HILL personnel. All other responses shall be considered firefighting measures and shall be conducted by ABL/ATK firefighting teams.

Fire prevention measures and first response fire protection equipment shall be conducted in accordance with the information identified in Section 9.7 Health and Safety Hazard Control Program – Fire Prevention, and Section 9.2 Emergency Response Plans of the APP, respectively.

9.2.7 Posting of Emergency Telephone Numbers

Emergency contact numbers appropriate to project operations are included in **Attachment 4** of this APP and are referenced as the "Emergency Contact List". Where temporary construction support facilities are established at the project site, this Emergency Contact List shall be posted in a conspicuous location. Where temporary construction facilities are not allowed or provided, the list shall be available for quick reference by the AGVIQ-CH2M HILL personnel via this APP and location shall also be made known to designated site personnel.

9.2.8 Man Overboard / Abandon Ship

(Reserved)

There are no conditions were site personnel will be working aboard ships or other water vessels during the execution of this TO.

9.2.9 Medical Support

Location and direction to medical support facilities shall be posted in a conspicuous location where temporary construction facilities or support are established at the project site. Where temporary construction facilities or a designated administrative/support office are not allowed or provided, the list shall be available for quick reference by site supervisor/FTL or SSHO personnel executing site operations and its location shall also be made known to other site personnel.

In addition, the project shall be outfitted with first aid kits of suitable size and quality (contents) to meet health and safety requirements for onsite first aid and CPR response. Personal protective devices shall be provided such that universal precautions against blood borne pathogens can be exercised while administering CPR or first aid. Eye wash stations, either portable or stationary, will be available.

An effective means of communication and to summon transportation of injured workers to medical treatment facilities must be evaluated and established prior to the start of field activities. Communication devices shall be tested in the area of use to assure functionality. When a medical facility or physician is not accessible within five (5) minutes of an injury to a group of two or more employees for the treatment of injuries, at least two (2) employees on each shift shall be qualified to administer first-aid and CPR.

AGVIQ-CH2M HILL employee injuries and illnesses must also be reported to the Project and Program Management team identified in Section 4.0 this and APP Human Resources contacts in **Attachment 4**, once the notification requirements identified in Section 4.4 of this APP have been fulfilled. If there is doubt about whether medical treatment is necessary, or if the injured person is reluctant to accept medical treatment, contact the designated medical consultant or site Emergency Response Support personnel, as applicable.

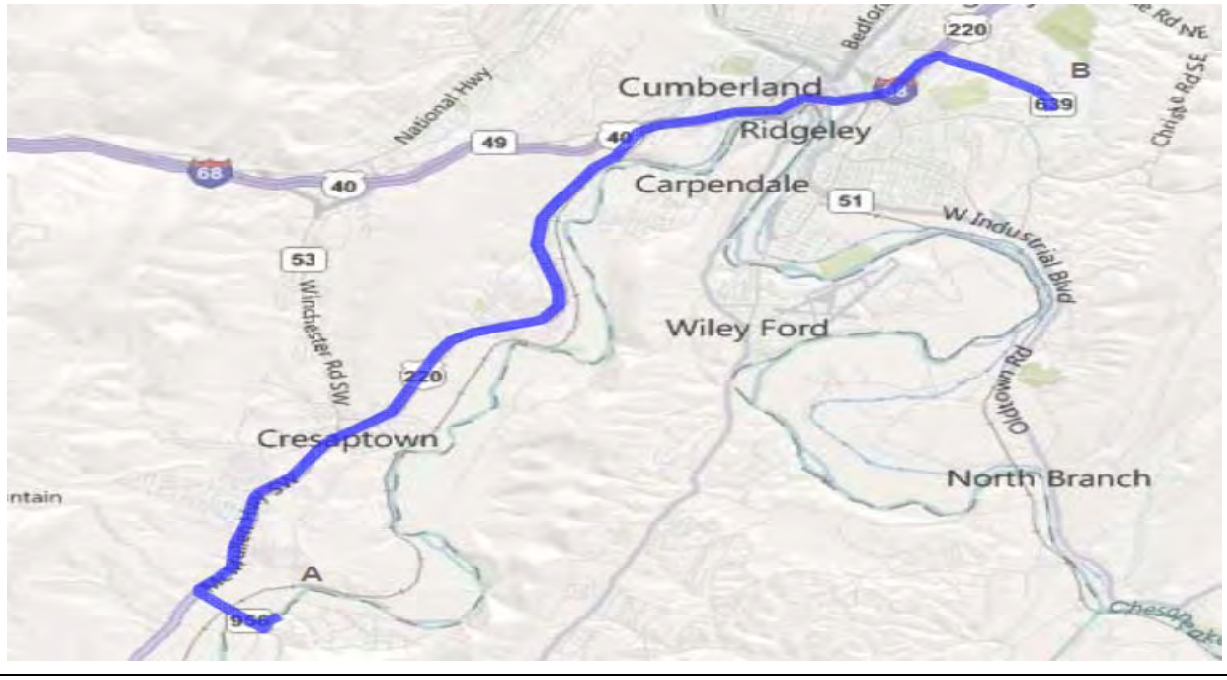
It must be understood that for life threatening emergencies, get or summon medical attention immediately.

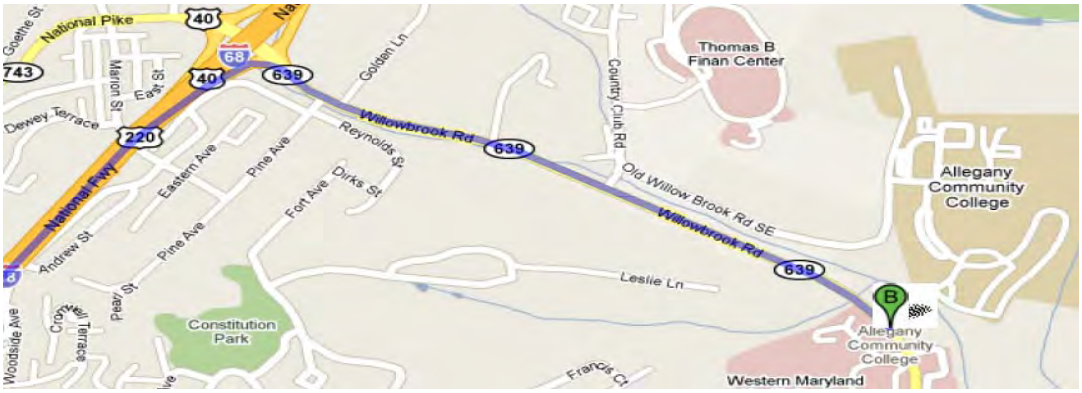
During non-emergencies, follow these procedures as appropriate.

- Notify appropriate emergency response authorities (e.g., 911).
- The site supervisor or SSHO 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 and where worker "Universal Precautions" to Blood borne Pathogens can be completed.
- 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 8.0** and in accordance with the "Primary Lines of Authority identified in Section 4.4 of this APP.
- **A map showing the route to the local hospital in the area ABL is shown on Figures 9-2.**

FIGURE 9-2: Hospital Route Map, ABL Site 1 to Sacred Heart Hospital, Cumberland, MD

(Total distance about 5.1 miles @ ~ 18 minutes)





Directions	Distance
1. Continue **STAIGHT** through the ABL Security, turn right onto Co Route 9/Knobley/W Virginia 956 W	~ 0.2 miles
2. Continue onto MD-956 W	~ 0.5 miles
3. Turn **RIGHT** at McMullen Hwy SW/US-220 N	~ 6.9 miles
4. Take the **I-68 E/US-220 E/US-40** ramp to **Hagerstown/Bedford Pa/Hancock**	~ 0.4 miles
5. Merge onto **I-68 E/US-220 N/US-40 E**	~ 2.0 miles
6. Take exit 44 to merge onto MD-639 E/Willowbrook Rd. Destination will be on the LEFT **Arrive at the Sacred Heart Hospital** 12500 Willowbrook Road Cumberland, MD 21502-6393 (301) 723-4200	~ 1.2 miles

AGVIQ-CH2M HILL Project – Emergency Contacts

Sidney Allison – SBRAC Program Manager: Phone (843) 242-8018/(843) 813-2672 (cell)
Sam Naik – SBRAC Deputy Program Manager: Phone (678)530-4248 (678)860-9626 (cell)
Paul Rakowski – Project Manager (overall): (757) 213-8581/(757) 544-6744 (cell)
Janice Derby– Technical Lead (617) 416-1211 (cell)

9.3 Plan for prevention of Alcohol and Drug Abuse

The AGVIQ-CH2M HILL policy statement on alcohol and drug abuse is provided in Section 10.5 of the APP, and will not be elaborated further upon in this section.

9.4 Site Sanitation Plan

Toilet facilities for this project shall be of the pre-manufactured, temporary/portable type chemical toilets typical of construction projects and shall be constructed so the occupants are protected against weather and falling objects (reasonably sized); all cracks shall be sealed; and the door shall be tight-fitting, self-closing, and capable of being latched. Adequate ventilation (natural via vents) shall be provided and all windows and vents shall be screened. Toilet facilities will be lighted via natural lighting.

Provisions for routinely servicing and cleaning all toilets and properly disposing of the waste shall be established before placing toilet facilities into operation. The method of sewage disposal shall be managed by the temporary/portable toilet vendor. Separate toilet rooms for each sex need not be provided if toilet rooms can only be occupied by one person at a time can be locked from the inside, and contain at least one toilet seat.

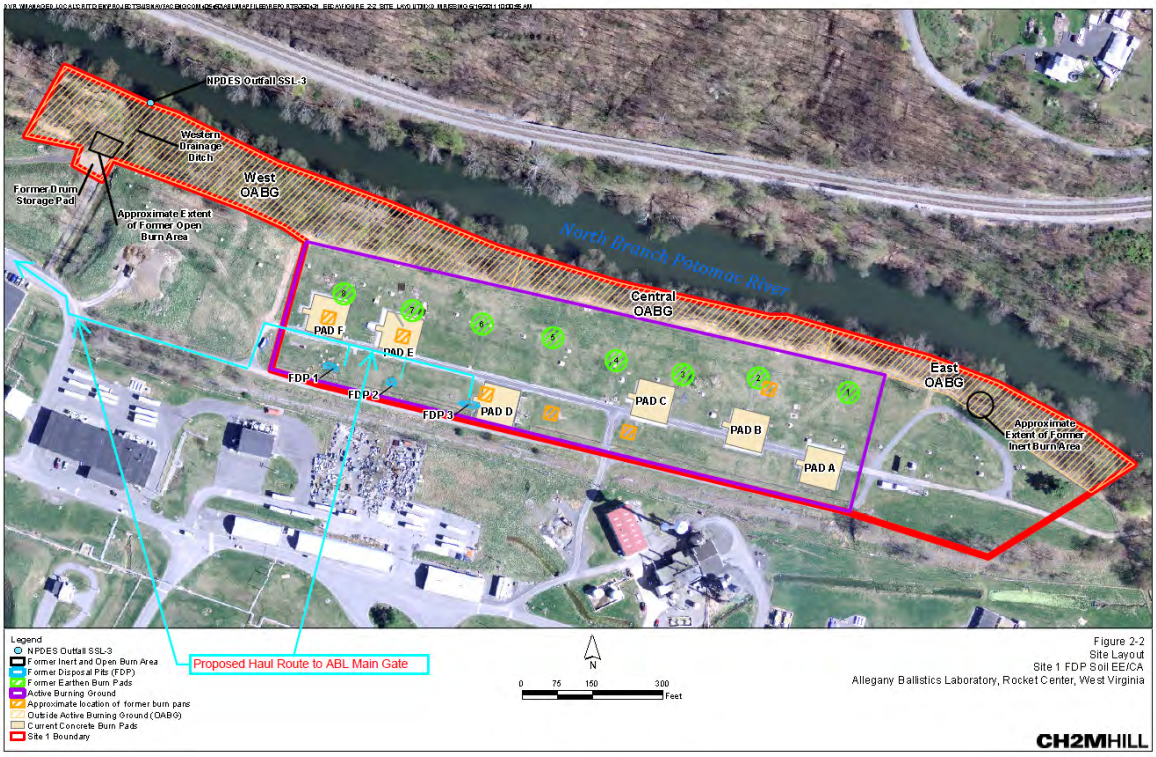
Washing facilities shall be provided within or adjacent to the temporary/portable type chemical toilet facilities and as needed to maintain healthful and sanitary conditions. Each washing facility shall be maintained in a sanitary condition and provided with tepid water, suitable for hand washing, soap, and individual means of drying. If it is not practical to provide a water source for hand washing due to low ambient air temperatures (~32^{o}F) running water, then hand sanitizers may be used as a substitute. Washing facilities shall be on the project work site.

Trash and garbage generated by the normal site operations must be properly stowed, containerized, and secured such that vermin will not be attracted and disposed of offsite on a regular basis. Trash and garbage generated as a result of executed site operations shall not be disposed of in base receptacles.

9.5 Access and Haul Road Plan

The use of "project haul roads" by haul trucks will be required for the execution of this TO for delivery of required backfill materials and other project supplies. Excavated soil will be initially stockpiled near the point of generation for sampling and waste/re-use characterization. Soil that cannot be re-used as backfill will be transported from ABL via the existing facility main access road. Generally, access and egress to the site will be required for delivery and pickup of materials, backfill soil/rocks, equipment, and for offsite disposal of soil, concrete, and fencing as either non hazardous solid waste or as hazardous waste based upon final waste characterization. Additionally, site personnel will need to use haul roads while advancing soil borings, conducting soil sampling, air monitoring, soil excavation, soil stabilization wall installation, backfilling and final site restoration. Because of the ATK operational use of the Active Burning Ground Area, access to the site can only occur after proper coordination and authorization by ATK.

At this time, the project haul (access/egress) routes can only be approximated as the route identified in Figure 9-3, Propose Haul Route Map–FDP Excavation Site Allegany Ballistics Lab.



9.6 Respiratory Protection Plan

(Reference SOP # HSE&Q 121, Respiratory Protection)

Worker respiratory protection may be required during soil boring advancement/sample collection, during portions of the soil stabilization structure installation, excavation of FDPs 1 and 3, sampling of the excavation sidewalls, during portions of post excavation surveying and backfill placement and during the cleaning of two mobile 21,000-gal above ground fraction tanks (frac tanks). It is anticipated that the frac tanks will be used to temporary store any ground water, decon water and/or contact water generated during operations.

Respiratory protection requirements for this work shall be in accordance with the below information, Section 9.33.7 of this APP, and the selected subcontractors Respiratory Protection Program. Each employer Respiratory Protection Program shall comply with the applicable requirements of 29 CFR 1910.134, Respiratory Protection, but the conditions listed below shall be considered critical components to any viable Respiratory Protection Program.

- Prior to using any respiratory protective equipment, affected personnel shall review and implement all applicable components of employer Respiratory Protection Program that may be applicable to the employee. Before use, personnel must also be properly trained in the use, care and maintenance of the respiratory device to be used.
- Any respirator user shall be medically evaluated by a licensed physician who is knowledgeable in occupational medicine and is determined to be capable of wearing a respirator without endangering the employee's health;
- The correct type of respiratory protection equipment is selected for the condition to be encountered and used to properly protect the user against expected inhalation hazards;
- **The selected respiratory protection equipment provides an appropriate fit for the user/wearer and a fit test fit is conducted for a respirator user when:**

    1. prior to initial use of the respirator,
    2. whenever a different respirator face piece (size, style, model or make) is used, and at least annually thereafter.
    3. whenever the employee reports, employer, supervisor, program administrator, Physician or other Licensed Health Care Professional (PLHCP), makes visual observations of changes in the employee's physical condition that could affect respirator fit;
    4. fit tests shall not be conducted if there is any hair growth between the skin and the face piece sealing surface, such as hair, stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface.

        a) the selected respiratory protection equipment maintained in a clean condition and in good working order;

        b) Any worker required to wear a respirator at any time shall receive training in donning and doffing, cleaning and storage, maintenance and inspection

procedures, methods for performing positive and negative fit test checks prior to each use, proper usage, and limitations of the respirators used of the selected respiratory protection device;

c) Responsibilities for both the employee (respirator user) and the employer shall be established and delivered to the employee;

To accomplish these requirements, an employer Respiratory Protection Program (RPP) must be developed and implemented to facilitate reduction of employee exposure to toxic chemical agents and to ensure employees are made aware of and familiar with expectations for respirator use and care requirements, as well as the respirators use limitations.

All site personnel who wear a respirator shall be given a medical evaluation prior to such use. A licensed physician, knowledgeable in occupational medicine, must conduct the evaluation and provide written authorization for respirator use and the authorization must be included in the employee's permanent record. At a minimum, the medical evaluation must be repeated annually.

To ensure proper wearer fit, an annual "fit test" must be provided for a specific make, model and size of a selected respiratory protection device. A fit test is the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. An additional fit test must be performed whenever any of the conditions identified above for testing are met. There are two (2) types of respirator fit tests that can be performed, A Quantitative Fit Test (QNFT) and a Qualitative Fit Test (QLFT). The fit test shall be administered using an Occupational Safety and Health Administration (OSHA)-accepted QNFT or QLFT or protocol. The OSHA-accepted QNFT and QLFT protocols and procedures are contained in Appendix A 29CFR1910.134.

A QNFT means an assessment of the adequacy of respirator fit by numerically measuring the amount of "leakage" (of ambient air) into or through the sealed surface of the respirator. The fit test shall be administered using an OSHA-accepted QNFT protocol. If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 500 for tight-fitting full face pieces, the QNFT has been passed with that respirator. However, in many cases a manufacturer of a respirator may designate a fit factor greater than that identified herein, and then the more stringent manufacturer fit factor shall be achieved (i.e. fit factor of 1000 or 2000).

A QLFT means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to a test agent. QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.

The following information is intended to be guidelines for respirator selection and use:

1. No respirators shall be purchased or used unless the intended application has been approved by the employee's employer.
2. Only NIOSH-approved respirators should be used.
3. Respirators shall be selected on the basis of the potential hazard to which the worker is exposed. The following factors must be considered in making this selection:

a. The identity of the substance(s) present in the work environment for which protection is needed and the potential maximum concentration a worker could be exposed to;
b. The physical state of the contaminant (gas, vapor, dust, mist, asbestos fiber, etc., or a combination);
c. The permissible exposure limit, threshold limit value, ceiling or worker protection level value and "toxicity" of each substance the wearer could be exposed to;
d. The protection factor listed for the respirator type.
e. The possibility of skin absorption or severe eye irritation.
f. The possibility of oxygen deficiency.
g. Any limitations or restrictions applicable to the types of respirators being considered that could make them unsafe in the environment involved.

4. At no time will a respirator be selected that offers less protection than is required for the particular condition(s) under which it is to be used. However, a respirator type offering a greater protection factor than needed may be selected.
5. Prior to using any respiratory protective equipment, effected personnel shall review and implement all applicable components of Respiratory Protection Programs that may be more applicable to the employee.

9.7 Health and Safety Hazard Control Program

Exposure to certain project specific hazards in the work place may include injury/accidents, occupational illnesses or property damage due to execution of a variety of assigned tasks or as a result of existing site conditions. This section of the APP is provided to aid employees in the recognition of potential specific and general project hazards and provide procedures and practices to be implemented on the project site that may facilitate the reduction or elimination of occupational incidents that may be attributed to identified projects hazards. All AGVIQ-CH2M HILL personnel are required to contact the designated Project Manager, SSHO, Program CIH/HSPA identified in this APP regarding any questions or concerns to ensure the execution of this task order in a healthy and safe manner.

9.7.1 Adverse Weather

Sudden inclement weather can rapidly encroach upon field personnel. Because of the time of year (late winter through early summer) that this project is being executed and its geographical location (eastern West Virginia) field crew members could experience a variety of adverse weather conditions during the course of a normal work assignment. Personnel performing work outdoors should carry clothing appropriate for foul weather conditions (rain gear, hard hat liners, rubber boots, lined gloves, etc.). In severe weather conditions, (i.e., high wind, rain/snow squalls, electrical storms), the field crews must evacuate from an outdoor work environment area and find safe shelter until the weather abates and until a decision is made to resume the field activities, The following information is provided for field personnel subject to outdoor work environments as procedures must be exercised where adverse weather is encountered or is expected to occur during an assigned work day.

- Frequently observe the skyline for developing rain squalls, thunder storms or other severe weather systems that may be developing. Check internet, local TV weather or radio channels for daily forecasts and plan daily work activities accordingly. Have a portable radio available on site to monitoring local weather or marine forecasts. If onsite internet or radio monitoring are not available, check with the ABL/ATK security office if severe weather systems appear to be developing. ABL/ATK may be able to provide an update local forecast. If not check with home office support personnel who may be able to determine the severity of developing storm systems through internet access or other methods.
- Bring clothing suitable for anticipated daily weather conditions.
- Shut down operations during heavy rain/lightning events, high wind or heavy snow conditions and identify "safe haven" location. Safe haven locations should be identified prior to the start of work. Safe haven structures must be grounded where there is a potential for a lightning event.
- Implement cold or heat stress monitoring, as necessary, defined in this APP.
- When there is a high wind condition or potential for high wind condition all loose items and equipment must be thoroughly secured or removed from the site.
- A Hurricane Preparedness Plan is not contained in this APP as it is anticipated that because of the geographic location of the site, the occurrence of hurricanes are not anticipated.

9.7.1.1 Lightning

Preparedness and caution are the best defenses against lightning. Many lightning deaths and injuries happen before or after a thunderstorm's peak. The site manager or SSHO shall monitor weather forecasts for predictions of electrical storms in the area. At first sight of lightning, operations shall be stopped and only resumed when conditions permit. The site supervisor/FTL or SSHO shall monitor weather conditions to determine when it is appropriate to resume work. The lightning safety recommendation is 30-30: Seek refuge when thunder sounds within 30 seconds after a lightning flash; and do not resume activity until 30 minutes after the last thunder clap. Some other general precautions include:

- Know where to go and how long it will take to get there. If possible, take refuge in a large building or vehicle. Do not go into a shed in an open area.
- The inclination to see trees as enormous umbrellas is the most frequent and most deadly mistake. Do not go under a large tree that is standing alone. Likewise, avoid poles, antennae and towers.
- Stay away from lakes, streams, pools, or any water.
- Stay away from railroad tracks, fences or other objects that can carry lightning charges for long distances.
- If the area is wide open, go to a valley or ravine, but be aware of flash flooding. Do not stand on top of a hill.

- If you are caught in a level open area during an electrical storm and you feel your hair stand on end, drop to your knees, bend forward and put your hands on your knees or crouch. The idea is to make yourself less vulnerable by being as low to the ground as possible and taking up as little ground space as possible. Lying down is dangerous, since the wet earth can conduct electricity. Do not touch the ground with your hands.
- Do not use telephones during electrical storms, except in the case of emergency.

9.7.2 Aerial Lifts

(Reference CH2MHIILL SOP # HSE&Q-301, Aerial Lifts)

(Reserved)

The use of Aerial lifts is not anticipated for this TO.

9.7.3 Air Compressor Operations

(Reserved)

The use of Compressed air sources are not anticipated for this TO

9.7.4 Asbestos

(Reference CH2MHIILL SOP # HSE&Q-502, Asbestos)

(Reserved)

There are no identified asbestos hazards or asbestos work anticipated with the execution of the TO.

9.7.5 Biological Hazards and Controls

The following sections provide information on potential biological hazards. Site personnel shall notify their overall supervisors and their project site supervisor of any potential allergic reactions that may occur as a result of contact with biological hazards in the workplace. If employee antidotes are required to counteract allergic reactions from biological hazard exposure, employees shall make personnel, who may be required to administer personal antidotes, aware of the location, type, and quantity of antidotes needed to counteract any potential allergic reaction(s).

9.7.5.1 Blood borne Pathogens

Blood borne pathogens are pathogenic microorganisms present in human blood or other potentially infectious material that can cause disease. These pathogens include, but are not limited to, the Hepatitis B Virus (HBV) and the Human Immunodeficiency Virus (HIV). Other potentially infectious material includes any human body fluid that is visibly contaminated with blood, such as saliva or vomit. It also includes all body fluids in situations where it is difficult or impossible to differentiate between body fluids, such as during an emergency response and any unfixed tissue (other than intact skin) from a human (living or dead).

In emergency medical situations, certain employees may need to render first aid as a collateral duty in response to workplace accidents or injuries. This category includes the

SSHO, site managers/supervisors, or individuals certified in FA and CPR and shall have received training in exercising universal precautions against exposure to blood borne pathogens as a component to FA/CPR training, which meets the intent of 29CFR1910.1030. However, additional worker training programs in to blood borne pathogens may also be required when it is expected that employees could contact landfill waste or other waste streams containing potentially infectious material. This situation is not reasonably expected for this project. Blood borne pathogen employee training is also complemented by other regularly scheduled employer training curriculums that are typically executed for the HAZWOPER industry, regulated under 29CFR1910.120/29CFR1926.26. The only worker exposure to blood borne pathogens anticipated for this project will potentially be to those individuals providing FA/CPR to an injured or "down" worker.

To eliminate or minimize employee exposure to blood borne pathogens, workers who may be exposed to blood borne pathogens or potentially infectious material must implement the following hazard control measures.

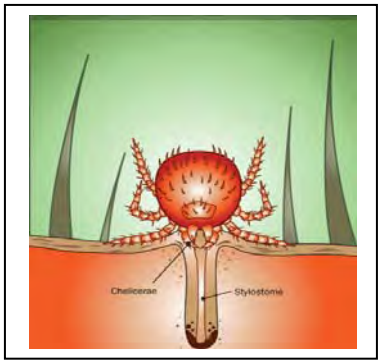
Employees expected to render first aid shall be cognizant of and adhere to the following with regard to potential exposure to blood borne pathogens:

- First aid kits and a Blood borne Pathogens Protection Kit shall be immediately available at the Site. The kit is commercially available through most safety or medical supply vendors.
- These kits shall contain gloves, masks, CPR protectors, biohazard disposal bags, antiseptic cleanser, splash-proof goggles, towels, wipes, and an absorbent powder to clean up spills. Gloves, masks, and other PPE measures must be donned by personnel responding to emergency or first aid situations where exposure to Blood borne Pathogens could occur.
- A portable eye wash station or means of conducting eye washing or flushing shall be readily available at the project site location.
- Always wash your hands and face with antiseptic soap and running water after contacting potentially infectious material. If washing facilities are unavailable, use an antiseptic cleanser with clean paper towels or moist towelettes. When antiseptic cleansers or towelettes are used, always rewash your hands and face with soap and running water as soon as available. Do not consume food or beverages, smoke, chew tobacco, or perform another hand to eye/face/mouth activity until after thoroughly cleaning your hand (with antiseptic soap and water), then your face and only after the employee has removed themselves from the designated work area that contains materials that can be reasonably considered being contaminated with blood borne pathogens.
- Use universal precautions when dealing with materials or situations where there is a potential for blood borne pathogens. Universal precaution is an approach to infection control whereby all human blood and potentially infectious material are treated as if known to be infectious for HIV, HBV, and other blood borne pathogens.

- Personnel who may be exposed to Blood borne Pathogens should review and implement all applicable components of CH2M HILL SOP # HSE&Q 202, Blood borne Pathogens.

9.7.5.2 Chiggers

"Chigger" is the name given to the tiny larval stage of the Trombiculidae mite and there have been many instances where personnel have reported the presence of chiggers at AGVIQ-CH2M HILL project sites in West Virginia. The adult mites are variously call harvest mites, red bugs, or scrub-itch mites. They are related to ticks and spiders and, like theses insects, the mite's life cycle has four stages: egg, larva, nymph, and adult. Nymphs and adults Trombiculidae mites are not parasitic. When a larva emerges from the egg, and it is this larva that is called a "chigger" and are almost invisible to the naked eye. A chigger is almost microscopically small. A magnifying glass is usually required to observe it although sometimes after the chigger emerges from its egg, it climbs to the top of nearby vegetation and waits for a host to come along so it can attach itself and begin to feed. Common hosts are rodents, rabbits, birds, snakes, toads, and many mammals- including humans. Once infected, but a chigger bite causes a fierce itching that far surpasses that caused by many of its larger relatives.



When a chigger attaches to its host, it moves quickly to a feeding site. It prefers areas under tight-fitting clothes. Under socks is probably the most common site, but it also likes to settle beneath waistbands or bras. Another favorite site is in skin folds. Once attached to the host, the chigger pierces the skin and injects a fluid (a digestive enzyme) into the bite. This enzyme begins to liquefy the cells of the surrounding tissue and this is what the chigger feeds on. It is not a blood feeder as some believe, but feeds on the host's emulsified tissue. The damaged tissue surrounding the bite hardens and actually forms a straw-like channel, called a stylostome, that allows the chigger to dine on deeper tissues than it can physically reach. The hardened tissue is the primary source of the inflammation and intense itching caused by chigger bites. The site of the bite develops a red welt and sometimes a rash. Itching is a delayed reaction and does not start when the bite first occurs; instead it starts after enough time has passed for the enzyme to damage the tissue around the bite. The itching will begin at least several hours after the bite and sometimes not until 24 to 48 hours later. Untreated, the itching will last for a week or two but even without treatment it will usually heal on its own. In the United States chiggers are not known to transmit any disease although species of Trombiculidae mites found in Japan and Southeast Asia do transmit a serious disease called scrub typhus.

9.7.5.3 Fire Ants

(Reserved)

There is no anticipated fire ant hazard anticipated for this project.

9.7.5.4 Mosquito Bites

Because of the recent detection of the West Nile Virus in the Southeastern United States, it is recommended that preventive 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 pyrethrum or DEET because mosquitoes may bite through thin clothing.
- Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET. 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 to 15 days.

If you have any questions or to report any suspicious symptoms, contact your designated health & safety representatives.

9.7.5.5 Poisonous Plants

(Reserved)

There should be no poisonous plant hazards associated with the execution of this project.

9.7.5.6 Spiders - Brown Recluse

It is regarded by many as the most dangerous spider in the United States. Although West Virginia is not generally a known habitat of the Brown Recluse, it can be present as a result of interstate shipping/transportation the Brown Recluse spider can be found most anywhere in the United States. Because work under this TO involves work in an around

groundwater and extraction well covers and vault structures, site workers must be aware of their potential presence.

Brown Recluse Spiders are usually 1 inch or larger in size, including the legs and can grow as large as 3 inches. Young Brown Recluse spiders are smaller and somewhat lighter in color. Brown recluse spider bites don't always hurt right away.

In fact, you may not know that you have been bitten until other symptoms appear. Symptoms of a brown recluse spider bite may include the following:

- Reddened skin followed by a blister that forms at the bite Site.
- Mild to intense pain and itching for 2 to 8 hours following the bite.
- An open sore with a breakdown of tissue (necrosis) that develops within a few hours to 3 to 4 days following the bite and the area may become painful, itchy, hot, swollen, red and tender. An irregular ulcerous sore, caused by necrosis, will often appear that is from 1/4 inch to 10 inches in diameter. Prompt attention is the best defense against preventing the necrosis. The wound is often described as being reddish and surrounded by a bluish area with a narrow whitish separation in between the red and the blue. This gives it the famous "bull's eye" pattern. In just hours, a bite from the highly venomous Brown Recluse spider can create blisters and cause tissue damage.

Some people have a severe, systemic (whole-body) reaction to brown recluse spider bites, including the rapid destruction of red blood cells and anemia. Signs and symptoms include:

- Fever and chills.
- Skin rash all over the body with many tiny, flat purple and red spots.
- Nausea or vomiting.
- Joint pain.

If you think you have been bitten by a brown recluse spider:

- Remain calm. Too much excitement or movement will increase the flow of venom into the blood.
- Try to collect the spider, without being bitten, (even a mangled specimen has diagnostic value), if possible, for positive identification by a spider expert. A plastic bag, small jar, or pill vial is useful and no preservative is necessary, but rubbing alcohol helps to preserve the spider.
- Apply a cool, wet cloth to the bite or cover the bite with a cloth and apply an ice bag to the bite.
- Do not apply a tourniquet. It may cause more harm than benefit.
- Try to positively identify the spider to confirm its type.
- Seek prompt medical attention.

- Before utilizing outdoor temporary sanitary facilities, be sure to check the unit to verify there are not any spiders.

A brown recluse bite can be serious and will likely require immediate medical care. Seek medical attention if you believe you have been bitten by a recluse spider, especially if severe symptoms develop throughout your body or an open sore and necrosis develop. A brown recluse spider bite is diagnosed through a physical examination and questions about the bite. You should be prepared to describe the spider, where and when the bite took place, and what you were doing at the time. Your health professional will ask what your main symptoms are, when they began, and how they have developed, progressed, or changed since the bite.

9.7.5.1 Spiders - Widow

Poisonings due to widow spider bites are rare in West Virginia. However, as with the Brown recluse, even though the black widow is not native to West Virginia, sometimes these spiders are brought in with produce, on a truck, in a car or in boxes after people visit or move here from other parts of the country. As such, workers should be cognizant of potential widow species that could potentially be encountered, as follows: the Southern and Northern Black widows. Females range from 8-15 mm in body length; males are smaller, sometimes very small (2 mm). Most have globose, shiny abdomens that are predominantly black with red markings (although some may be pale and/or have lateral stripes), with moderately long, slender legs. These spiders are nocturnal and build a three-dimensional tangled web, often with a conical tent of dense silk in a corner where the spider hides during the day. In nature, most species are found under rocks and logs, but they readily adapt to human-altered environments, where they are most commonly found in outbuildings (sheds, barns, privies), water meter holes, nursery cans, and under any item or structure (e.g., barbeque grill, slide, sand box) that has been undisturbed for a lengthy period. Formerly, most bites by black widows (almost all by female spiders) occurred in outhouses, but presently, widow bites occur most frequently when the spider is trapped against human skin, either by reaching under objects where the spider is hiding or when putting on clothing, gloves or shoes containing the spider. Widow spiders are generally very timid and only bite in self-defense when they accidentally contact humans.

Southern Widow

Northern Black

Northern Black

Note: The northern widow is similar to the southern widow except the telltale red markings are shaped slightly different.

Bite symptoms are systemic, spreading through the lymphatic system, and usually start about 1-3 hours after the bite. The most common symptoms are intense pain, rigid abdominal muscles, muscle cramping, malaise, local sweating, nausea, vomiting, and hypertension. Other symptoms may include tremors, labored breathing, restlessness, increased blood pressure, and fever. If left untreated, widow bite symptoms usually last 3-5 days.

If bitten, remain calm, and immediately seek medical attention (contact your physician, hospital and/or poison control center). Apply an ice pack directly to the bite area to relieve swelling and pain. Try to collect the spider, without being bitten, (even a mangled specimen has diagnostic value), if possible, for positive identification by a spider expert. A plastic bag, small jar, or pill vial is useful and no preservative is necessary, but rubbing alcohol helps to preserve the spider. A hospital stay may be recommended, particularly for those with a heart condition or with health problems. A physician may administer a specific antivenin to counteract the venom or calcium gluconate to relieve pain. Calcium gluconate and/or antivenin may be administered to relieve or counteract symptoms.

9.7.5.2 Ticks

Ticks typically are in wooded areas, bushes, tall grass, and brush and there have been many instances where personnel have reported the presence of ticks at AGVIQ-CH2M HILL project sites in West Virginia. Given the rural area of the facility, deer are present on the installation, are known to visit the project site, and can be a contributory source of potential tick infestation. 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/taped to boots; spray **only outside** of clothing with permethrin or permanone and spray skin with only N, N-diethyl-meta-polyamide (DEET); and check yourself frequently for ticks. Where exposure to ticks is verified, personnel shall consider wearing "bug-out" suits to minimize potential exposures to ticks or other biting insects (i.e., chiggers). However, when these suits are used when ambient air temperatures are elevated (> 70°F) heat stress preventive measures and monitoring protocols must be implemented. See the Heat Stress section in this HSP for additional information.

9.7.5.3 Hazard Control

The methods for controlling exposure to ticks include, in order of most preferred to least:

- Avoiding tick habitats and ceasing operations in heavily infested areas
- Reducing tick abundance through habitat disruption or application of acracide
- Personal protection through use of repellants and protective clothing
- Frequent tick inspections and proper hygiene

9.7.5.4 Tick Identification

There are five varieties of hard-bodied ticks that have been associated with tick-borne pathogens. These tick varieties include:

- Deer (Black Legged) Tick (eastern and pacific varieties)
- Lone Star Tick
- Dog Tick (American and Brown)
- Rocky Mountain Wood Tick
- Western Black-legged tick

Deer Tick

Tick Bite

9.7.5.5 Illnesses and Signs/Symptoms

There are six distinguishable tick-borne pathogens that cause human illness in the United States. These pathogens may be transmitted during a tick bite – normally hours after attachment. The illnesses, presented in approximate order of most common to least, include:

1. Lyme (bacteria)
2. Rocky Mountain Spotted Fever (bacteria)
3. Ehrlichiosis (bacteria)
4. Southern Tick-Associated Rash Illness (bacteria)
5. Tularemia (Rabbit Fever) (bacteria)
6. Babesia (protozoan parasite)

Symptoms will vary based on the illness, and may develop in infected individuals typically between 3 and 30 days after transmission. Some infected individuals will not become ill or may develop only mild symptoms. These illnesses present with some or all of the following signs and symptoms: fever, headache, muscle aches, stiff neck, joint aches, nausea, vomiting, abdominal pain, diarrhea, malaise, weakness, and small solid, ring-like, or spotted rashes. The bite site may be red, swollen, or develop ulceration or lesions. A variety of long-term symptoms may result when untreated, including debilitating effects and death.

9.7.5.6 Tick Removal

1. Use fine-tipped tweezers or shield your fingers with a tissue, paper towel, or nitrile gloves.
2. Grasp the tick as close to the skin surface as possible and pull upward with steady, even pressure. Do not twist or jerk the tick; this may cause the mouthparts to break off and remain in the skin. (If this happens, remove mouthparts with tweezers. Consult your healthcare provider if infection occurs.)
3. Do not squeeze, crush, or puncture the body of the tick because its fluids (saliva, hemolymph, and gut contents) may contain infectious organisms. Releasing these organisms to the outside of the tick's body or into the bite area may increase the chance of infectious organism transmission.
4. Do not handle the tick with bare hands because infectious agents may enter through mucous membranes or breaks in the skin. This precaution is particularly directed to individuals who remove ticks from domestic animals with unprotected fingers. Children, elderly persons, and immuno-compromised persons may be at greater risk of infection and should avoid this procedure.
5. After removing the tick, thoroughly disinfect the bite site and wash your hands with soap and water.
6. You may wish to save the tick for identification in case you become ill. Your doctor can use the information to assist in making an accurate diagnosis. Place the tick in a plastic bag and put it in your freezer. Write the date of the bite on a piece of paper with a pencil and place it in the bag. See "First Aid and Medical Treatment" information below.

Note: Folklore remedies such as petroleum jelly or hot matches do little to encourage a tick to detach from skin. In fact, they may make matters worse by irritating the tick and stimulating it to release additional saliva, increasing the chances of transmitting the pathogen. These methods of tick removal should be avoided. In addition, a number of tick removal devices have been marketed, but none are better than a plain set of fine tipped tweezers.

Previously infected individuals are not conferred immunity – re-infection from future tick bites can occur even after a person has contracted a tick-borne disease.

9.7.5.7 First-Aid and Medical Treatment

Tick bites should always be treated with first-aid. Clean and wash hands and disinfect the bite site after removing embedded tick. Consult a healthcare professional if infection or symptoms and effects of tick-borne illnesses are developing.

Medical treatments for tick-borne infections include antibiotics and other medical interventions. Diagnosis of specific illness involves both clinical and laboratory confirmations. Preventive antibiotic treatment in non-ill individuals who have had a recent tick bite is recommended in specific cases only.

For CH2M HILL employees who have experienced a tick bite due to work-related activities, Employees should contact the IMRTW at WorkCare at 800-455-6155/714-978-7488 for assistance with the management of the tick bite. (See Attachment 4 of this APP, for details). WorkCare will follow up with each CH2M HILL employee who reports a tick bite and is at risk of developing Lyme disease to monitor for symptoms and refer them to a medical provider for evaluation and treatment as necessary.

For work-related injuries or illnesses to CH2M HILL personnel, inform the AGVIQ-CH2M HILL Project Manager (overall) and the AGVIQ-CH2M HILL HSPA/CIH and help Human Resources administrator complete a HITS Form. HITS must be completed within 24 hours of incident.

For AGVIQ employees, who have been bitten by a tick, contact your AGVIQ supervisor and HSPA for management and support of an incident of this type.

9.7.6 Buried Utilities and Objects (Procedures for Locating)

Local Utility Mark-Out Service
Name: West Virginia One Call
Phone: 811 or 1-800-245-4848
Website: www.wv811.com

Do not begin subsurface construction activities (e.g., soil boring advancement, soil stabilization structure installation, excavation, etc.) or other ground disturbing activities until a check for underground utilities and similar obstructions has been conducted. The use of as-built drawings and utility company searches must be supplemented with a geophysical or other survey by a qualified, independent utility survey contractor to identify additional and undiscovered buried utilities.

Various types of utility location technologies include the following:

- **Ground Penetrating Radar (GPR)**, which can detect pipes, including gas pipes, tanks, and conduits, cables, both metallic and non-metallic at depths up to 30 feet depending on equipment. Sensitivity for both minimum object size and maximum depth detectable depends on equipment selected, soil conditions, etc.
- **Radio Frequency (RF) involves** inducing an RF signal in the pipe or cable and using a receiver to trace it. Some electric and telephone lines emit RF naturally and can be detected without an induced signal. This method requires knowing where the conductive utility can be accessed to induce RF field if necessary.
- **Dual RF**, a modified version of RF detection using multiple frequencies to enhance sensitivity but with similar limitations to RF.
- **Ferromagnetic Detectors** are metal detectors that will detect ferrous and non-ferrous utilities. Sensitivity is limited—e.g., a 100-millimeter (mm) iron disk—to a depth of about 1 meter or a 25-mm steel paper clip to a depth of about 20 centimeters.

- **Electronic markers** are emerging technologies that impart a unique electronic signature to materials such as polyethylene pipe to facilitate location and tracing after installation. Promising for future installations but not of help for most existing utilities already in place.
- **Vacuum excavation utility verification** Vacuum excavation loosens the soil with a blunt-nosed, high pressure air lance and immediately vacuums away loosened material. This process significantly reduces the risk of loss of property and injury to workers associated with contacting or cutting of utilities by backhoes, augers, hand digging and other mechanical methods. Air, when used appropriately, are far less likely than sharp-edged tools to damage underground structures.

9.7.6.1 Procedure

- The following procedures shall be used to identify and mark underground utilities during subsurface construction activities on the project:
- The survey subcontractor shall determine the most appropriate geophysical technique or combinations of techniques to identify the buried utilities on the project, based on the survey contractor's experience and expertise, types of utilities anticipated to be present and specific site conditions.
- The survey contractor shall employ the same geophysical techniques used on the project to identify the buried utilities, to survey the proposed path of subsurface construction work to confirm no buried utilities are present.
- Identify customer specific permit and/or procedural requirements for excavation and drilling activities. For military installations contact the Base Civil Engineer and obtain the appropriate form to begin the clearance process.
- Contact utility companies or the state/regional utility protection service at least two (2) working days prior to excavation activities to advise of the proposed work, and ask them to establish the location of the utility underground installations prior to the start of actual excavation.
- Schedule the independent survey.
- Obtain utility clearances for subsurface work on both public and private property.
- Clearances are to be in writing, signed by the party conducting the clearance.
- Underground utility locations must be physically verified by hand digging using wood or fiberglass-handled tools when any adjacent subsurface construction activity (e.g., mechanical drilling, excavating) work is expected to come within 5 feet of the marked underground system. If subsurface construction activity is within 5 feet and parallel to a marked existing utility, the utility location must be exposed and verified by hand digging every 100 feet.
- Protect and preserve the markings of approximate locations of facilities until the markings are no longer required for safe and proper excavations. If the markings of utility locations are destroyed or removed before excavation commences or is

completed, the Project Manager must notify the utility company or utility protection service to inform them that the markings have been destroyed.

- Conduct a site briefing for employees regarding the hazards associated with working near the utilities and the means by which the operation will maintain a safe working environment. Detail the method used to isolate the utility and the hazards presented by breaching the isolation.
- Monitor for signs of utilities during advancement of intrusive work (e.g., sudden change in advancement of auger or split spoon during drilling or change in color, texture or density during excavation that could indicate the ground has been previously disturbed).
- When the client or other onsite party is responsible for determining the presence and locations of buried utilities, the AGVIQ-CH2M HILL individual responsible for site operations shall confirm that arrangement and be available on site to verify the location of located utilities or identified subsurface anomalies that may be in question and require further investigation measures.

9.7.6.2 Unknown or Unanticipated Buried Objects

Where unanticipated surface conditions or unanticipated buried objects (i.e., drums, tanks, cylinders, MPPEH, or unanticipated surface conditions) are encountered during site operations, ongoing activities shall be immediately suspended. AGVIQ-CH2M HILL or subcontractor personnel encountering unknown or unanticipated buried objects shall 1) secure equipment to the extent possible, without causing bodily injury, 2) evacuate the work area, 3) immediately notify the individual responsible for site operations of the encountered condition and 4) do not generate any additional disturbance or otherwise handle the buried object. The AGVIQ-CH2M HILL individual responsible for site operations shall contact the AGVIQ-CH2M HILL Project Manager and AGVIQ-CH2M HILL Program CIH to evaluate potential hazards associated with the specific situation encountered. The project team will then address the need for the use of special procedures, engineering controls, PPE or specialized subcontract personnel to safely mitigate the situation.

9.7.6.3 Materials Presenting a Potentially Explosive Hazard

(Reference CH2M HILL SOP # HSE&Q 610, Explosives Usage and Munitions Response)

Site 1 is located within the ABL "Active Burning Grounds", which contains six (6) concrete pads which are used for the incineration of various potentially explosive items (used rocket motors/fuel). Given the past and present use of the ABL burning ground areas within the project site, the potential for encountering Materials Presenting a Potentially Explosive Hazard (MPPEH) during the execution of scheduled site work has been previously assessed. As a result of that assessment, "3R"training will be provided to all AGVIQ-CH2M HILL and subcontractor personnel prior to conducting any soil disturbing activities for this project.

The primary hazard associated with exposure to MPPEH/MEC items is the possibility of severe injury or fatality as a result of an unplanned detonation or ignition of an item if it is intentionally handled, unintentionally disturbed or when detonated/ignited from stray electro-magnetic sources.

In the event a potential MPPEH related discovery were to occur onsite, all work would cease and the site will be secured, notification to the Project and Program Management team would occur in accordance with Section 10.7 of this HSP. The ABL/ATK POC would be contacted via the Project Manager and the site would be secured until such time as local Navy Explosive Ordnance Disposal (EOD) or other available DoD EOD personnel can respond. In the event that a MPPEH item is encountered during site operations, communicating in a fast, accurate, and effective manner is critical in keeping the site operations under control. In the event that a potentially non-inert/ or live MPPEH/MEC item is discovered, the following minimum procedures shall be executed:

1. **Immediately Stop Work (RECOGNIZE)**.

RECOGNIZE: *Do not disturb or move the item more than has been performed to facilitate to the visual screening process, as explosive hazards can become very unstable over time. They can detonate with movement or sometimes due to ground vibration or stray electro-magnetic source. MPPEH hazards can be present in all shapes, sizes colors or as items not normally considered a hazard (i.e. flares, soil with propellant etc). It must also be recognized that exposure to weather and time can alter or remove marking that identify MPPEH hazards.*

2. **Secure area/location** where the MPPEH/MEC item is discovered **(RETREAT)**.

RETREAT*: Stop and secure any operating equipment to the extent possible. Mark the general area/location of the MPPEH hazard with tape, colored cloth, or colored ribbon. If available, attach the marker to a branch, structure or other existing object so that it is about 3 ft (.9 m) off the ground and visible from all approaches. Place the marker no closer than the point where you first recognized the MPPEH hazard and DO NOT drive stakes into the ground or otherwise disturb the surface. Leave by the same route you entered the area if possible. Clear site of all workers and secure from unauthorized entry.*

Do not transmit any radio/cellular phone frequencies unless maximum fragmentation distances separation distances are established for the suspected type of MPPEH discovered. Signals transmitted from items such as cell phones, short-wave radios, single side-band radios or other communications and navigation devices may detonate the MPPEH item.

3. **Immediately make notification to NAVFAC (REPORT).**

REPORT*: Once area has been evacuated, appropriate notifications shall be made immediately. Provide as much information as possible, including location, approximate size, shape, color, and any other distinguishing features such as nomenclature or writing, fins, etc.*

a. The AGVIQ-CH2M HILL site supervisor/FTL immediately notifies any chain of command personnel needed to make proper notification of the situation, to mitigate the encountered item or engage other mitigation procedures which may be specifically required.

b. **Secure the site** such that unauthorized personnel cannot have access to the area where the potential MPPEH/MEC item was encountered.

c. **Contact the AGVIQ-CH2M HILL Project Manager (overall)** or (AGVIQ-CH2M HILL Program Manager in the project Manger's absence) who will contact NAVFAC/Department of the Navy POCs.

4. **Operations can not resume** until such safeguards and approvals are in place to safely continue the assigned work, in accordance with NAVFAC/Department of the Navy (DON) approvals to so.

It is understood that no MPPEH removal or mitigation operations are to be engaged by AGVIQ-CH2M HILL during this TO. Any initial mitigation activities that may be required to secure or render encountered MPPEH safe or inert shall be executed by Department of the Navy Explosive (DON) Ordnance Disposal (EOD) personnel. As such, this APP provides no contingencies or procedures associated with the extended handling or demilitarization operations by AGVIQ-CH2M HILL or subcontractor personnel.

9.7.7 Chemical Injections

(Reserved)

Chemical injection operations will not be performed as part of this TO.

9.7.8 Concrete Work

(Reference CH2M HILL SOP # HSE&Q 302, Concrete & Masonry)

Concrete work for this TO is possible as it pertains to permanent fence placement about Site 1, during site restoration activities. Because of the limited type and low complexity of concrete work scheduled for the site, the requirements of EM 385 1-1, Section 27 "Concrete, Masonry, Steel Erection and Residential Construction" does not lend applicability to the work and 29 CFR 1926, Subpart Q "Concrete and Masonry Construction" appears to be only minimally applied. However, for this work, key general procedures shall be applicable to working with concrete, concrete delivery vehicles and the curb and gutter placement equipment as follows:

- Protect exposed skin and eyes from chemical burns contact or splash from concrete during placement of concrete, finishing and truck washout operations. Do not place hands or arm in concrete. Wear rubber boots if stepping in concrete is necessary to finish the concrete surface. If eyes or bare skin comes in contact or is splashed by wet concrete, wash skin and flush eyes immediately.
- Nonessential personnel to stand clear of concrete chute during concrete placement. Designate one ground person to operate concrete chute if not controlled by truck driver inside cab (front loading).
- Do not walk under a concrete chute. Stand clear of concrete chute when it is discharging concrete.
- Ground support personnel should not position themselves between the concrete and chute and any other object while the truck is engaged.
- Understand and review hand signals. Designate one person to provide hand signals to concrete truck operator.

- Ensure concrete truck has an operable back-up alarm.
- Ensure concrete trucks are on stable level ground when discharging concrete and do not traverse up/down steep inclines.
- Step away from concrete truck when adjustments to concrete chutes are made (positioning).
- Ensure concrete truck operator has spotter for obstructed views and backing up.
- Employees should stay off approach areas of concrete truck. When approaching a concrete truck employees should make eye contact and communicate their intentions directly with the operator.
- Stay out of the operating envelop of haul trucks. Do not walk in front of or in back of haul trucks.
- Ensure you are in the concrete truck operator's field of vision.
- If any protruding reinforcing steel (rebar), onto which personnel could fall, must be adequately guarded to eliminate the hazard of impalement.
- Keep all hands/fingers and feet out of pinch points from the concrete curb and gutter machine and ensure that all guards remain in place while the curb and gutter machine(s) are in place, while being operated.

9.7.9 Confined Space

(Reference CH2MHIILL SOP # HSE&Q-203, Confined Space)

Information regarding confined space operations that are anticipated for this project is contained in Section 9.36 Confined Space Program in this APP.

9.7.10 Cranes

(Reference CH2MHIILL SOP # HSE&Q-303, Cranes)

(Reserved)

Crane operations/activities are not anticipated as part of this TO.

9.7.11 Dismantling/Demolition Operations

(Reference CH2MHIILL SOP # HSE&Q-305, Demolition)

Dismantling/Demolition operations will not be performed as part of this TO.

9.7.12 Drilling

(Reference CH2M HILL SOP # HSE&Q 204, Drilling)

During the execution of this work drilling will be used to advance three soil borings in the area of FDP 3 for subsurface soil sample collection. When drilling operations are implemented at the site, at a minimum, the following practices must be implemented.

- Prior to conducting any onsite intrusive activities, it must be verified that subsurface utilities will not be impacted by proposed site operations. See procedures for Buried Objects/Utilities (locating) Locating in this APP.
- PPE and air monitoring requirements shall be executed in accordance with Tables 9-2 and 9-3, respectively, of this APP in an effort to minimize potential dermal and inhalation exposures to identified site contaminants of concern during all drilling activities. In addition, good personal hygiene practices and procedures must be maintained (see Section 9.33.10 of this APP).
- Drill rig inspections and maintenance and documentation of such inspections and maintenance shall be performed daily prior to the start of onsite work.
- The drill rig should not to be operated in inclement weather**. Drill rigs with a rotary "cat-head" mechanism shall not be operated during precipitation events.**
- Suspended drill rods, tools or wash tub shall not be passed over ground personnel and ground personnel shall not be allowed to walk under or in front of suspending drilling rods, tools or wash tub.
- The drill rig operator is to verify that the rig is properly leveled and stabilized (extension of stabilizers on firm ground) before raising the mast.
- Personnel should be cleared from the sides and rear of the rig before the mast is raised.
- **The drill rig operator shall not to drive the rig with the mast in the raised position.**
- The drill rig operator must check for overhead power transmission lines or other overhead utilities before raising the mast. A minimum distance of 10 ft between mast and overhead lines <50 kilovolts (kV) is required. Increased separation will be required for lines greater than 50 kV. To determine proper clearance from energized overhead electric lines, consult the reference table below.

Nominal System Voltage (kV)	Minimum Rated Clearance (feet)
0-50	10
51 - 200	15
201 - 300	20
301 – 500	25
501 – 750	35
751 – 1000	45

- Do not raise drill rig masts underneath or adjacent toward overhead utilities. Do not drive drill rig mast raised. Be cognizant of utility pole guy wires and above ground transformers in relation to operating drill rigs.
- If the drill rig comes into contact with electrical wires and becomes electrically energized, do not touch any part of the rig or any person in contact with the rig and stay as far away as possible. Notify emergency personnel immediately.
- Personnel must stand clear before equipment startup.
- Make and maintain eye contact with operator prior to/while approaching drill rig. Do not disturb the driller while the driller is actively engaged in drilling operations (i.e. operating controls, hoisting or lowering drill rods/tools/equipment).
- The drill rig operator shall keep the drill rig at a zero energy state when not at the drill rig controls.
- Do not wear loose-fitting clothing, watches, or have long hair etc., that may get caught in moving parts of the drill rig.
- Do not smoke or permit other spark-producing equipment around drill rig.
- The drill rig shall be equipped with a kill wire or switch and personnel associated with the drilling operation are to be informed of its location.
- When lines are pressurized on or adjacent to the drill rig as a result of the drilling or grouting operations, safety lashings/whip line checks, clips or other suitable restriction means must be in place on hoses/connections to prevent injury in the event connections become dislodged or hoses rupture.
- The drill rig operator is to verify that all machine guards are in place while the rig is in operation.
- The drill rig operator should be equipped with at least one fire extinguisher.

- Where it may be required to limit access and prevent inadvertent entrance of unauthorized and untrained personnel into the active drilling operation areas, the erection of warning tape, suitable signage, orange safety fencing or other appurtenances around the active drilling area may be necessary, in accordance with the requirements of Section 9.33.10 Site Control Measures of this APP.

9.7.12.1 Machine Guarding

Machine guarding procedures for the anticipated work will be applicable to the execution of the subsurface drilling operations, excavation equipment, well abandonment/cutting and removal of well casing, fencing, and soil stabilization structure. For this activity, the following machine guarding precautions will be applicable to the work.

- Ensure that all machine guards are in place to prevent contact with drive lines, belts, pinch points, mechanically energized equipment, or any other sources of mechanical injury.
- Maintenance and repair of equipment that results in the removal of guards or would otherwise put anyone at risk requires that mechanic parts be brought to an aero energy state and locked/blocked so the equipment cannot be energized.

9.7.13 Electrical Safety

(Reference CH2MHIILL SOP # HSE&Q-206, Electric Safety)

Several types of electrical hazards may be encountered during the execution of the project. These hazards may include but not be limited to the following:

1) Use of generators, power cords, and electric hand tools to provide power to trailer, tools, equipment, etc. used during the execution of this work.

2) Inadvertent damage to unidentified underground electric or communication utilities;

Where electrical exposure hazards are possible in the work environment, the following standard work practices must be implemented.

- Review and implement all applicable components of CH2M HILL SOP # HSE&Q-206, Electrical Safety, except where other requirements may be more stringent.
- All electrical equipment and lighting which must be used in hazardous atmospheres must be rated to such use/intrinsically safe.
- Prior to conducting any onsite intrusive activities, it must be verified that subsurface utilities will not be impacted by proposed site operations. See procedures for Buried Objects/Utilities (locating) Locating in this APP.
- Use generators and power cords equipped with ground fault circuit interrupters (GFCIs).
- Only qualified personnel (by training, experience, and/or licensure) are permitted to work on electrical systems and wiring.

- Do not tamper with or access electrical wiring and equipment unless qualified to do so. All electrical wiring and equipment must be considered energized until hazardous energy control procedures (i.e., lock-out/tag-out) are implemented.
- Inspect electrical equipment, power tools, for damage prior to use. Do not use defective electrical equipment and remove from service.
- All temporary wiring, including extension cords and electrical power tools, must have GFCIs installed.
- Electrical extension cords must be:
  - Equipped with third-wire grounding.
  - Covered (protected) from damage when vehicles passing through work areas.
  - Must be inspected before use.
- Electrical power tools and equipment must be effectively grounded or double-insulated and Underwriters Laboratory (UL) approved.
- Operate and maintain electric power tools and equipment according to manufacturers' instructions.
- Protect all electrical equipment, tools, switches, and outlets from environmental elements (water, mud, sediment).

9.7.14 Excavation Activities

(Reference CH2MHIILL SOP # HSE&Q-307, Excavation & Trenching Safety)

The primary remedial objective for the NTCRA at FDPs 1 and 3 is to remove soil containing site constituents of concern (COC) at concentrations that exceed the applicable remedial action objectives identified in Table 3-3 of the RAWP. For each pit, excavation depth is anticipated to precede up to 14 feet bgs or until the water table is encountered, whichever comes first. AGVIQ-CH2M HILL will excavate to the geographical boundaries depicted on Figure 2-2 (and up to 14 feet bgs) of the RAWP, unless directed to do otherwise by the Navy. Minor trenching to less than 1-ft bgs will also be conducted during SESC installation.

For all excavation activities, proposed work shall fall under the requirements of 29 CFR 1926, Subpart P, and EM 385 1-1, Section 25, Excavations. In accordance with these requirements, the following procedures must be evaluated and implemented as part of proposed site excavation activities.

- Review and implement all applicable components of CH2M HILL SOP # HSE&Q-307, Excavation & Trenching Safety.
- Prior to opening an excavation, underground installations (i.e., utilities, fuel lines) shall be located and protected from damage or displacement. Utility companies (utility owners) and other responsible authorities shall be contacted to locate and mark the locations and, if they so desire, direct or assist with protecting the underground installations. When required, the AGVIQ-CH2M HILL or designated subcontractor shall obtain a "Dig Permit" or "Excavation Permit" from NAVFAC MIDLANT or ATK designated point of contact (POC) having jurisdiction prior to initiation of excavation

work. See the "Procedures for Locating Buried Objects/Utilities" contained in this APP for additional information.

- Where personnel must enter open excavations to perform the required work, excavations will be protected in accordance with the excavation sloping or benching system requirements defined by 29 CGR 1926, Appendix B as determined by the soil classification requirements defined by Subpart A as determined by the onsite excavation competent person.
- When personnel will be in or around and excavation, a competent person shall inspect the excavation, adjacent areas, and protective systems daily, as needed throughout the work shifts and after every rainstorm or other hazard-increasing event. If evidence of a situation that could result in possible cave-ins, slides, failure of protective systems, hazardous atmospheres, or other hazardous condition is identified, exposed workers shall be removed from the hazard and all work in the excavation stopped until necessary safety precautions have been implemented. The competent person is also required to monitor and inspect equipment use in water removal operations (i.e. pump systems). Documentation of excavation inspections must be available on site at all times.
- A competent person is defined as:

  "An individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authority to take prompt corrective measures to eliminate them."

  Note: The competent person should be an individual designated by the employee's respective employer. For the purposes of this TO, the Excavation Competent person will be the AGVIQ-CH2M HILL designated site supervisor identified in Section 4.0 of this APP.
- Special Excavation Requirements defined by 29CFR1926.651 shall also be evaluated prior to the start of site excavation activities as follows:
  - The location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation. See Section 9.7.6 Buried Objects/Utilities (locating) of this APP.
  - Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person.
  - Excavated material shall be placed at least 2 feet. (0.6 meter) from the edge of excavation or greater distance as necessary to prevent excessive loading (and potential collapse) of the excavation face(s).
  - Means of egress from trench excavations. A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees.
  - Exposure to vehicular traffic. Employees exposed to public vehicular traffic shall be provided with, and shall wear; warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

- No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.
- To prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable conditions, atmospheric testing must be conducted, as necessary.
- Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees. Sidewalks, pavements and appurtenant structures shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.
- AGVIQ- CH2M HILL personnel must notify and be granted authorization from the excavation-competent person prior to entering any excavation. AGVIQ personnel must follow all excavation requirements established by the competent person. A competent person is an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and, who has authority to take prompt corrective measures to eliminate them. The competent person must be a person designated by the AGVIQ-CH2M HILL.
- The competent person must inspect the excavation every day and after every hazard increasing event. Documentation of this inspection must be available on site at all times. See **Attachment 3** of the APP for sample version of this form.
- When excavations are not filled in after their intended use or are left open and/or unattended at any time and assuming that 1) excavations are not exposed to the public, vehicles or equipment and 2) employees are not routinely exposed to (open) excavations and excavations are not greater than 6 feet, then the excavations shall be protected by warning barricades or flagging placed at a distance not closer than 6 feet from the edge of the excavation. Installed warning barricades need to display an adequate warning at an elevation of 3 feet above ground level. It is anticipated that Level III excavation perimeter protection should be suitable for this proposed work in accordance with EM 385 1-1, Section 25 Excavations and Appendix Q of the same, must be evaluated and implemented, where site conditions warrant or if perceived excavation hazards may exist.

9.7.14.1 Dewatering Operations

To facilitate excavation, dewatering of entrapped water (excluding ground water) within the excavation area may be conducted with the use of frac tanks, gas or diesel powered dewatering pump(s) and applicable discharge hoses.

When these dewatering operations are engaged, the following measures must be implemented.

- Where water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.
- Operate and maintain pressure pumps and hosing in accordance with the manufacturer's recommendations.
- Avoid/take care around pressurized lines/hoses. Inspect all equipment, hoses, pressure lines and fittings daily and prior to pressurizing.
- Use proper PPE (eye/face protection, proper gloves, skin protection etc.) when working around dewatering equipment.
- Visually inspect pumps and hoses and ensure there is no escape or leakage.
- All pressured lines and fittings should be 'tethered' or otherwise secured to minimize whipping or 'launching' of lines in the event of a failure. Any 'quick connect' type fittings should be secured with appropriate pins, clips or covering to prevent accidental disengagement of the fitting.

9.7.15 Fall Protection

(Reference CH2MHIILL SOP # HSE&Q-310, Fall Protection)

The anticipated fall protection hazards associated with the execution of this TO include working around an open excavation area that is anticipated to reach depths of up to 14-ft bgs. Additional elevation hazards may also result from activities associated with construction of the soil stabilization structure near FDP 3, which has yet to be designed at the time this APP was developed. The APP will be updated accordingly if the soil stabilization structure construction, or other project tasks, include elevation hazards that are not covered by this APP.

Below are the hazard controls and safe work practices to follow when personnel or subcontractors are exposed to unprotected heights. Ensure the requirements in the referenced SOP are followed.

- Fall protection systems must be used to eliminate fall hazards when performing construction activities at a height of 6 feet (1.8 meters) or greater and when performing general industry activities at a height of 4 feet (1.2 meters) or greater.
- AGVIQ-CH2M HILL staff exposed to fall hazards must complete initial fall protection training by completing either the 10-Hour Construction Safety Awareness training course or the Fall Protection computer-based training module. Staff must also and receive project-specific fall protection training using the fall protection evaluation form attached to this APP. Staff shall not use fall protection systems for which they have not been trained.
- The SSHO or designee must complete the Project Fall Protection Evaluation Form and provide project-specific fall protection training to all AGVIQ-CH2M HILL staff exposed to fall hazards.

- The company responsible for the fall protection system shall provide a fall protection competent person to inspect and oversee the use of fall protection system. AGVIQ-CH2M HILL staff shall be aware of and follow all requirements established by the fall protection competent person for the use and limitation of the fall protection system.
- When AGVIQ-CH2M HILL designs or installs fall protection systems, staff shall be qualified as fall protection competent persons or work directly under the supervision of an AGVIQ-CH2M HILL fall protection competent person.
- When horizontal lifelines are used, the company responsible for the lifeline system shall provide a fall protection qualified person to oversee the design, installation, and use of the horizontal lifeline.
- Inspect personal fall arrest system components prior to each use. Do not use damaged fall protection system components at any time, or for any reason. Fall protection equipment and components shall be used only to protect against falls, not to hoist materials. Personal fall arrest systems that have been subjected to impact loading shall not be used. SSHO shall periodically inspect AGVIQ-CH2M HILL fall protection equipment using the Fall Protection Inspection Log form.
- Personal fall arrest systems shall be configured so that individuals can neither free-fall more than 6 feet (1.8 meters) or contact any lower level.
- Only attach personal fall arrest systems to anchorage points capable of supporting at least 5,000 pounds (2268 kg). Do not attach personal fall arrest systems to guardrail systems or hoists.
- Remain within the guardrail system when provided. Leaning over or stepping across a guardrail system is not permitted. Do not stand on objects (boxes, buckets, bricks, blocks, etc.) or ladders to increase working height on top of platforms protected by guardrails.
- Only one person shall be simultaneously attached to a vertical lifeline and shall also be attached to a separate independent lifeline.

9.7.16 Fire – Explosion Prevention

It is anticipated that several conditions could exist that could create fires at during general site activities as follows:

- Static charge build-up during the bulk transfer of flammable liquids
- Welding and cutting activities or other hot work activities
- Malfunction of electrical equipment

The information provided below is the minimum Fire Prevention procedures that must be engaged for the project site.

- **Matches and other spark producing devices, including automobile cigarette lighters, are not allowed at ABL.**

- **SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so.**
- Be cognizant of and adhere to any other specific ABL/ATK Fire Prevention Procedures and Requirements.
- Flammable/combustible liquids (i.e., gasoline) must be kept in approved containers. Use only metal "safety cans" for storage and transfer of fuel.
- Use funnels and nozzles during fueling operations.
- Do not fill gasoline containers while positioned in the back of a pick-up truck bed or rear storage section of a sport utility type vehicle.
- Fire extinguishers will 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.
  - Undergo a maintenance check each year.
  - The area in front of extinguishers must be kept clear.
  - Appropriately sized, easily accessible ABC fire extinguisher in work area.
  - Fire extinguishers must be inspected monthly (inspection tag) and have an annual maintenance/inspection certification (tag) attached to the extinguisher.
  - Fire extinguishers shall be approved by a nationally recognized testing laboratory and labeled to identify the listing and labeling organization and the fire test and performance standard that the fire extinguisher meets or exceeds.

Only small incipient stage fires that can be controlled by first response equipment (fire extinguishers) shall be engaged by AGVIQ-CH2M HILL. All other fire control operations shall be performed by ABL/ATK dedicated Fire Department or local fire department response personnel. Control of any small fire which potentially jeopardizes the safety or health of AGVIQ-CH2M HILL or subcontractor personnel shall not be performed.

9.7.16.1 Fire Watch – Hot Work Operations

Hot work operations that may apply to this project include welding, burning or other fire or spark/heat producing operations that may be required for the soil stabilization structure construction. At the time of this APP development, the soil stabilization structure design has not been completed. Although other Hot Work operations are not anticipated for this project, if it is subsequently determined that any project task involves hot riveting, welding, burning or other fire or spark/heat producing operations, then a "Hot Work Permit" must be secured from the **ATK Fire Fighting Guard and signed by the ATK Construction Engineer or Representative. For ABL a Hot Work Permit is also require before using any electric hand tool or open flame (cutting or welding) or powder actuated device.**

In any instance where flammable or combustible materials have been exposed to fire hazards (such as welding operations, hot metals, or open flame cutting), a fire watch shall be assigned to remain at the location for at least one (1) hour after the exposure has ended. These instances may include, but not be limited to the following;

- ✓ Verify if the host government facility policy, facility fire prevention POC or TO designated POC requires that a fire watch be posted.
- ✓ Combustible material closer than 35 ft. (10.7m) to the hot work in either the horizontal or vertical direction cannot be removed, protected with flame-proof covers, or otherwise shielded with metal or fire-resistant guards or curtains;
- ✓ The hot work is carried out on or near insulation, combustible coatings, or sandwich-type construction that cannot be shielded, cut back, or removed, or in a space within a sandwich type construction that cannot be inerted;
- ✓ Combustible materials adjacent to the opposite sides of bulkheads, metal partitions, or sandwich-type construction may be ignited by conduction or radiation;
- ✓ The hot work is close enough to cause ignition through heat radiation or conduction on the following:
- ✓ Insulated pipes, bulkheads, or partitions or adjacent to combustible materials and/or coatings;
- ✓ The work is close enough to unprotected combustible pipe or cable runs to cause ignition;

9.7.17 Flight Line Safety

There are no activities on or adjacent to flight line operations associated with the execution of this TO.

9.7.18 General Practices and Housekeeping

Maintaining proper site housekeeping measures promotes the elimination of slip, trip and fall hazards and exhibits a perception of pride in our work product and habits. Poor housekeeping can result in the basis of citations under 29CFR1926.25(a) or other applicable regulations. Good housekeeping practices must be implemented on every AGVIQ-CH2M HILL controlled project site and at a minimum shall be as follows:

- Maintain good housekeeping at all times in all project work areas.
- During the course of executed project operations, generated debris and any excess materials shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures.
- Garbage/trash shall be collected, containerized and disposed of at frequent and regular intervals.
- Containers shall be provided for the collection and separation of waste, trash, oily and used rags, and other refuse. Containers used for garbage and other oily, flammable, or

hazardous wastes, such as caustics, acids, harmful dusts, etc. shall be equipped with covers and appropriately labeled.

- Combustible debris (if an) shall be removed at regular intervals during the course of the work. Appropriate means shall be provided to facilitate such removal.
- **Generated waste materials shall not be discarded in ABL/ATK containers unless specific approval (written) is obtained by ABL/ATK.**
- Establish common paths of travel and keep them free from the accumulation of materials.
- Designate specific areas for the proper storage of materials. Store tools, equipment, materials, and supplies in an orderly manner.
- As work progresses, neatly store non-essential materials or remove them from the work area.
- Immediately clean up all liquid spills that could create slippery walking or working surfaces. If a liquid spills can't be immediately cleaned up, secure/barricade the area from pedestrian traffic.

9.7.19 Hand and Power Tools

(Reference SOP # HSE&Q 210, Hand and Power Tools)

It is anticipated that hand and power tools will be used during drilling operations, soil stabilization structure installation, sampling activities, fence removal and installation, geotextile fabric and HDPE liner installation and removal, and during waste management activities. The type of hand and power tools needed for to properly complete assigned tasks could vary extensively, but would likely include the following:

- Various hand tools (pliers, pipe or tube cutters, wrenches, hammers, screw drivers, ratchet driven tools)

Whenever these or similar hand and power tools must be used to complete assigned duties, the following work practices must be implemented, when applicable appropriate to the hand or power tool selected for the task.

- Review and implement all applicable components of CH2M HILL SOP # HSE&Q 210, Hand and Power Tools.
- Hand tools will be inspected prior to use, and damaged tools will be tagged and removed from service.
- Hand tools will be used for their intended use and operated in accordance with manufacturer instructions and design limitations.
- Maintain all hand and power tools in a safe condition.
- Do not set power tools down in muddy or wet areas, which may damage the tool and/or or create a potential for electric shock.

- Use PPE (such as gloves, safety glasses, earplugs, and face shields) when exposed to a hazard from a tool.
- Do not carry or lower a power tool by its cord or hose.
- If the use of portable are needed, they must be plugged into GFCI-protected outlets.
- Powered hand tools should not be used in a “lock-on” position. All hand-held powered tools (i.e. drills; grinders, reciprocating saws, etc.) shall be equipped with a momentary contact "on-off" control and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on. All other hand-held powered tools, such as circular saws, chain saws, and percussion tools without positive accessory holding means, shall be equipped with a constant pressure switch that will shut off the power when the pressure is released.
- All portable, power-driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.
- Portable power tools will be UL listed and have a three-wire grounded plug or be double insulated.
- Disconnect tools from energy sources when they are not in use, before servicing and cleaning them, and when changing accessories (such as blades, bits, and cutters).
- Safety guards on tools must remain in-place while the tool is in use. When repair or maintenance is performed on a power tool, safety guards must be promptly replaced after any repair or maintenance has been performed.
- Store tools properly in a place where they will not be damaged or come in contact with hazardous materials, water or other potentially damaging material.
- If a cordless tool is connected to its recharge unit, both pieces of equipment must conform with electrical standards and manufacturer’s specifications.
- Tools used in an explosive environment must be rated for work in that environment (that is, intrinsically safe, spark-proof, etc. if necessary).
- Working with manual and pistol-grip hand tools may involve highly repetitive movement, extended elevation, constrained postures, and/or awkward positioning of body members (for example, hand, wrist, arm, shoulder, neck, etc.). Consider alternative tool designs, improved posture, the selection of appropriate materials, changing work organization, and sequencing to prevent muscular, skeletal, repetitive motion, and cumulative trauma stressors.
- Wrenches, including adjustable, pipe, end, and socket wrenches, shall not be used when jaws are sprung to the point that slippage occurs.

- Impact tools, such as wedges, and chisels, shall not be used when the impact end of the tool has been "mushroomed".
- The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.

9.7.19.1 Knife Use

Knives (fixed/utility) will be used for this TO during soil sample collection from borings, materials receipt and unloading, waste management activities, and other general construction activities. An AHA shall also be developed to address hazards and subsequent controls, PPE, and training.

9.7.19.2 Responsibilities

Supervisors with assistance from the SSHO are responsible for funding and ensuring the correct tool is being used, employees wear the proper PPE when using knives, and they have reviewed this policy.

- Employees are responsible for having and utilizing the proper PPE while performing an activity requiring the use of a knife. Employees are also responsible for understanding the proper use of a knife.

9.7.19.3 Glove Requirements

- In general, Kevlar (or equivalent) cut resistant gloves are to be worn when using a knife in an occupational setting.
- Other types of gloves may be required and will be identified within the AHA / written procedure. Example - Leather gloves may be worn when using the acetate sleeve cutter.

9.7.19.4 Standard Control Measures for Knife Use

- All employees that will use a knife must be trained or have experience with the proper use of a knife, prior to using it.
- When using a knife or blade tool, stroke or cut away from the body with a smooth motion. Be careful not to use excessive force that could damage the tool, the material being cut or unprotected hands.
- When using a knife always cut away from yourself.
- Many tasks using a utility knife require a knife edge but not a sharp point. For these tasks you can add protection against puncture wounds by using a rounded-tip blade.
- If you use a folding knife, it must be a locking blade type.
- Never use a knife that will fold under pressure.
- If you use a fixed blade knife, make sure there is a handle guard to keep your hand from slipping forward. Also, make sure the handle is dry and non- greasy/slippery to assure a better grip.

- When cutting, make the force of the cut carry the blade away from any part of your body. If you have a peculiar situation where this is not possible, protect yourself with a leather apron, or other material placed between you and the blade. Consider putting the material to be cut in a vise, or other holding device.
- If you carry a fixed blade knife, use a sheath or holder.
- Store utility knives safely, retract the blade or sheath an open blade before storing. Never, leave a knife with the blade exposed on the floor, on a pallet, on a work surface, or in a drawer or cabinet.
- Keep your knife sharp. A dull blade requires you to use more force to cut, and consequently increases the risk of slip or mistake.
- Knives used on the job, but not carried with you, must be properly stored when not in use.
- Never use a defective knife.
- Utility knife blades must be used, recognize that they are brittle and can snap easily. Don't bend them or apply side loads to them by using them to open cans or pry loose objects. Use the knife only to cut. It was not designed to work as a pry bar, screw driver, hole punch, and other assorted things that make it seem so easy.
- Stay focused on the cutting job. It only takes a second of inattention with a sharp blade to produce a serious cut. Letting the mind wander or talking with others while using a knife greatly increases the risk of an accident and injury. If you are interrupted while working with a knife, stop cutting, retract the blade, and place the knife down on a secure surface before dealing with the interruption. You should never continue cutting while distracted! As always, utilize the hierarchy of controls and first attempt to engineer out the hazard and frequently ask ourselves do we have the right tool for the job.

9.7.19.5 Examples of Preferred Tools and Kevlar Cut Resistant Gloves

A "safety" spring provides for automatic blade "shoot-back" into the handle when contact w/cutting surface is lost.

9.7.20 Haul Trucks

It is anticipated that haul trucks will be used for the delivery of products and materials (i.e., aggregate, common fill), for the delivery and pick-up of heavy equipment and to transport and properly dispose of generated waste streams offsite. Haul trucks may also be used to transfer excavated material from the excavation area to the soil staging area. Where haul trucks are used on the project, the following work practices shall be implemented.

- All haul trucks must following the designated for the project site project. At this time, the project haul routes can only be approximated as the route pathways identified in Figure 9-2
- Haul truck operators should be familiar with their equipment and inspect all equipment before use.
- Haul truck operators should ensure all persons are clear before operating trucks or equipment. Before moving, operators should sound horn or alarm. All equipment should be equipped with an operational backing alarm.
- Haul trucks or equipment with restricted visibility should be equipped with devices that eliminate blind spots.
- Employees should stay off haul roads. When approaching a haul area, employees should make eye contact and communicate their intentions directly with the equipment operator.
- Where haul truck operators must exit the truck within the site boundary, the driver must be in the same level of PPE as other site personnel.

- If possible, minimize steep grades on haul roads.
- Where grades are steep, provide signs indicating the actual grade as well as measures for a runaway truck.
- Trucks are to be operated within the manufacturer's recommendations (Example: retarder charts indicate the combination of loads, grades, and speeds that should not be exceeded if the truck's retarder is to work properly to ensure the truck does not descend grade at speeds greater than listed).
- Haul roads should have adequate right-of-way signs indicating haul directions, where appropriate.

9.7.21 Heavy Equipment

(Reference SOP # HSE&Q 306, Earth Moving Equipment)

It is anticipated that heavy earth moving equipment may be used on virtually all phases of this project. When heavy equipment is used on the project, the following work procedures shall be exercised by AGVIQ-CH2M HILL personnel who may be designated to operate or supervise the operation of site heavy equipment.

- AGVIQ-CH2M HILL authorizes only those employees qualified by training or previous experience to operate heavy 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 will be corrected before the equipment is placed in service.
  - Documentation of this inspection must be maintained onsite at all times.
  - Refer to the Earthmoving Equipment Inspection Form found in **Attachment 3** of this document.
- Equipment must be on a stable foundation such as solid ground or cribbing; outriggers are to be fully extended.
- Seat belts shall be used by all personnel operating AGVIQ-CH2M HILL equipment.
- 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 will be in a neutral position, with the motors stopped and brakes set.
- Equipment that is operating in reverse must have a reverse signal alarm distinguishable from the surrounding noise or a signal person when the operator's view is obstructed.
- When equipment is used near energized power lines, the closest part of the equipment must be at least 10 ft from power lines < 50 kV. Provide an additional 4 ft 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 power lines must be considered 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. See "Procedures for Locating Buried Utilities" contained in this APP for additional information.
- 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 will be set whenever equipment is parked; wheels must be chocked when parked on inclines.
- When heavy equipment is 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.

9.7.22 Land Clearing Operations

(Reserved)

Land clearing activities will not be required to execute this TO.

9.7.23 Lock-Out/Tag-Out

(Reference SOP # HSE&Q 310, Lock Out Tag Out)

Prior to the control of the electrical energy source via a Lock-Out/Tag-Out (LOTO) process, personnel involved with the LOTO procedure shall review and implement all applicable components of CH2M HILL SOP # HSE&Q-310, Lock-Out/Tag-Out and CH2M HILL Standard of Practice (SOP) # HSE&Q-206, Electrical Safety, where applicable to the project conditions. The review and implementation of these SOPs and the information contained herein shall constitute a LOTO event or Hazardous Energy Control "Plan", but the individual site specific conditions applicable to the LOTO event must be evaluated, reviewed and implemented in the field using the processes detailed in the SOPs in this APP.

The electrical components (or other energized components of the well/well discharge system) must be isolated to protect workers against accidental or inadvertent operation when such operation could cause injury or adverse environmental impact. Personnel shall not attempt to operate any switch, valve, or other energy-isolating which already bears a device bearing a lock.

If for any reason any LOTO procedure is in question, contact your immediate supervisor and/or site supervisor before moving forward. The standard Lock-out/Tag-out procedure steps are summarized below for reference and inclusion in this APP, but are spelled in much greater detail in CH2M HILL SOP # HSE&Q-310, Lock-Out/Tag-Out, which shall be used as the reference for appropriate LOTO/hazardous energy control procedures:

1) Notify all personnel in the affected area of the Lock-out/Tag-out,
2) Preparation for shut-down of the energy source

3) Shut down the equipment using normal operating controls,
4) Isolate all energy sources,
5) Apply individual lock(s) and tag(s) to each energy isolating device,
6) Relieve (or restrain) all potentially hazardous stored or residual energy
7) Verify that isolation of the item (equipment, line, valve etc.) has been accomplished.

LOTO Planning and execution processes are included here in for reference:

- Authorized employees shall notify all affected employees that servicing and maintenance is required and that the equipment must be shut down and locked out to perform servicing and maintenance.
- Authorized employees shall have knowledge of the type and magnitude of all energy sources, the hazards of the energy, and the means of controlling the energy before the equipment is shutdown. All "utility" outages must follow the contract requirements or conditions established by any pre-construction meetings memorandum of understanding or partnering agreement conditions. Where required, utility outages will be coordinated with utility owners, facility owners, and those personnel or entities directly affected by each LOTO process.

The equipment, process or system to be isolated or controlled by the implemented LOTO shall be shut down using the normal procedures established for the equipment. An orderly shutdown must be used to avoid any additional or increased hazard(s) to employees as a result of shutting down the equipment. Authorized personnel engaged in the Lock-out/Tag-out process will be certain as to which switch, valve, or other energy isolating devices apply to the equipment being locked out. More than one energy source may be involved. Any questionable identification of sources will be cleared through communication with the site supervisor and designated equipment/facility owner/operator personnel, or points of contact (POCs).

- Lock energy isolating devices with an assigned individual lock. After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push button, valve, switch or other normal operating controls to make certain the equipment will not operate. Operate the switch, valve, or other energy isolating devices so that the energy source(s) is disconnected or isolated from the equipment. All energy isolating devices that are needed to control the energy to the equipment shall be physically located and operated so that the equipment is isolated from the energy source(s). Lockout devices shall be applied to equipment capable of being locked out so that the energy isolating devices are held in a "safe" or "off" position unless it can be demonstrated that using lockout tags will provide equal protection to that of a lockout device. In demonstrating equivalent protection, additional safety measures shall be implemented, such as removing an isolating circuit element, blocking a controlling switch, opening an extra disconnecting device, or removing a valve handle to reduce the likelihood of inadvertent energization. **NOTICE: Where applicable, return operating controls to the neutral position after the test.**

- Attach a notification/sign on the controls of the end equipment, process system. Each authorized employee shall apply their personal lockout device and/or tag to each energy isolating device (see NOTE: below). In many cases, the placement of any the identification tag and/or sign should be coordinated with involved specialty subcontractors, AGVIQ-CH2M HILL and the facility owner or operator. An AGVIQ-CH2M HILL representative will make known to the facility personnel affected by this operation to familiarize them with the identification of these tags or signs.

NOTE: If more than one individual is required to lock out equipment, each person will place their "own" lock device on the energy isolating device(s). Additionally, one authorized individual with the knowledge of the "crew operations" may lock out equipment for the "whole crew". In such cases, it is the responsibility of the authorized crew "supervisor" to carry out all steps of the lockout procedure and inform the crew when it is safe to work on the equipment. Additionally, the authorized individual will not remove a "crew lock" until it has been verified that all individuals involved in the work are clear from work areas affected by the Lock-out/Tag-out process.

- The equipment is now locked out. Once verified that the equipment is at a zero energy state, work may begin.
- Shift or personnel changes made during servicing and maintenance activities shall be coordinated to ensure that lockout/tagout protection is always provided, including the orderly transfer of lockout devices and tags between off-going and oncoming authorized employees.
- Document inspections of the Locked-out/Tagged-out item(s) will be made periodically by the individual responsible for site operations to ensure that each procedure is being properly followed. The individual responsible for site operations (or other appointed individual) will ensure these inspections are being performed and maintain records of completed inspections. Documentation should include the date of the inspection, equipment on which the procedure was being utilized, the employees involved, and the person performing the inspection.
- Only authorized employees will be allowed to execute Lock-out/Tag-out procedures. Each new or transferred employee must be instructed by the supervisor in lockout procedures. A sufficient number of tags and padlocks will be supplied. During each phase of construction or specific operation were a LOTO process is engaged and the work is under control of AGVIQ-CH2M HILL, a representative from AGVIQ-CH2M HILL will be present while a LOTO process is executed.

To restore equipment to service, use the following items as a guide. If for any reason the following items are in question, contact your immediate supervisor before moving forward. Before lockout devices and tags are removed and energy is restored to the equipment, the work area shall be inspected to ensure that all personnel are in a safe position, all nonessential items have been removed, and equipment components are operationally intact, including the proper reattachment of all equipment safe guards.

Each lockout device and tag shall be removed from each energy isolating device by the authorized employee who applied the devices. If an authorized employee fails to remove his/her device and he/she has left the facility, then the following steps shall be followed for

the removal of his/her lockout device and tag (indiscriminate use of bolt cutters is not an acceptable practice):

- When the job is complete and equipment is ready for testing or normal service, check the equipment area to see that no one is exposed to potential released energy sources.
- When equipment is clear, remove all locks. The energy isolating devices may be operated to restore energy to the equipment. There must be a supervisor from the electrical/mechanical contractor and AGVIQ-CH2M HILL present.
- All safe guards must be put back in place, all affected personnel notified that lockout has been removed and controls positioned in the safe mode prior to lockout removal. Only the individual who applied the lock and tag may remove them.

All affected employees shall be notified that the lockout devices and tags have been removed before starting the equipment.

9.7.24 Manual Lifting

(Reference SOP # HSE&Q 112, Manual Lifting)

Manual lifting is likely to occur during virtually all phases of the field work but are more intensified during sampling, erosion control installation, well abandonment, fencing removal and installation, and geotextile/liner installation. Personnel executing assigned tasks where manual lifting is required should use the following procedures to help reduce the potential for personal injury.

- AGVIQ-CH2M HILL personnel should notify supervisors or designated safety representatives of pre-existing medical conditions that may be aggravated or re-injured by lifting activities, such that AGVIQ-CH2M HILL may evaluate safe operational procedures with regard to the required task.
- Proper lifting techniques (use of knees and not back) must be used when lifting any object.
- Plan storage and staging to minimize lifting or carrying distances.
- Use drum dollies/carts with a latching mechanism when handling full/loaded drums. Avoid "chimming" drums wherever possible.
- Use mechanical lifting aids whenever possible.
- Have someone assist with the lift— especially for heavy (>40 lbs.) or awkward loads. Note: If AGVIQ-CH2M HILL personnel are not capable of lifting 40 lbs., seek assistance from a team member to split the load.
- Plan the path of travel before the load is lifted
- Make sure the path of travel is clear prior to the lift.

9.7.25 Noise

(Reference SOP # HSE&Q 108, Hearing Conservation Program)

Unprotected exposure to excessive noise levels may lead to gradual and permanent hearing loss. The greater the intensity of a noise and the longer a person is exposed to the noise, the greater the chance of hearing loss. A hearing loss can be permanent or temporary. After certain noise exposures, a person may experience a temporary threshold shift (hearing loss) that results in the inability to hear certain sounds. The ability to hear will usually return. However, repeated or intense noise exposure can prevent this recovery, resulting in permanent hearing loss.

Employee hearing conservation (hearing protection) for this protect will be required when working in close proximity to the sonic drilling rig or when pumps are operating that generate loud and constant sound.

Each employee is responsible for the following:

- Notify the site supervisor or SSHO of high-noise-level areas.
- Wear hearing protection when required.
- Complete noise training and audiometric testing (as required).
- Hearing protection is required in work environments exceeding 85 decibels (dB).
- Hearing protection will be worn when operations occur within or adjacent to high-noise sources (i.e. potentially exceeding 85 dB).

9.7.26 Pressure Washing Operations

Pressure washing operations may be required during decontamination operations associated with soil boring advancement and general onsite operations. A small decontamination station is available inside GWTP. Larger decontamination stations will be constructed to decontaminate drilling tools, drop tubes, pumps, etc. requiring cleaning (if dry brush decontamination is not appropriate given the site conditions) and to decontaminate personnel and heavy equipment. Whenever pressure washing operations are performed at the site, the following procedures must be implemented.

- When personnel are performing pressure washing operations they must utilize the PPE required in Section 9.33.7 of this APP.
- Only trained, authorized personnel may operate the high-pressure washer.
- Rinse waste from pressure washing operations must be collected and properly disposed.
- Follow manufacturer's safety and operating instructions.
- Inspect pressure washer before use and confirm dead man switch fully operational.

- The wand must always be pointed at the work area.
- The trigger should never be tied down
- Never point the wand at yourself or another worker.
- The wand must be at least 42 inches from the trigger to the tip.
- The operator must maintain good footing.
- Non-operators must remain a safe distance from the operator.
- No unauthorized attachment may be made to the unit.
- Do not modify the wand.
- All leaking or malfunctioning equipment must be repaired immediately or the unit taken out-of-service.

9.7.27 Sample Handling

The sample handling, packaging, and preservation activities will routinely occur as part of the scheduled ground water well and subsurface soil sampling events. The following proper work practices and procedures to be followed during ground water and soil sampling activities:

- Skin contact with water, soil, sediment or debris of undetermined chemical characterization shall be avoided at all times.
- PPE and Air Monitoring requirements shall be executed in accordance with Section 9.33.7 of this APP to minimize potential dermal and respiratory exposures to identified site contaminants of concern while conducting sample collection or characterization of potentially contaminated media (soil, water, drilling fluids/cuttings, PPE, soil vapor, etc.). In addition, good personal hygiene practices and procedures must be maintained (see Section 9.33.10 of this APP).
- Sample only labeled drums/containers/stockpiles whose content is known. Unknown drums or containers that show evidence of excessive buckling/bulging, corrosion, vapors, crystallization, unusual discoloration or other abnormalities may not be sampled without the evaluation of engineering controls, proper PPE air monitoring equipment and the use properly trained personnel familiar with the sampling of unknown materials.
- Sample drums/containers without leaning over the drum/container opening.
- Transfer the content of container being sampled using a method that minimizes contact with material.
- Following sample collection, sample container lids should be tightened securely to prevent any leaks, and the containers should be rinsed with clean water to ensure that they are free of chemical constituents. Sample activities, sample collection, and equipment decontamination procedures.

9.7.28 Slips, Trips and Falls

Slip, trip and fall hazards exist in virtually ALL work environments. Even though slip, trip and fall hazards are typically thought of as posing low risk to workers, they account for a large percentage of worker injuries. As such, workers should exercise caution about becoming complacent to recognizing and removing slip, trip and fall hazard from designated work areas. To eliminate slip, trip and fall hazards from the work place, the following should be implemented.

- Walk or climb only on equipment and/or surfaces designed for personnel access.
- Maintain three (3) points of contact when climbing or working from ladders.
- Observe and avoid areas of unprotected holes, ramps, and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). If these conditions cannot be corrected, mark these hazards (i.e. high visibility pant, traffic cones etc) so that workers may recognize and avoid them.
- Employees walking in ditches, uneven surfaces, swales and other drainage structures adjacent to roads, across undeveloped land or in controlled industrial work/process areas must use caution to prevent slips and falls, which can result in twisted or sprained ankles, knees, and backs.
- Whenever possible work from areas which have flat, stable surfaces and do not enter steep sided ditches/excavations.
- Sturdy, hard toe boots that provide sufficient ankle support shall be used on AGVIQ-CH2M HILL project site.

9.7.29 Stairways and Ladders

(Reference SOP # HSE&Q 214, Stairways and Ladders)

(Reserved)

The use of stairway and ladders will not be required to execute this TO.

9.7.30 Vacuum Truck Operations

(Reserved)

9.7.31 Vehicular Traffic (Exposure to)

(Reference SOP # HSE&Q 216, Traffic Control)

The information provided below is intended to provide standard work practices that must be exercised when personnel are working in or around moving vehicles.

- **The Plant speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed.**
- **ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way.**
- **When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes.**
- **When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.**
- When parking your vehicle, park in a manner that will allow for safe exit from vehicle, and where practicable, park vehicle so it can serve as a barrier.
- Shut off and secure site vehicles prior to exiting them. Park on level ground where possible. If parking on an incline, engage parking brake. If the vehicle has a manual transmission, ensure the transmission is in gear (not neutral) and the parking brake is engaged before exiting the vehicle.
- Exercise caution when exiting traveled way or parking along street— avoid sudden stops, use flashers, etc.
- All staff working adjacent to q traveled way or within a 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, limited sight-distance, hills etc.
- Always remain aware of an escape route, such as behind an established barrier or parked vehicle.
- 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 a haul truck to perform assigned duties, a "buddy system" should be used, where one worker is looking toward traffic.
- Work area should be protected by a physical barrier.
- Lookouts should be used when physical barriers are not available or practical.

In addition to the above work practices, AGVIQ-CH2M HILL personnel and AGVIQ-CH2M HILL subcontractors shall adhere to the following procedures while operating motor vehicles or other motorized equipment on military/government facilities.

- Always use a seat belt while driving on military/government controlled facilities
- Always observe posted speed limits, traffic signs and signals
- Never use a cell phone or two-way radio while driving on military/government controlled facilities.

Violating these requirements may result in loss of military/government facility driving privileges.

9.7.32 Visible Lighting

Site work should be performed during daylight hours whenever possible. Due to the proposed late morning starts planned for this project, work will be conducted during hours of darkness (including dusk and dawn) and supplemental lighting equipment will be utilized. (Note: A general "rule of thumb" is that the illumination intensity must be sufficient to read a newspaper without difficulty). The chart below provides a reference for illumination requirements for various construction related work environments.

Illumination (Foot Candles)	Illumination (Lux)	Area of Operation
5	~ 55	General construction area lighting
3	~ 33	General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas
5	~ 55	Indoors: warehouses, corridors, hallways, and exit ways
5	~ 55	Tunnels, shafts, and general underground work areas: (Exception: minimum of 10 foot-candles is required at tunnel and shaft heading during drilling, mucking, and scaling. Bureau of Mines approved caplights shall be acceptable for use in the tunnel heading)
10	~ 108	General construction plant and shops (e.g., batch plants, screening plants, mechanical and electrical equipment rooms, carpenter shops, rigging lofts and active store rooms, mess halls and indoor toilets and workrooms.)
30	~ 323	First aid stations, infirmaries, and offices

Notes:

A **foot candle** is a unit of illumination on a surface that is everywhere one foot from a point source of one candle.

A **lux** is a unit of measurement of the intensity of light. It is equal to the illumination of a surface one meter away from a single candle.

CONVERSIONS

Foot Candles (FC) = Lux x .0929

Lux = Foot candles x 10.76 - (i.e.: 50 FC = 538 LUX)

The following safe work practices shall be considered with regard to lighting in the workplace.

- Do not enter poorly lit areas without first providing portable illumination.

- Do not use non-explosion proof lighting in areas of flammable or combustible gases or liquids.

9.7.32.1 Night Operations Lighting Plan

Additional lighting will be required in the work area to provide sufficient lighting for AGVIQ-CH2M HILL site personnel. To perform the project, a diesel powered, tow-behind portable light tower (plants) will be utilized during the performance of all dusk to night operations. At this time, it is anticipated that three 4000 – 6000W, +/- 440,000 lumen portable light plant will be supplied for this work.

9.7.33 Working Alone

Working alone for this Task Order is not anticipated. However, in the event that a lone worker cannot be sufficiently protected from exposures to vehicular traffic during the normal execution of project operations, then the lone worker policy shall not be applicable.

Where AGVIQ-CH2M HILL personnel are authorized to work alone, the following procedures must be implemented.

- "Lone workers" with an accountability system, are permitted, but is dependent upon the type of hazards presented during the execution of the task, such as, isolation, environmental factors, etc. Refer to the "Lone Worker Protocol", included in Attachment 3 this HSP, for additional guidance on the protocol.
- The employee shall at all times be equipped with a working voice communication device such as an ABL/ATK approved cellular phone (no camera) or two way radio to check-in to their project contact (s) at pre-determined times.
    - **Call in contact name:**
    - **Phone numbers (office and cell):**
- Check-in or contact times must be based on the risk associated with the task, or the timeframe expected to complete the task, but at a minimum of at least two times during an 8 hour work shift, but more frequently is highly recommend. It is recommended that field staff and their project manager or project coordinator check in on a more regular basis.
- Call in Contact Form shall be completed by lone worker and given to call in contact prior to going into field. Refer to Attachment 3 for details.
- Work tasks will cease if communication is lost during work day. Work may resume when communication is re-established.

9.7.34 Working Around Material Handling Equipment

The operation of material handling equipment (earthmoving equipment, on/off-road haul trucks and power screener) will be an integral component to the completion of the remedial objectives for the project and it is important to observe the following measures when working in the same areas as heavy equipment and haul trucks.

- Never approach operating equipment/vehicles 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/vehicles.
- Never turn your back on any operating equipment/vehicles.
- Never climb onto operating equipment or operate subcontractor/client equipment/vehicles.
- Never ride equipment/vehicles unless authorized to do so and 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 lifts; do not ride excavator buckets, crane hook, or material handling equipment forks.
- Always stay alert and maintain a safe distance from operating equipment, especially equipment/vehicles on cross slopes and unstable terrain.
- Suspended loads will not pass over workers at any time.
- Site personnel are prohibited from passing under suspended loads.
- Wear reflective vests or high visibility clothing to promote visibility of ground personnel for equipment operators.
- Ground personnel shall avoid positioning themselves between fixed objects, operating equipment.
- Understand and review hand signals. Designate one person to provide hand signals to equipment operators performing lifting/hoisting operations.
- Ensure equipment has operable back-up alarms.
- Step away from heavy equipment when adjustments (positioning) are made.
- Ensure heavy equipment operator has spotter for obstructed views and backing up.

9.7.34.1 Rigging

CH2M HILL SOP # HSE&Q 316, Rigging

(Reserved)

It is not anticipated that the use of rigging will be required to execute this TO.

9.7.34.2 Powered Industrial Trucks

(Reference HSE-309, Forklifts)

(Reserved)

It is not anticipated that the use of Powered Industrial trucks will not be used on this TO.

9.7.35 Working on or Over Water

(Reserved)

No site personnel shall be working on or over water during the execution of this TO.

9.8 Hazard Communication Program

A hard copy of the AGVIQ, LLC, and CH2M HILL, Inc. Hazard Communication program information and MSDS material shall be provided at the project site.

In general, the site supervisor or SSHO will be the main contact in any onsite emergency coordination or communication situation and will ensure offsite emergency agencies have been contacted prior to the start of work. They will also verify that emergency contact numbers contained in this APP are accurate/operational. The site supervisor or SSHO will communicate with all potential emergency response organizations that would respond to an onsite emergency condition. In the event that during an emergency situation, the primary site supervisor or SSHO is not available or not capable of performing this function, an alternate site supervisor or SSHO or Site Supervisor can fulfill these duties. The site supervisor or SSHO or designee will serve as the Hazard Communication Coordinator, and will perform the following:

- Review the COCs and other applicable hazard communication information contained this APP.
- Request or confirm locations of MSDSs from the client, contractors, and subcontractors or material vendors for chemicals to which AGVIQ-CH2M HILL employees are potentially exposed. Maintain MSDSs in this APP (**Attachment 5**).
- Complete an inventory of chemicals brought onsite. See **Attachment 6** of this APP. Give employees required chemical-specific HAZCOM training information using the format included in **Attachment 6** of this APP.
- Confirm that an inventory of chemicals brought onsite is available.
- Prior to, or as chemicals arrive onsite, obtain an MSDS for each hazardous chemical.
- Label chemical containers with the identity of the chemical and with hazard warnings, and store properly.
- Store all materials properly, giving consideration to compatibility, quantity limits, secondary containment, fire prevention, and environmental conditions.

9.8.1 Shipping and Transportation of Chemical Products

Chemicals brought to the site (i.e. sample preservation materials) 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 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 AGVIQ-CH2M HILL Project Manager and program regulatory specialist for additional information.

9.9 Process Safety Management

(Reserved)

The requirements of EM 385 1-1, Section 06.B.04 are not applicable to the execution of this TO.

9.10 Lead Abatement Plan

(Reserved)

The requirements of EM 385 1-1, Section 06.B.05 are not applicable to the execution of this TO.

9.11 Asbestos Abatement Plan

(Reserved)

The requirements of EM 385 1-1, Section 06.B.05 are not applicable to the execution of this TO.

9.12 Radiation Safety Program

(Reserved)

There are no expected radiological hazards associated with the execution of this TO.

9.13 Abrasive Blasting

(Reserved)

There are no abrasive blasting operations associated with the execution of this TO.

9.14 Heat/Cold Stress Monitoring Program

9.14.1 Heat Stress Monitoring and Prevention

Portions of this TO will be executed during periods of low to moderate temperatures. It is not anticipated that personnel will have to wear Level C PPE during the execution of their assigned tasks and therefore significant worker cold or heat stress conditions are not expected. However, the following information is provided as procedural information to monitor and prevent heat related injuries to site workers, while executing routine site

operations when ambient air temperatures are elevated while wearing Level D PPE or if site conditions change and it is determined that site workers must wear impervious chemically protective personal protective equipment.

- It is recommended that personnel drink 16 ounces of water before beginning work. Disposable cups or containers and water maintained at 50°F to 60°F shall 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.
- Whenever possible, avoid direct sun, 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 SSHO to avoid progression of heat-related illness.
- **To counteract the onset of heat stress symptoms, a work-break regimen must be established during the executed work. Workers in Modified Level D or Level C PPE shall be allowed to rest and lower core body temperature to normal status when any one condition is exceeded:**
  - Visual signs and symptoms of heat stress are present in a worker.
  - It is determined that a worker's core body temperature exceeds 100.4 degrees F.
  - Active work duration in Modified Level D or Level C PPE in ambient temperatures in excess of 70 degrees F (without regard to humidity evaluation) occurs for more than 45minutes.
  - Personnel reactions, physical conditions or extreme atmospheric conditions warrant.

  Note: If site personnel are in impermeable work clothing, a Wet Bulb Globe Temperature (WBGT) Index or physiological monitoring shall be conducted and work/rest regimens established.

SYMPTOMS AND TREATMENT OF HEAT STRESS					
	Heat Syncope	**Heat Rash**	**Heat Cramps**	**Heat Exhaustion**	**Heat Stroke**
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 prickling 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 (104F or above).
Treatment	Remove to cooler area. Remove outer impermeable protective clothing. Rest victim lying down in supine position (on back, facing up) with head shoulders slightly elevated. Increase fluid intake. Recovery usually is prompt and complete. Where effected person is conscious, have them loosen their clothing to promote cooling surface between clothing/body.	Remove to cooler area. Remove outer impermeable protective clothing. Remove to cooler area. Remove outer impermeable protective clothing. Rest victim lying down in supine position (on back, facing up) with head shoulders slightly elevated.. Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection. Where effected person is conscious, have them loosen their clothing to promote cooling surface between clothing/body.	Remove to cooler area. Remove outer impermeable protective Rest victim lying down in supine position (on back, facing up) with head shoulders slightly elevated. Increase fluid intake. Where effected person is conscious, have them loosen their clothing to promote cooling surface between clothing/body.	Remove to cooler area. Rest victim lying down in supine position (on back, facing up) with head shoulders slightly elevated. Administer fluids by mouth. Seek medical attention immediately. Where effected person is conscious, have them loosen their clothing to promote cooling surface between clothing/body.	Remove to cooler area. Rest victim lying down in supine position (on back, facing up) with head shoulders slightly elevated. Where effected person is conscious, have them loosen their clothing to promote cooling surface between clothing/body. Call ambulance, and get medical attention immediately! Provide sips of cool water to if fully conscious and not nauseous or vomiting. Cool rapidly by soaking clothing in cool–but not cold–water. This procedure shall only be performed where directed by someone with medical training/ licensure (i.e. EMT, physician) and only as a life saving precaution. Evaluate employee's condition by an occupational physician prior to resuming normal assigned duties.

9.14.2 Monitoring Heat Stress

Heat Stress monitoring procedures must be implemented when the ambient air temperature exceeds 70˚F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress, or when workers are required to wear impermeable protective clothing (Saranex, Tyvek or Rain Gear) to perform their assigned duties.

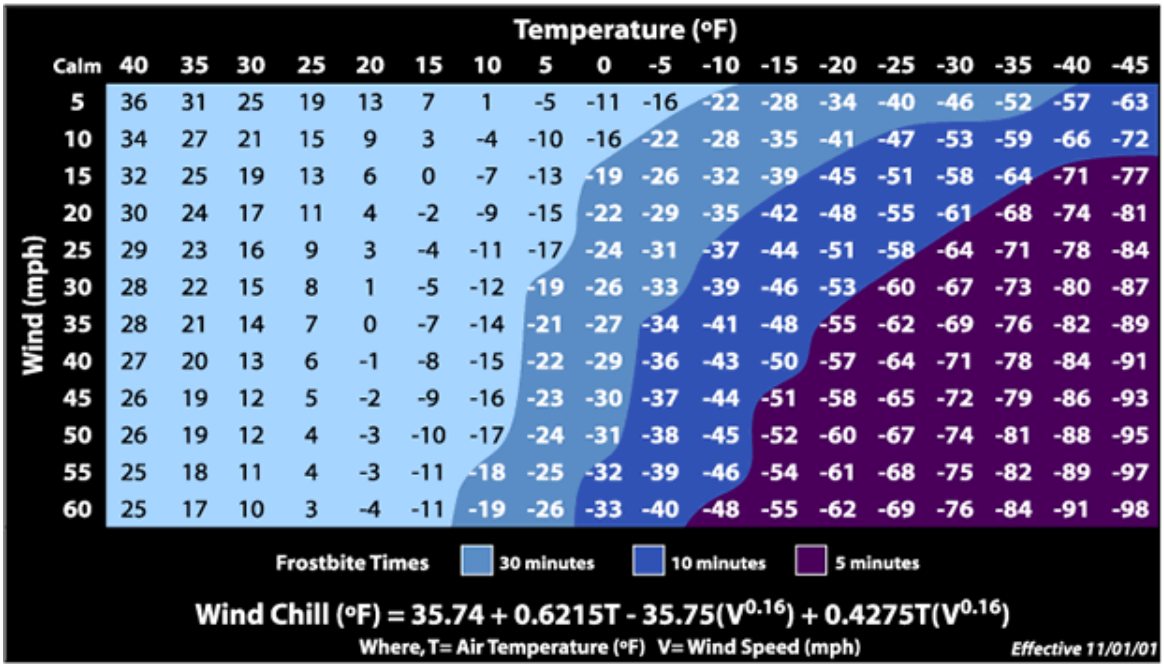
When AGVIQ-CH2M HILL employees are required to wear impermeable protective clothing (Saranex, Tyvek or Rain Gear) to perform their assigned duties, Level D modified or Level C PPE and are exposed to ambient air conditions in excess of 70˚F, physiological monitoring of employees is required. This monitoring will be facilitated by the use of automatic blood pressure monitors and by taking body temperature measurements monitored with aural or oral thermometers. All temperature measurement devices shall be affixed with disposable covers or protectors to ensure exposure to blood borne pathogens does not occur.

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.

9.14.3 Cold Stress Monitoring and Prevention

- Be aware of the symptoms of cold-related disorders, and wear proper, layered clothing for the anticipated fieldwork. Appropriate rain/foul weather gear is a must in cool/cold weather, especially where precipitation events are occurring.
- 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, or hypothermia should consult the SHSO 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 not hot water. Have victim drink warm fluids, but not 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 not coffee or alcohol. Get medical attention.

9.15 Crystalline Silica Monitoring Plan

(Reserved)

Exposures to crystalline silica are not anticipated during the execution of this project.

9.16 Night Operations Lighting Plan

The night operations for this TO is provided in Section 9.7.33.1 Night Operations Lighting Plan and will not be elaborated upon further in this section.

9.17 Fire Prevention Plan

Fire prevention shall be conducted in accordance with the information identified in Section 9.7.16 of the APP, Health and Safety Hazard Control Program, Fire – Explosion Prevention and will not be elaborated upon further in this section.

9.18 Wild Land Fire Management Plan

(Reserved)

The requirements of EM 385 1-1, 09.K are not applicable to this TO.

9.19 Hazardous Energy Control Plan

Hazardous Energy Control Plan information prevention shall be conducted in accordance with the information identified in Section 9.7.23 of the APP, Health and Safety Hazard Control Program – Lock-out/Tag-out and will not be elaborated upon further in this section.

9.20 Critical Lift Plan

(Reserved)

No cranes are currently anticipated during the execution of this TO. If cranes are needed to construct the soil stabilization structure, the APP will be amended to include a Critical Lift Plan,

9.21 Contingency for Severe Weather Plan

(Reserved)

Flooding is a potential hazard of this TO. In the event of severe weather, heavy equipment on site will need to be moved to higher, secure ground to avoid potential hazards and damage. Generally, only personnel and vehicles will need to be demobilized from the site in the event a severe weather event was expected. Drums of generated waste that may be generated as part of ongoing work will be secured by being strapped together. For the executable work associated with this TO, the adverse weather procedures identified in Section 9.7.1 Adverse Weather of this APP are applicable.

9.22 Float Plan

(Reserved)

The requirements of EM 385 1-1, 19.F.04 are not applicable to this TO.

9.23 Site Specific Fall Protection and Prevention Plan

(Reserved)

There are no anticipated significant fall protection hazards under the requirements of EM 385 1-1 Section 21.A that must be addressed by this APP.

9.24 Demolition Plan

As part of this TO, fence removal will be necessary. Hazards associated with fence removal are listed below and should be followed at all times:

- Review AHA for fence removal prior to performing task
- Wear proper PPE
- Take caution when using hand power tools if required to remove fence
- Use good manual lifting techniques
- Be aware of controlling the webbing associated with the fence as it could become a flying object
- Always wear gloves when removing fencing as it is usually contaminated with rust.
- If heavy equipment needed following the safety precautions in Section 9.7.21

9.25 Excavation/Trenching Plan

The means and methods for complete excavation activities associated with this TO are detailed the RAWP and will not be discussed further in this section. Excavation hazard control measures and requirements are addressed in 9.7.14of the APP, Health and Safety Hazard Control Program – Excavation Activities and will not be further elaborated upon in this section.

9.26 Emergency Rescue (Tunneling)

(Reserved)

No tunneling will be performed during the execution of this TO.

9.27 Underground Construction Fire Prevention and Protection Plan

(Reserved)

No underground construction will be performed during the execution of this TO.

9.28 Compressed Air Plan

(Reserved)

The requirements of 26.I.01 are not applicable to this TO.

9.29 Formwork Shoring and Removal Plan

(Reserved)

The requirements of EM 385 1-1, Residential Construction are not applicable to this TO. The requirements of EM 385 1-1, Section 27 Concrete, Masonry, and Steel Erection may be applicable to this TO if the soil stabilization structure necessary to enable excavation at FDP 3 involves work of this nature. If so, the APP will be updated accordingly after completion of the soil stabilization structure design.

9.30 Precast Concrete Plan

(Reserved)

The requirements of EM 385 1-1, Residential Construction are not applicable to this TO. The requirements of EM 385 1-1, Section 27 Concrete, Masonry, and Steel Erection may be applicable to this TO if the soil stabilization structure necessary to enable excavation at FDP 3 involves work of this nature. If so, the APP will be updated accordingly after completion of the soil stabilization structure design.

9.31 Lift Slab Plans

(Reserved)

The requirements of EM 385 1-1, Section 27 Concrete, Masonry, Steel Erection, and Residential Construction are not applicable to this TO.

9.32 Steel Erection Plans

(Reserved)The requirements of EM 385 1-1, Residential Construction are not applicable to this TO. The requirements of EM 385 1-1, Section 27 Concrete, Masonry, and Steel Erection may be applicable to this TO if the soil stabilization structure necessary to enable excavation at FDP 3 involves work of this nature. If so, the APP will be updated accordingly after completion of the soil stabilization structure design. Site Safety and Health Plan of HRTW

9.32.1 Occupational Safety and Health Hazards with Site Clean-up

Several occupational physical and chemical hazards are associated with the execution of this TO as follows:

- Physical hazards associated with working with hand or power tools, manual lifting, drilling operations, pressure washing operations, working around heavy equipment, and slips trips and falls etc.
- Dermal exposure to, or incidental ingestion of, solids or ground water impacted by site COCs;
- Inhalation of air borne particulate impacted by site COCs

Control measures to mitigate such hazards are presented throughout this APP in sections 6.0 through 10.0 of this APP and will not be further elaborated upon in this section.

9.32.2 Site Description and Contamination Characterization

A site description for Site 1 at ABL is provided in Section 2.0 "Background Information" of this APP and will not be further elaborated upon in this section. Summarized contamination characterization data for site 1 ABL is provided by the list of maximum site COC concentrations identified below.

Contaminants of Concern [1]
(Refer to Project Files for more detailed contaminant information)

Contaminant	Maximum[a] Concentration (ug/L)	Exposure Limit[b]	IDLH[c]	Symptoms and Effects of Exposure	PIP[d] (eV)
Aluminum	GW: 22,600 µg/L 1MW01-0205	15 mg/m3 (total) 5 mg/m3 (resp) (PEL)	ND	Irritation eyes, skin, respiratory system	NA
Barium	GW: 435 µg/L 1MW01-0205	15 mg/m3 (PEL total), 5 mg/m3 (PEL resp)	ND	Irritation eyes, nose, upper respiratory system; benign pneumoconiosis (baritosis)	NA
1,1 DCE	GW: 220 µg/L 1MW01-0205	5 ppm [f] (TLV)	500 ppm Ca	Eye, skin, and throat irritation; dizziness; headache; nausea; difficult breathing; liver and kidney dysfunction; pneumonitis	9.65
1,2 Dichloroethane (total)	GW: 380 µg/L 1MW01-0205	1 ppm (PEL)	50 Ca	CNS depression, nausea, vomiting, dermatitis, eye irritation, liver, kidney, and CNS damage; corneal opacity	11.05
Magnesium (as magnesite)	GW: 19,300 µg/L 1MW01-0205	15 mg/m3 (PEL total), 5 mg/m3 (PEL resp)	ND	Irritation eyes, skin, respiratory system; cough	NA
Manganese (manganese compounds)	GW: 3,500 µg/L 1MW01-0205	C 5 mg/m3 (PEL)	500 mg/m3	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (weakness, exhaustion); kidney damage	NA
Methylene Chloride	GW: 13,000 µg/L 1MW01-0205	25 ppm (PEL) 125 ppm (ST)	Ca [2300 ppm]	Irritation eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numb, tingle limbs; nausea; [potential occupational carcinogen]	11.32
Toluene	GW: 840J µg/L 1MW01-0205	20 ppm [f] (TLV)	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
1,1,1-Trichloroethane (TCA)	GW: 3,900 µg/L 1MW01-0205	PEL: 350 ppm	700 ppm	irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	11.0
Trichloroethene	GW: 180,000J 1MW01-0205	10 (TLV)	1,000 Ca	Headache, vertigo, visual disturbance, eye and skin irritation, fatigue, giddiness, tremors, sleepiness, nausea, vomiting, dermatitis, cardiac arrhythmia, paresthesia, liver injury	9.45

Contaminants of Concern [1]
(Refer to Project Files for more detailed contaminant information)

Footnotes:

[a] 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), SD (Sediment), SG (Soil Gas)

[b] Appropriate value of PEL, REL, or TLV listed.

[c] 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.

[d] PIP = photoionization potential; NA = Not applicable; UK = Unknown.

[e] Denotes a ceiling value (C) (15 minutes) unless otherwise identified.

[f] Denotes a value established by the ACGIH.

[g] Denotes a value established by the ACGIH and a ceiling value (15 minutes).

PEL = Denotes OSHA Permissible Exposure Limit unless otherwise identified.

J = Sample result is estimated.

Ca = Potential Occupational Carcinogen

ST = Short Term Exposure Limit or "excursion limit usually a 15 minute duration unless otherwise noted.

ND = Not Determined

Table C-1
Summary of Soil Sample Results

Alleghany Ballistics Laboratory
Rocket Center, West Virginia

Soil Sample Depth	PID Headspace Reading	VOC Concentration [1]		
		TCE	1,1,1-TCA	Toluene
(ft bgs)	(ppm)	(mg/Kg)		
18.5	120	**31**	*< 0.6*	*< 0.6*
19.5	505	**4.7**	*< 0.1*	**0.1**
20.5	1,456	**80**	*< 1.0*	*< 1.0*
22	3,704	**94**	**1.1**	*< 1.0*
23	221	**15**	*< 0.1*	*< 0.1*
28.5	91	**12**	*< 0.1*	*< 0.1*

Notes:
[1] Only VOCs that were detected in soil samples are included in this table.

PID = photoionization detector
VOC = volatile organic compound
TCE = trichloroethylene
1,1,1-TCA = 1,1,1-trichloroethylene
ft bgs = feet below ground surface
ppm = parts per million
mg/kg = milligrams per kilogram
< = less than. Sample concentration is below sample quantitation limit.

9.32.2.1 Chemical, Biological Radiological, or Nuclear Hazards and Controls

Hazards	Controls
Not Applicable	Not Applicable

9.32.2.2 Potential Routes of COC Exposure

Dermal: Contact with contaminated media (soil, sediment, water, used PPE, drill rig or sampling equipment.). This route of exposure is minimized through proper use of PPE, as specified in Section 9.33.6

Inhalation: Air Bourne particulates impacted by heavy metals or other particulates (Portland cement dust). This route of exposure is minimized through proper respiratory protection and air monitoring, as specified in Sections 9.33.6 and 9.33.8, respectively.

Other:

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

Inadvertent injection of contaminated media: This route should not present a concern unless a puncture of contaminated PPE were to occur, which resulted in breaking the employees skin and the resulting wound was impacted by contaminated media.

9.32.3 Hazard/Risk Analysis

Hazard/Risk Analysis for this project is provided in Section 10.6 "Project Specific Activity Hazard Analyses" and will not be elaborated upon further in this section.

9.32.4 Staff Organization, Qualifications, and Responsibilities

Staff organization, qualifications and responsibilities is identified in Section 4.0 "Responsibilities and Lines of Authority" and Section 6.0 "Training" of this APP and will not be elaborated upon further in this section.

9.32.5 General and Project-Specific Training

General and project specific training is identified in Section 6.0 "Training" of this APP and will not be elaborated upon further in this section.

9.32.6 Medical Surveillance

Site worker medical surveillance requirements is identified in Section 6.0 "Training" of this APP and will not be further elaborated upon in this section.

9.32.7 Personal Protective Equipment and Exposure Monitoring/Air Sampling

The requirements for the use of PPE and worker exposure monitoring and air sampling in connection with the execution of identified project DFOWs are provided in Tables 9-1 and Table 9-2, respectively, below.

TABLE 9-1 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS[A]

Task	Level	Body	Head	Respirator [b]

• Mobilization and demobilization
  • Initial site survey to establish the limits of excavation and site layout drawing(s).
  • Non-intrusive site preparation activities (constructing decontamination pad and material staging areas, haul road construction, etc).
• Implementation of MEC awareness program for all intrusive activities.
• Backfill, seeding and site restoration.
• Final topographic survey
	D	• Designated and appropriate work clothes
		• Steel toe work boots that provide sufficient ankle support
		• Work gloves (cut resistant), reflective safety vest, chainsaw chaps, and snake guards
		• Reflective traffic vest
			• Hardhat [c]
			• Safety glasses
			• Hearing protection (as applicable) [d]
				• None required

Any function identified in this APP where potential dermal contact with site COCs is <u>limited to the hands only.</u>
• Mobilization and demobilization
  • Intrusive site preparation work (erosion sediment control measures, etc.)
  • Onsite decontamination
• Pre-excavation soil boring advancement and sample collection for geotechnical and chemical analyses.
• Abandonment of up to 12 alluvial and 5 bedrock wells that may be impacted by the excavation work.
• Installation of an engineered soil stabilization structure at the FDP3
• Excavation of the FDPs to a depth of up to 14 feet bgs or until the water table is encountered, whichever occurs first.
• Soil sampling of FDP sidewalls
• Installation of gravel bedding and geotexile marker fabric in each completed excavation
• Post excavation, pre-backfill survey of the limits of excavation.
• Waste management and offsite disposal of contaminated soil at FDP 1 and 3.
	Modified D1	• Designated and appropriate work clothes;
		• Steel toe work boots that provide sufficient ankle support (preferable leather)
		• Work gloves (cut resistant)
		• Reflective safety vest;
		• Inner surgical-style nitrile and outer work gloves.
			• Hardhat [c]
			• Safety glasses
			• Ear protection (as applicable) [d]
			• Face shields (as applicable)
				None required.

Any function identified in this APP where potential dermal contact with site COCs is **NOT** limited to the hands only. • Mobilization and demobilization • Onsite decontamination • Pre-excavation soil boring advancement and sample collection for geotechnical and chemical analyses. • Abandonment of up to 12 alluvial and 5 bedrock wells that may be impacted by the excavation work. • Installation of an engineered soil stabilization structure at the FDP3 • Excavation of the FDPs to a depth of up to 14 feet bgs or until the water table is encountered, whichever occurs first. • Soil sampling of FDP sidewalls • Installation of gravel bedding and geotexile marker fabric in each completed excavation • Post excavation, pre-backfill survey of the limits of excavation. • Waste management and offsite disposal of contaminated soil at FDP 1 and 3.	Modified D2	• Coveralls: Poly coated or uncoated Tyvek® chemical resistant disposable coveralls. Poly coated will be used for exposure to liquid chemicals or other dangerous splash hazards. • Boots: Hard toe work boots that provide sufficient ankle support (preferable leather); with outer rubber boot covers or hard toe chemically resistant rubber boots with steel shank • Gloves: Inner and Outer surgical-style nitrile chemical-resistant nitrile gloves.	▪ Hardhat [c] ▪ Safety glasses (non chemical injections) ▪ Ear protection (as applicable) [d] ▪ Face shields and goggles (as applicable)	None required.
Any function identified in this APP where inhalation of site COCs above action levels is a potential. • Site conditions where defined Action Levels are exceeded and confirmed by AGVIQ-CH2M HILL program CIH that Level C PPE is required to ensure a negative exposure to site workers.	C	• Coveralls: Tyvek® • Boots: Steel-toe, chemical-resistant boots OR steel-toe, leather work boots with outer rubber boot covers • Gloves: Inner surgical-style nitrile and outer chemical resistant nitrile gloves.	▪ Hardhat [c] ▪ Ear protection (as applicable) [d] ▪ Spectacle inserts (as applicable)	MSA Advantage Air Purifying, full face respirator with, GME/ P100 cartridges or equivalent.[e] Cartridge change-out at the end of every shift.

Reasons for Upgrading or Downgrading Level of Protection

Upgrade[f]	**Downgrade**
• Request from individual performing tasks. • Change in work tasks that will increase contact or potential conta hazardous materials. • Occurrence or likely occurrence of gas or vapor emission. • Known or suspected presence of dermal hazards. • Instrument action levels exceeded (when implemented).	• New information indicating that situation is less hazardous than originally thought. • Change in site conditions that decrease the hazard. • Change in work task that will reduce contact with hazardous materials.

[a] Modifications are as indicated. AGVIQ-CH2M HILL will provide PPE only to AGVIQ-CH2M HILL employees.
[b] No facial hair that would interfere with respirator fit is permitted.
[c] Hardhat and splash-shield areas are to be determined by the SSHO.
[d] Ear protection should be worn when conversations cannot be held at distances of 3 feet or less without shouting.
[e] 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 --then at least every 4 hours.
If encountered conditions are different than those anticipated in this APP, contact the HSPA/CIH. **Where** AGVIQ-CH2M HILL **personnel are required to use a respirator to provide respiratory protection,** AGVIQ-CH2M HILL **personnel shall receive respiratory protection awareness training. Contact the Program CIH to receive this training, prior to using any respiratory protective device.**
[f] Performing a task that requires an upgrade to a higher level of protection (e.g., Level D to Level D modified/Level C) is permitted only when the PPE requirements have been approved by the HSPA/CIH, and an SSHO qualified at that level is present.

TABLE 9-2
Air Monitoring Requirements

Instrument	Tasks	Action Levels[a]	Level of Protection or Action	Frequency [b]	Calibration
PID: MultiRAE or equivalent (11.7 eV lamp) **Or** **FID** **If Methylene Chloride can be eliminated as a potential, a 10.6 eV lamp PID may be used.**	• Mobilization and demobilization • Intrusive site preparation work (erosion sediment control measures, etc.) • Onsite decontamination • Pre-excavation soil boring advancement and sample collection for geotechnical and chemical analyses. • Abandonment of up to 12 alluvial and 5 bedrock wells that may be impacted by the excavation work. • Installation of an engineered soil stabilization structure at the FDP3 • Excavation of the FDPs to a depth of up to 14 feet bgs or until the water table is encountered, whichever occurs first. • Soil sampling of FDP sidewalls • Installation of gravel bedding and geotexile marker fabric in each completed excavation • Post excavation, pre-backfill survey of the limits of excavation. • Waste management and offsite disposal of contaminated soil at FDP 1 and 3.	< 5 ppm (above background) (in worker BZ) >5 ppm (above background) (sustained 5 mins. in worker BZ) > 25 ppm (above background) (sustained 5 mins. in worker BZ) > 25 ppm with Methylene Chloride present (above background, sustained 5 mins. in worker BZ) 25-50 ppm with no Methylene Chloride present (above background) (in worker BZ) >50 ppm (above background, sustained 5 mins. in worker BZ)	Level D, Modified D and continue work. Allow area to ventilate and re-monitor. If levels are persistent, upgrade to Level C PPE as detailed in Table 9-1. Begin compound specific air monitoring for Methylene Chloride (as described below). Stop work. Evacuate area for 10 minutes and recheck BZ and work area. If levels persist, consult Program RHSM for additional engineering and/or administrative controls and Level B PPE upgrade requirements. If Methylene Chloride is not present continue in appropriate PPE and continue work up to 50 ppm. Stop work. Evacuate area for 10 minutes and recheck BZ and work area. If levels persist, consult Program RHSM for additional engineering and/or administrative controls and PPE upgrade requirements.	• Initially and periodically during the execution of activities where PID/FID monitoring is required. • Continuously during excavation entry. • Continuously upon re-start of any ceased work to verify PID/FID readings are below Action Levels in worker BZ.	Daily
Dräger Chip Measurement System (CMS) or equivalent Methylene Chloride = Chip # 6406510	• During any task above where the above listed action level is met.	See action levels above if Benzene or Vinyl Chloride are indicated	Follow actions above for PID/FID monitoring	• Where the PID/FID action level is exceeded.	Not applicable

Four Gas Meter with LEL, $O_{2,}$, CO and H_2S sensors	• Excavation Entry	0_2 19.5 – 23.5% LEL < 1% H_2S < 1ppm CO < 1 ppm	Continue work, Follow PPE requirements as identified by Table 9-1.	• Continuously during excavation entry.	Daily
		0_2 <19.5 or >23.5% LEL > 1% H_2S >1ppm	Stop work. Evacuate area for 10 minutes and recheck BZ and work area. If levels persist, consult program CIH for proper engineering controls or PPE requirements.		

[a] Action levels apply to sustained breathing-zone measurements above background.
[b] The exact frequency of monitoring depends on field conditions and is to be determined by the SSHO; 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.).

Note: Worker breathing zone ambient air monitoring results must be logged on an Air Monitoring Log (See Attachment 3).

9.32.7.1 Air Monitoring Equipment Calibration Requirements

Air Monitoring equipment calibration specifications for air monitoring equipment identified in Table 9-2 are listed in Table 9-3.

TABLE 9--3
Air Monitoring Equipment Calibration Requirement

Instrument	Gas	Span	Reading	Method
PID: OVM, 11.7 or 11.8 eV lamp	100 ppm isobutylene	RF = 1.0	100 ppm	1.5 lpm reg T-tubing/ tedlar bag

*Note: Air monitoring equipment calibration measures must be logged on the Project Air Monitoring Logs (**See Attachment 3**) and included in the final project record.*

9.32.8 Heat and Cold Stress

The procedures for heat and cold stress monitoring are presented in Section 9.14 "Heat and Cold Stress Monitoring Program" and will not be further elaborated upon in this section.

9.32.9 Standard Operating Safety Procedures, Engineering Controls, and Work Practices

9.32.9.1 Site Rules and Prohibitions

Site rules and prohibitions and requirements are defined by the sections identified below and will not be further elaborated upon in this section.

Section 8.0:	Accident Reporting and Investigation
Section 9.2:	Emergency Response Plans
Section 9.7:	Health Hazard Control Program
Section 9.33.11.6:	Site Control Measures
Section 10.5:	Drug Free Work Place Program

9.32.9.2 Work Permit Requirements

Any work permit requirements necessary to execute the assigned work is identified in Section 7.1 "External Inspections/Certifications" of this APP and will not be further elaborated upon in this section.

9.32.9.1 Material Handling Procedures

Hazard Control Measures for all site work are included in Section 9.7 "Health and Safety Hazard Control Program" and will not be further elaborated upon in this section.

9.32.9.2 Drum, Container, Tank Handling

(Reserved)

There may be limited handling of drums to temporarily containerize IDW from the drilling operations until the water can be relocated to the GWTP for treatment. However, given the past site investigation efforts to identify both ground water and soil contaminants, no significant unknown drum characterization, container or tank handling requirements will be required during the execution of this TO.

9.32.9.3 Comprehensive AHA of Treatment Technologies

(Reserved)

No treatment technologies will be executed during this TO.

9.32.9.4 Site Control Measures - Hazwoper

Although certain tasks associated with the execution of this TO are designated as "Hazwoper Regulated", the site logistics of this work do not easily lend applicability to the need to establish an the exclusion zone (EZ), a contamination reduction zone (CRZ), and support zone (SZ). The basis for the requirement to have only personnel trained in accordance with 29 CFR 1910.120/29 CFR 1926.65, so site personnel possess skills, experience and knowledge to execute tasks without the increased risk of cross contamination of non-impacted areas of the site and for the workers themselves to have the self awareness and training not to become exposed to site COCs.

However, in the event that site conditions change, and the site must be delineated to allow for the implementation of a three (3) zone decontamination process for site personnel and equipment, then it shall be done so in accordance with the guidelines set below and utilizing the steps illustrated in Section 9.33.12 "Personal Hygiene and Decontamination" of this APP. In this situation, each area surrounding each of the work areas be divided into three (3) distinct zones; the exclusion zone (EZ), the contamination reduction zone (CRZ), and the support zone (SZ).

9.32.9.4.1 Exclusion Zone

An EZ will be constructed to surround each work area where the greatest potential for worker exposure to identified site COCs may exist. The EZ may need to be transient as the work progresses, depending upon the type of work that is being executed. Because of potential site space limitations, the exclusion zone fencing may also include any available "permanent" perimeter fencing or other established physical barriers. The term "permanent" is often used to describe the outer limits (or perimeter) of a work site or designated site area. Other temporary barriers (i.e. caution tape, high visibility construction fencing), maybe used to supplement existing permanent barriers to demarcate the EZ to identify the restricted access. To prevent both exposure of unprotected personnel and migration of contamination, work areas and personal protective equipment requirements will be clearly identified/delineated. Access to the EZ will be restricted to personnel wearing the prescribed level of protective equipment and meeting the training and medical criteria of this plan.

Only individuals who meet the requirements of 29 CFR 1910.120/29CFR1926.65 and who are authorized by the AGVIQ-CH2M HILLsite supervisor or SSHO shall be allowed entry

into the EZ and CRZ. Suitable means and methods (high visibility fencing, caution tape signage, other physical barriers) shall be employed to demarcate the EZ and CRZ boundaries at this site to prevent unauthorized entry into these controlled work zones. A CRZ for decontamination shall be established adjacent to the EZ. The SZ shall be kept free from contamination.

9.32.9.4.2 Contamination Reduction Zone

Each CRZ zone will be a clearly marked corridor between the EZ and the SZ. The CRZ for each area will be located immediately adjacent to the EZ. This area will be identified with yellow tape, high visibility construction fencing or other suitable barriers.

The CRZ is where personnel will begin the sequential decontamination process when exiting the EZ. To prevent cross contamination and for accountability purposes, all personnel must enter and leave the EZ through the CRZ.

Contaminated personnel and equipment will exit the EZ directly to the CRZ. Each CRZ will contain a constructed decontamination stations for personnel and equipment. If possible, the CRZ will be located upwind of each EZ, however due to site constraints this may not be possible. Temporary support zones for each work area will be located adjacent to the CRZs.

9.32.9.4.3 Support Zone

Temporary support zones and staging areas will be established at the entrance of each control area. Potable water, an eye wash, and first aid supplies will be located at each temporary support zone. No hazardous or potentially hazardous materials will be allowed in the support zone unless it is in a properly labeled container that has no external contamination. Eating, drinking and smoking will only be allowed in this area, at designated locations.

Portable bathroom facilities will be located near the work areas. In addition, potable water and water and soap for hand washing will be available at the support zone, along with containers for solid waste for use by site personnel, in addition to first aid stations and administrative information.

9.32.9.5 HAZWOPER Compliance Plan

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 2.4 or otherwise determined) might occur consecutively or concurrently with respect to non-HAZWOPER tasks. This section outlines procedures to be followed when approved activities specified in Section 2.4 of this APP 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 Program CIH must approve the interpretation of these data.

- When non-HAZWOPER-trained personnel are at risk of exposure, the site Supervisor or SSHO 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 contaminated media.

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.

9.32.10 Personal Hygiene and Decontamination

Regardless of whether a CRZ or other decontamination zones must be established to ensure proper decontamination or personnel or equipment, established procedures must be adhered to ensure that direct and indirect worker contact with COCs or hazardous materials does not occur. This is generally achieved by workers adhering to good personal hygiene practices. These practices include but are not limited to the following: 1) Eating, drinking, smoking and tobacco use shall only be conducted in designated areas and not in areas where there is any exposure to hazardous material/waste, flammable/combustible liquids and gases may exist and 2) wash hands and face, if applicable, before eating, drinking, smoking or using tobacco 3) shower as soon as feasible after completing field activities. The site supervisor or SSHO shall establish areas for eating, drinking, and smoking at the site so that incident exposure to site COCs does not possibly occur.

9.32.10.1 Decontamination Specifications

When the establishment of an EZ and CRZ decontamination corridors are required, the site supervisor or SSHO must establish and monitor the decontamination procedures and their effectiveness. Decontamination procedures found to be ineffective will be modified by site supervisor or SSHO. The site supervisor or SSHO must ensure that procedures are established for disposing of materials generated on the site. Where the establishment of EZ(s) or CRZ(s) are required on the site, the use of contact lenses are not permitted in exclusion or decontamination zones. For this project, the use of Modified Level D and Level C PPE may or may not be required, depending on the actual site conditions that are encountered and whether direct contact with excavated material is needed to execute site operations. If it is determined that the establishment of decontamination coordinators (i.e. EZ/CRZ) are needed, and respirator cleaning stations will be warranted, than it is essential for workers to maintain good positive personal hygiene practices and proper containerization, labeling, storage, disposal and overall management of spent disposable PPE. Where the establishment of an EZ and CRZ decontamination corridors are required the detail below identifies a typical worker/equipment decontamination sequence. Figure 9-3, below, graphically represents personnel and equipment decontamination processes.

Personnel	Sample Equipment	Heavy Equipment
• Boot wash/rinse • Glove wash/rinse • Outer-glove removal • Body-suit removal • Inner-glove removal • Respirator removal • Hand wash/rinse • Face wash/rinse • Shower ASAP • Collect, properly containerize, label and dispose of all spent of PPE • Collect, properly containerize, label and dispose of all spent decontamination fluid contain for offsite disposal **(Do not dispose of spent PPE or similar waste in government disposal receptacles.)**	• Wash/rinse equipment • Solvent-rinse equipment • Contain solvent waste for offsite disposal • Collect, properly containerize, label and dispose of all spent of decontamination fluid and residual solids for offsite disposal	• Power wash • Steam clean • Collect, properly containerize, label and dispose of all spent of decontamination fluid or residual solids

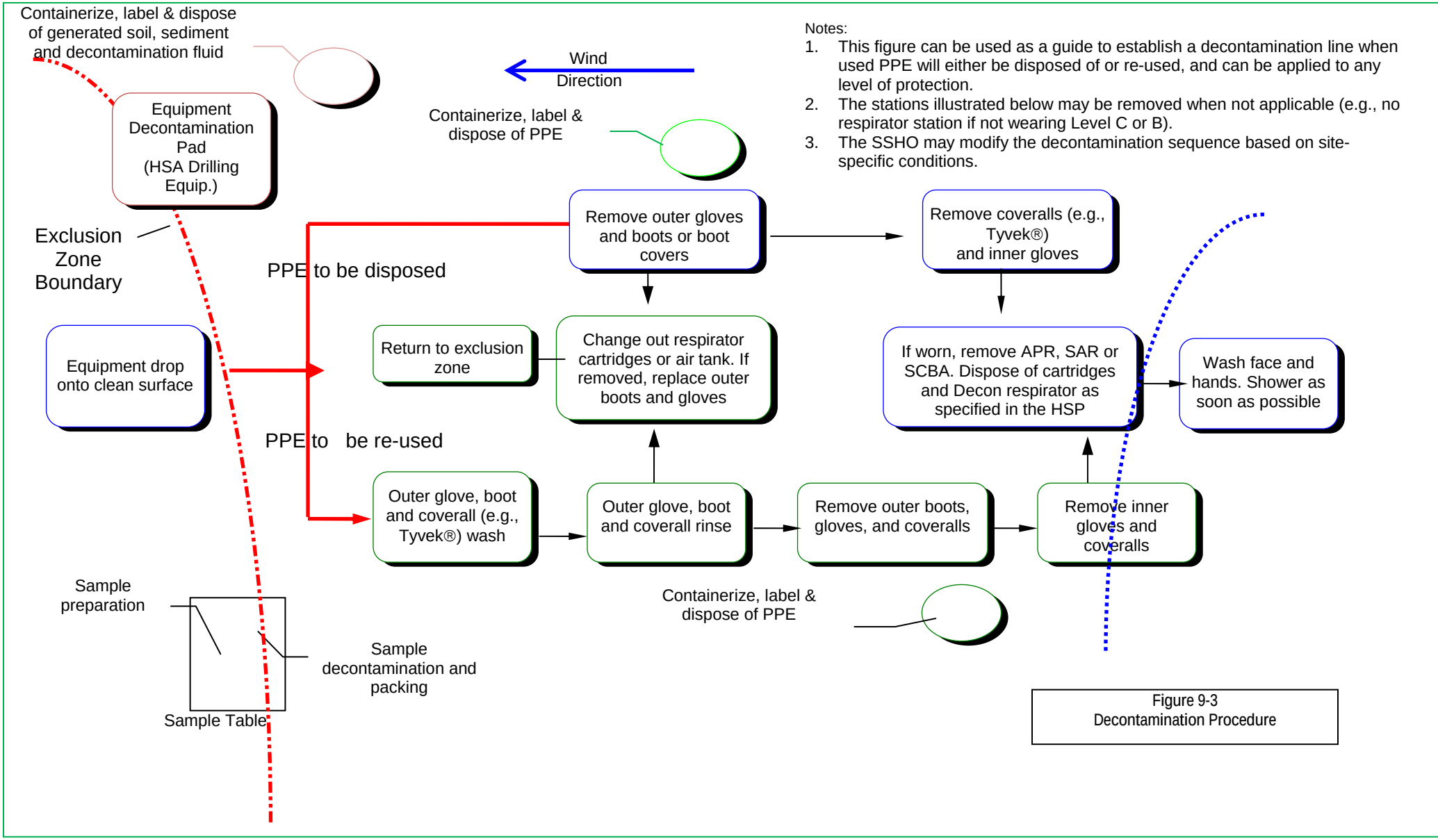


Figure 9-3
Decontamination Procedure

9.32.11 Equipment Decontamination

The sequence and location of equipment decontamination is defined by Section 9.33.10.1 and Figure 9-5, Decontamination Line.

9.32.12 Emergency Equipment and First Aid

The requirements for emergency preparedness, equipment and supplies is provided in Section 9.2 "Emergency Response Plans" and will not be elaborated upon further in this section.

9.32.13 Emergency Response and Contingency Procedures

The requirements for emergency response and contingency procedures are provided in Section 9.2 "Emergency Response Plans" and will not be elaborated upon further in this section.

9.32.14 Pre-Emergency Planning

The requirements for pre-emergency planning are provided in Section 9.2 "Emergency Response Plans" and will not be elaborated upon further in this section.

9.32.15 Personnel and Lines of Authority - Emergency Situations

Personnel and lines of authority for both chain of command and emergency situations are included in Section 4.0 "Responsibilities and Lines of Authority" and will not be elaborated upon further in this section.

9.32.16 Criteria and Procedures for Emergency Recognition and Site Evacuation

Procedures of emergency recognition and site evacuation is outline in Section 9.2 "Emergency Response Plans" of this APP and will not be elaborated upon further in this section.

9.32.17 Decontamination and Medical Treatment of Injured Personnel

In the event a worker in an Exclusion Zone (EZ) needs medical assistance primary consideration must be given to remove all site contaminants before transfer of the employee to an uncontaminated area or atmosphere or before being handled by untrained/protected medical response personnel. Decontamination of personnel exposed to site COCs should be decontaminated as quickly as possible via the following procedures:

1. After removal from the contaminated area, the exposed individual(s) will be decontaminated by washing the contaminated areas with appropriate decontamination solutions and flushing with potable water. In particular, direct skin (dermal) contact must be addressed via decontamination with soapy water. Decontamination operations must be performed as quickly as possible, as time is of the essence in emergency medical situations. Field team personnel shall utilize disposable PPE wherever possible to promote rapid decontamination of personnel in the EZ.
2. If a respirator is used in the EZ, the respirator mask is left on the exposed individual until decontamination has been completed unless it has been determined that areas of the face were contaminated and the mask must be removed to decontaminate.

3. After decontamination, the contaminated clothing is removed and skin contamination washed away. If possible, decontamination is completed before the exposure individual is taken to a medical facility.
4. ONLY potable water will be used when flushing the eyes or mouth.
5. All receptacles used for containing protective clothing shall be equipped with lids that can be closed to prevent the release of contaminants and the introduction of rainfall.
6. Initiate first aid and CPR, upon completion of decontamination operations.
7. Make certain that the injured person is accompanied to the emergency room.
8. 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.
9. Report incident as outlined in Section 8.0 "Accident Reporting and Investigation" of this APP.
10. A map showing the route to the local hospital is shown on Figure 9-2 of this APP.
11. Note: For CH2M HILL personnel who experience a minor non-life threatening emergency that requires medical attention, please refer to for the "Emergency Nurse Instructions" and "Initial Medical Treatment Form" in **Attachment 9** of this APP.

9.32.18 Route Map to Emergency Medical Facilities

The route map to area emergency medical facilities is provided by Figure 9-2 of Section 9.2.9 "Medical Support" of this APP and will not be elaborated upon further in this section.

9.32.19 Responsibilities

The responsibilities for HAZWOPER regulated activities will be the same as for non-HAWOPER regulated activities. Both project level and AGVIQ-CH2M HILL program level responsibilities for all operations are included in Section 4.0 "Responsibilities and Lines of Authority" and will not be further elaborated upon in this section.

9.32.20 Training

All training requirements for this project are discussed in Section 6.0 "Training" of this APP and will not be elaborated upon further in this section.

9.32.21 Medical Surveillance

All worker surveillance requirements for this project are discussed in Section 6.0 "Training" of this APP and will not be elaborated upon further in this section.

9.32.22 Facility/Construction Project Emergency Response

Facility/construction project emergency response emergency procedures is outlined in Section 9.2 "Emergency Response Plans" of this APP and will not be elaborated upon further in this section.

9.33 Blasting Safety Plan

(Reserved)

No blasting operations will be conducted during the execution of this TO.

9.34 Diving Plan

(Reserved)

No diving operations will be conducted during the execution of this TO.

9.35 Confined Space Program

(Reference SOP # HSE&Q 203, Confined Space)

During the execution of the project, a frac tank(s) will be used to containerize contact water.. When necessary, the frac tank will be emptied via vac truck and the water will be transported to the GWTP for processing. The solids will need to be removed and the tank will require cleaning before demobilization. To avoid entering the frac tank to clean the solids, we will use an open top or hatched frac and use a pressure washer or steam cleaner with a long extension wand to clean the tank. No personnel will be allowed to enter the frac tank for cleaning so a confined space program will not be required.

10.0 Risk Management Process

AGVIQ-CH2M HILL utilizes a Behavior Based Loss Prevention System (BBLPS) to support the implementation of our Risk Management Process (RMP) by identifying, analyzing and controlling certain risks (or liabilities) that may be encountered during the execution of a its assigned projects. The 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 to implement the BBLPS on this project include:

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

The Project Manager and site superintendent are responsible for implementing the BBLPS on the project site. These personnel typically delegate authority to the SSHO for the project specific implementation of the BBLPS, but the Project Manager and Site Superintendent/Supervisor or Field Team Leader remains accountable for its implementation.

In an effort to provide a safe and healthy workplace for all program participants, AGVIQ-CH2M HILL promotes and implements a Drug Free Workplace Program (DFWP), see Section 10.5 of this APP. AGVIQ-CH2M HILL personnel must participate in and adhere to the requirements of the DFWP.

10.1 Activity Hazard Analysis

One of the key elements in executing the BBLPS, and subsequently reducing project risk, is the use of an Activity Hazard Analysis (AHA) for each major phase of work. An 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 before, during, and after the performance of work to further identify the hazards posed and control measures required.

AHA will be implemented before beginning each project activity posing H&S hazards to project personnel using the AHA forms provided in **Section 10.6**, below. The AHA will 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 will be prepared for all field activities performed by AGVIQ-CH2M HILL and subcontractors during the course of the project and should be prepared or reviewed by a

designated AGVIQ-CH2M HILL Health and Safety representative or other designated qualified safety professional.

AGVIQ-CH2M HILL subcontractors will be required to provide AHAs specific to their scope of work on the project for acceptance by the SSHO, AGVIQ-CH2M HILL Program CIH or HSPA or other designated qualified safety professional associated with AGVIQ-CH2M HILL. Each subcontractor will submit AHAs for their field activities, as defined in their work plan/scope of work, along with their project-specific APP. Additions or changes in AGVIQ-CH2M HILL 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.

Table 1, of Section 10.6, below summarizes identified hazards associated with the phases of work anticipated with the project execution. Table 1 provides the basis for the development of Activity Hazard Analysis documents, which must be implemented as part of the AGVIQ-CH2M HILL RMP and Behavior Based Loss Prevention System (BBLPS).

Section 10.6 of this APP contains applicable Activity Hazard Analysis (AHA) documents, which in addition to the content of this APP, are intended to reinforce project or program requirements and present project control measures for anticipated or encountered hazards that may occur during the execution of an employee's assigned tasks.

10.2 Pre-Task Safety Plans

Daily safety meetings are held with all designated project site personnel in attendance to review the potential hazards that may be associated with daily work assignments, reevaluate required H&S procedures or information presented in task specific AHAs. The purpose of these daily meetings is to set-forth various hazard control measures or policies and procedures which must be implemented by project staff to facilitate the reduction or elimination of work place incidents that could be associated with the scheduled work. The topics developed and delivered during each production day are documented on a Pre-Task Safety Planner (PTSP).

At the start of each day's activities, the site supervisor, SSHO or other qualified and designated person completes the PTSP, provided in **Attachment 7**, with input from the work crew, during their regular 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 AHA. 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.

After the delivery of each PTSP, all personnel in attendance of the daily safety meeting shall acknowledge the delivered material with the addition of their printed name, signature and date that the material was delivered to them on the last page of the form. These completed PTSPs shall be kept onsite in a neat and organized manner for review by management or project Owner, as deemed necessary.

The use of safety meetings via the use of a PTSP or other similar format is a common safety practice in the construction industry.

10.3 Loss Prevention Observations

Loss Prevention Observations (LPOs) are a tool to be used by management, site supervisor the SSHO to determine whether workplace behaviors, acts and conditions are consistent or not consistent with established health and safety procedures, site specific APPs requirements or other established safety standards. An LPO may also be completed by individual work crew members to initiate a necessary corrective action, to identify a work crew members positive performance or contribution or undesirable act that would endanger the employee or other co-workers. Completion of the LPO provides a mechanism for management to reinforce positive actions for work practices performed correctly, while also identifying and eliminating work procedures, site conditions or behaviors that could result in eventual losses.

At a minimum, at least one LPO each week for tasks/operations addressed in the project-specific APP or AHA will be completed by the AGVIQ-CH2M HILL site supervisor or SSHO to compare the actual work process against established work procedures identified in the project-specific APP and AHAs. The LPO form in **Attachment 8** will be used for this process.

10.3.1 Deficiency Tracking System

On NAVFAC contracts where adherence to the US Army Corps of Engineers' EM 385-1-1, "Safety and Health Requirements Manual" is required in addition to Occupational Safety & Health Administration (OSHA) regulations, the site supervisor is responsible for ensuring that the a "Deficiency Tracking System" or log is maintained. The deficiency tracking system is used to identify and monitor the status of safety and health "deficiencies" observed at the project-specific location, in chronological order. The deficiency tracking system includes the following information:

- Date deficiency identified
- Description of deficiency
- Name of person responsible for correcting deficiency
- Projected resolution date
- Date actually resolved

The deficiency tracking system or log is posted on a project bulletin board or other conspicuous place commonly accessed by project or facility personnel, updated daily, and available for review by the NAVFAC POCs or by AGVIQ-CH2M HILL Project Management, Senior Management or Health and Safety Representatives. At project or facility sites where the use of a Deficiency Tracking System is required, this log supplements the LPO process.

At the end of the project, or when facility operations are completed, hard copies of the deficiency tracking system data or logs are included in the final record.

A copy of the Deficiency Tracking System form is located in **Attachment 8** of this APP.

10.4 Loss/Near-Loss Investigations

Loss and Near Loss Incident investigations are detailed in Section 8.0 "Accident Reporting and Investigation" of this APP and will not be further elaborated upon in this section.

10.5 Drug-Free Workplace Program

AGVIQ-CH2M HILL does not tolerate illegal drugs, or any use of drugs, controlled substances, or alcohol that impairs an employees work performance or behavior. AGVIQ-CH2M HILL has established a policy that its employees and subcontractors will not be involved in any manner with the unlawful manufacture, distribution, dispensation, possession, sale, or use of illegal drugs in the workplace. The use or possession of alcohol in the workplace is also prohibited. Any violation of these prohibitions may result in discipline or immediate discharge.

10.6 Project Specific Activity Hazard Analyses

Applicable project Activity Hazard Analysis (AHA) documents for each major phase of work anticipated for this contract are contained below. It is the intent of these AHAs to reinforce project or program requirements and present project control measures for anticipated or encountered hazards that may occur during the execution of an employee's assigned tasks.

Table 10-6 below summarizes identified hazards associated with the phases of work anticipated with work scheduled at Site 1, ABL. Table 10-6 provides only the **basis** for the development of Activity Hazard Analysis documents, which must be implemented as part of the AGVIQ-CH2M HILL Health and Safety Program, Behavior Based Loss Prevention System (BBLPS).

Applicable project Activity Hazard Analysis (AHA) documents for each major phase of work anticipated for this contract are contained below in Section 10.6. Additional project specific hazard control measures are also identified in Section 9.7 of this APP.

Table 10-1 Activity Hazard Analyses Basis

Potential Hazards	Project Activities								
	Mobilization and Demobilization	Installation of Erosion Sediment Control Measures	Site Preparation	Excavation	Soil Stock Pile Management	Installation of Soil Stabilization Structure	Soil Sampling	Excavation Restoration	Transport & Disposal
Adverse Weather	X	X	X	X	X	X	X	X	X
Air Compressors									
Asbestos									
Biological	X	X	X	X	X	X	X	X	X
Buried Utilities				X		X			
Chainsaws/Brushcutters									
Chemical Hazards					X		X	X	X
Compressed Gas Cylinders									
Concrete and Masonry									
Confined Space									
Cranes & Rigging									
Cutting/Cuts& Abrasions	X	X	X	X	X	X		X	X
Demolition/Dismantling			X						
Electrical Safety									
Drilling									
Excavations				X					
Fire Prevention	X	X	X	X	X	X	X	X	X
Hand & Power Tools	X	X	X			X		X	
Haul Truck Operations				X			X	X	X
Heat Stress/Cold Stress									
Heavy Equipment		X	X	X	X	X		X	X
Housekeeping	X	X	X	X	X	X	X	X	X
Ladders & Stairs									
Lockout /Tagout									
Manual Lifting	X	X	X	X	X	X		X	X
Mechanical Guarding		X		X					
Material Handling Hazards					X		X	X	X
MPPEH/Explosive Hazards				X					
Noise	X	X	X	X	X	X	X	X	X
Pinch/Struck by	X	X	X	X	X	X	X	X	X
Pressure Washing				X					
Pressurized Lines/ Equipment									
Sampling Handling							X		
Site Control/Emergency Preparedness	X	X	X	X	X	X	X	X	X
Slips/Trips/Falls	X	X	X	X	X	X	X	X	X
Spill Prevention	X	X	X	X	X	X	X	X	X
Suspended Loads				X				X	X
Vehicle Traffic	X	X	X	X	X	X	X	X	X
Visible Lighting									
Welding and cutting									

Section 10.6 (continued)
Project Activity Hazard Analyses (AHAs)

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Mobilization and Demobilization	Overall Risk Assessment Code (RAC) (Use highest code)		L
	SIGNATURES	Activity #	AHA #	1
PWD/OICC/ROICC OFFICE	Naval Weapons Station Yorktown			
NAME & DATE ACCEPTED BY GDA:	NAVFAC MIDLANT Safety Officer-TBD			
CONTRACT NUMBER:	N62470-08-D-1006			
TASK ORDER/DELIVERY #:	WE28			
PRIME CONTRACTOR:	AGVIQ-CH2M HILL, Constructors, Inc. Joint Venture III			
SUBCONTRACTOR:				
DATE OF PREPARATORY MEETING:	TBD			
DATE OF INITIAL INSPECTION:	TBD			
CONTRACTOR COMPETENT PERSON:				
SITE SAFETY and HEALTH OFFICER	TBD			

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)

Review each **"Hazard"** with identified safety **"Controls"** and determine (RAC)

E = EXTREMELY HIGH (PWO/OICC/ROICC)	Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity
H = HIGH RISK (FEAD DIRECTOR)	**"Severity"** is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place
M = MODERATE RISK (CM or ET or PAR)	
L = LOW RISK (ET or PAR)	**"Probability"** is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.

Job Steps	Hazards	Controls	RAC
Utility Clearance	Adverse Weather	• Check internet, local TV weather or radio channels for daily forecasts and plan daily work activities accordingly. Have a portable radio available onsite to monitoring local weather or marine forecasts. If onsite internet or radio monitoring are not available, check with home office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the eastern skyline for developing rain squalls and thunder storms systems that may develop. • Bring clothing suitable for anticipated daily weather conditions. • Shut down operations during heavy rain/lightning events or high wind conditions. For storms producing lightning, seek safe haven in a grounded structure or rubber vehicle. Implement 30 – 30 rule. Do not seek refuge under trees during electrical or high wind storm events. • Stay away from ravines and gullies during heavy rain events, because of the possibility of flash flood events. • Do not use telephones during electrical storms, except in the case of emergency.	L

Job Steps	Hazards	Controls	RAC
	Biological	• Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, snakes etc. • Observe areas for presence of stinging insects. Prior to starting field activities, **notify supervisors of known allergies to stinging insects and location of antidotes.** • Use insect repellant or permethrin (clothes). Tape pant legs to boots and ensure there are no open seams between boots and pant legs. Frequently check body and clothing for ticks, spiders, chiggers and fire ants. Where tick or chigger exposure is likely, the use of disposable coveralls shall be evaluated. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure.	L
	Fire - Explosion Prevention	• Matches and other spark producing devices, including automobile cigarette lighters, are not allowed on this facility. • SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so.	M
	Visible Lighting	• Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable lightly must be provided to sufficient illuminate work area(s).	L
	Manual Lifting	• AGVIQ-CH2M HILL or subcontract personnel must notify supervisors or safety representatives of preexisting medical conditions that may be aggravated or re-injured by lifting activities, especially lifting operation involving repetitive motions. • When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports may be considered. Use heavy equipment to transfer heavy or awkward loads wherever possible. Have someone assist with the lift—especially for heavy (> 40lbs.) or awkward loads. Do not attempt to manually lift objects that should otherwise be lifted with heavy equipment. • Plan storage and staging to minimize lifting or carrying distances. Make sure the path of travel is clear prior to the lift. • Avoid carrying heavy objects above shoulder level.	L
	Slips, Trips, Falls	• Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet/steep slopes, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid areas of unprotected holes, ramps and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). Use sturdy hard toe work boots with sufficient ankle support.	L

Job Steps	Hazards	Controls	RAC
		• Institute and maintain good housekeeping practices. Clean Work Areas as activities proceed. Clear/removed materials and debris from pathways and commonly traveled areas as soon as possible.	
	Low Ambient Temperature	• Be aware of the symptoms of cold-related disorders, and wear proper, layered clothing for the anticipated fieldwork. Appropriate rain/ waterproof gear is a must in where wet weather occurs during cool low ambient temperatures. ➢ Frostbite: Blanched, white, waxy skin, but tissue resilient; tissue cold and pale. ➢ Hypothermia: Shivering, apathy, sleepiness; rapid drop in body temperature; glassy stare; slow pulse; slow respiration. • Frequent intake of non-caffeinated fluids to maintain body core temperature. • Frequent intake of non- caffeinated to prevent dehydration. • Obtain and review weather forecast— be aware of predicted weather systems. • Observe one (buddy system) another for initial signs of cold-related disorders. • Frequent observance of Wind Chill Chart (APP) to assist with work warming regiment determination and frostbite avoidance	L
	High Ambient Temperature	• Provide and drink fluids to prevent worker dehydration. • Minimize intake of caffeinated fluids. • Institute a proper work-break regiment in a cool area to avoid heat stress symptoms and overexertion. • Monitor for signs and symptoms of heat stress (maintain use of buddy system) when the ambient air temperature exceeds 70°F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress and especially when wearing disposable or other types of coveralls. 1) Heat Syncope = Sluggishness or fainting while standing erect or immobile in heat. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.* 2) Heat Rash = Profuse tiny raised red blister-like vesicles on affected areas, along with prickling sensations during heat exposure. *Treatment = Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.* 3) Heat Cramps = Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake.* 4) Heat exhaustion = Fatigue, nausea, headache, giddiness; skin	L

Job Steps	Hazards	Controls	RAC
		clammy and moist; complexion pale, muddy, or flushed; may faint on standing; rapid thready pulse and low blood pressure; oral temperature normal or low. *Treatment = Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.* 5) Heat Stroke = Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature. *Treatment = Cool rapidly by soaking in cool–but not cold–water. Call ambulance, and get medical attention immediately!*	
	Vehicular Traffic	• Shut off and secure site vehicles prior to exiting them. Park on level ground where possible. If parking on an incline, engage parking brake. If the vehicle has a manual transmission, ensure the transmission is in gear (not neutral) and the parking brake is engaged before exiting the vehicle. • 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. • The Plant speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed. • ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way. • When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes. When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.	L
	Other	• **Review and Follow all requirements established by "ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors".** • **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location.** • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly and must avoid exposing their eyes to direct or indirect laser light energy sources.	L

Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
• Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • EMR or GPS utility locating equipment • Communication devices.	• Visual Inspections of designated work areas identify and address hazardous/MR conditions. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.).	• Review APP for new site personnel. • 1st Aid/CPR 1st Aid/CPR (2 per site when medical attention a medical facility or physician is more than 5 minutes away to two or more employees.	

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Erosion Control	Overall Risk Assessment Code (RAC) (Use highest code)		M
	SIGNATURES	Activity #	AHA #	2
PWD/OICC/ROICC OFFICE	Naval Weapons Station Yorktown			
NAME & DATE ACCEPTED BY GDA:	NAVFAC MIDLANT Safety Officer-TBD			
CONTRACT NUMBER:	N62470-08-D-1006			
TASK ORDER/DELIVERY #:	WE28			
PRIME CONTRACTOR:	AGVIQ-CH2M HILL, Constructors, Inc. Joint Venture III			
SUBCONTRACTOR:				
DATE OF PREPARATORY MEETING:	TBD			
DATE OF INITIAL INSPECTION:	TBD			
CONTRACTOR COMPETENT PERSON:				
SITE SAFETY and HEALTH OFFICER	TBD			

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)

Review each **"Hazard"** with identified safety **"Controls"** and determine (RAC)

E = EXTREMELY HIGH (PWO/OICC/ROICC)	Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity
H = HIGH RISK (FEAD DIRECTOR)	**"Severity"** is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place
M = MODERATE RISK (CM or ET or PAR)	
L = LOW RISK (ET or PAR)	**"Probability"** is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.

Job Steps	Hazards	Controls	RAC
Erosion Control	Struck/pinched by/caught between	• Isolate swing radius of heavy equipment (excavator). Make eye contact with equipment operator before approaching heavy equipment. Do not approach operating heavy equipment from the rear. • Wear reflective warning vests or high visibility clothing. • Isolate equipment swing areas from workers, fixed objects or other equipment. • Make/maintain eye contact with operators before approaching equipment. Do not approach equipment from rear or from blind spot of operator. • Where heavy equipment is used, designate one person to provide hand signals to equipment operators. • Ensure heavy equipment has operable back-up alarms. Note: Ditch trenching equipment not applicable. • Step away from heavy equipment when boom adjustments are made. • Ensure heavy equipment operator has spotter for obstructed views and backing up. • Avoid positioning between fixed objects and operating equipment.	L

Job Steps	Hazards	Controls	RAC
Erosion Control (Cont.)	Heavy Equipment	• Seat belts or other restraint system shall be used by heavy equipment and haul truck operators. • Perform daily maintenance and inspections on operating equipment. Keep documentation on site. • Avoid/take care around pressurized lines/hoses. Inspect hoses daily for cuts, abrasions and wear. • Equipment shall only be operated by personnel qualified by prior training or experience. • Ensure that a stable ground surface is available for the operation of heavy equipment.	M
	Visible Lighting	• Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable lightly must be provided to sufficient illuminate work area(s).	L
	Biological	• Observe ground surfaces especially in wet or grassy areas, tree trunks, rock piles for evidence and presence of snakes (poisonous). • Observe ground surfaces or surrounding vegetation or structures for presence fire ants, spiders, bee/wasp hives etc. • Observe areas for presence of stinging insects. **Notify supervisors of known allergies to stinging insects and location of antidotes.** • Use insect repellant. Tape pant legs to boots. Frequently check body and clothing for ticks, chiggers, spiders. • Avoid exposure to blood borne pathogens	L
	Noise	• Hearing protection shall be worn where potential for exposure to high noise levels exists.	L
	Fire Prevention	• Use only metal safety cans for storage and transfer of fuel. • Use funnels and nozzles during fueling operations. • Appropriately sized, easily accessible ABC fire extinguisher in work area. • Review and be cognizant of NAVY Mid-Atlantic Fire Prevention Procedures and Requirements	M
	Manual Lifting	• AGVIQ-CH2M HILL or subcontract personnel must notify supervisors or safety representatives of preexisting medical conditions that may be aggravated or re-injured by lifting activities, especially lifting operation involving repetitive motions. • When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports may be considered. Use heavy equipment to transfer heavy or awkward loads wherever possible. Have someone assist with the lift—especially for heavy (> 40lbs.) or awkward loads. Do not attempt	L

Job Steps	Hazards	Controls	RAC
		to manually lift objects that should otherwise be lifted with heavy equipment. • Plan storage and staging to minimize lifting or carrying distances. Make sure the path of travel is clear prior to the lift. • Avoid carrying heavy objects above shoulder level.	
Erosion Control (Cont.)	Cuts/Abrasions/ Bruises	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp/cut edges or hand tools. • While installing ESC fencing stakes, position hands out of striking location of hammer. Use appropriately sized hammer for the installation of ESC fencing stakes. • Avoid the use of razor knives in cutting activities. • If using trenching equipment, keep hands, feet and arms away from activated drive chains or belts of trench. Stop trenching operations if personnel approach active trenching equipment. • Point staplers away from body during ESC fence construction. Keep fingers and hands away from staple impact area.	M
	Slips, Trips, Falls	• Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet/steep slopes, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid areas of unprotected holes, ramps and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). Use sturdy hard toe work boots with sufficient ankle support. • Institute and maintain good housekeeping practices. Clean Work Areas as activities proceed. Clear/removed materials and debris from pathways and commonly traveled areas as soon as possible.	L
	High Ambient Temperature	• Provide and drink fluids to prevent worker dehydration. • Minimize intake of caffeinated fluids. • Institute a proper work-break regiment in a cool area to avoid heat stress symptoms and overexertion. • Monitor for signs and symptoms of heat stress (maintain use of buddy system) when the ambient air temperature exceeds 70°F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress and especially when wearing disposable or other types of coveralls. 1) Heat Syncope = Sluggishness or fainting while standing erect or immobile in heat. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.* 2) Heat Rash = Profuse tiny raised red blister-like vesicles on affected areas, along with prickling sensations during heat exposure. *Treatment = Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.* 3) Heat Cramps = Painful spasms in muscles used during work	L

Job Steps	Hazards	Controls	RAC
		(arms, legs, or abdomen); onset during or after work hours. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake.* 4) Heat exhaustion = 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. *Treatment = Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.* 5) Heat Stroke = Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature. *Treatment = Cool rapidly by soaking in cool–but not cold–water. Call ambulance, and get medical attention immediately!*	
	Other	• **Review and Follow all requirements established by "ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors".** • **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location.** • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly and must avoid exposing their eyes to direct or indirect laser light energy sources.	L

Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
• Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • EMR or GPS utility locating equipment • Combination devices.	• Visual Inspections of designated work areas identify and address hazardous/MR conditions. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.).	• Review APP for new site personnel. • 1st Aid/CPR 1st Aid/CPR (2 per site when medical attention a medical facility or physician is more than 5 minutes away to two or more employees.	

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Site Preparation	Overall Risk Assessment Code (RAC) (Use highest code)	**M**
	SIGNATURES	Activity #	AHA # **3**
PWD/OICC/ROICC OFFICE	Naval Weapons Station Yorktown		
NAME & DATE ACCEPTED BY GDA:	NAVFAC MIDLANT Safety Officer-TBD		
CONTRACT NUMBER:	**N62470-08-D-1006**		
TASK ORDER/DELIVERY #:	**WE28**		
PRIME CONTRACTOR:	**AGVIQ-CH2M HILL, Constructors, Inc. Joint Venture III**		
SUBCONTRACTOR:			
DATE OF PREPARATORY MEETING:	**TBD**		
DATE OF INITIAL INSPECTION:	TBD		
CONTRACTOR COMPETENT PERSON:			
SITE SAFETY and HEALTH OFFICER	TBD		

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)

E = EXTREMELY HIGH (PWO/OICC/ROICC)

H = HIGH RISK (FEAD DIRECTOR)

M = MODERATE RISK (CM or ET or PAR)

L = LOW RISK (ET or PAR)

Review each **"Hazard"** with identified safety **"Controls"** and determine (RAC)

Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place

"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.

Job Steps	Hazards	Controls	RAC
Site Preparation	Adverse Weather	• Check internet, local TV weather or radio channels for daily forecasts and plan daily work activities accordingly. Have a portable radio available onsite to monitoring local weather or marine forecasts. If onsite internet or radio monitoring are not available, check with home office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the eastern skyline for developing rain squalls and thunder storms systems that may develop. • Bring clothing suitable for anticipated daily weather conditions. • Shut down operations during heavy rain/lightning events or high wind conditions. For storms producing lightning, seek safe haven in a grounded structure or rubber vehicle. Implement 30 – 30 rule. Do not seek refuge under trees during electrical or high wind storm events. • Stay away from ravines and gullies during heavy rain events, because of the possibility of flash flood events. • Do not use telephones during electrical storms, except in the case of emergency.	L

Job Steps	Hazards	Controls	RAC
	Biological	• Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, snakes etc. • Observe areas for presence of stinging insects. Prior to starting field activities, **notify supervisors of known allergies to stinging insects and location of antidotes.** • Use insect repellant or permethrin (clothes). Tape pant legs to boots and ensure there are no open seams between boots and pant legs. Frequently check body and clothing for ticks, spiders, chiggers and fire ants. Where tick or chigger exposure is likely, the use of disposable coveralls shall be evaluated. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure.	L
	Fire - Explosion Prevention	• Matches and other spark producing devices, including automobile cigarette lighters, are not allowed on this facility. • SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so.	M
	Visible Lighting	• Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable lightly must be provided to sufficient illuminate work area(s).	L
	Manual Lifting	• AGVIQ-CH2M HILL or subcontract personnel must notify supervisors or safety representatives of preexisting medical conditions that may be aggravated or re-injured by lifting activities, especially lifting operation involving repetitive motions. • When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports may be considered. Use heavy equipment to transfer heavy or awkward loads wherever possible. Have someone assist with the lift—especially for heavy (> 40lbs.) or awkward loads. Do not attempt to manually lift objects that should otherwise be lifted with heavy equipment. • Plan storage and staging to minimize lifting or carrying distances. Make sure the path of travel is clear prior to the lift. • Avoid carrying heavy objects above shoulder level.	L
	MPPEH	• **Do not move or disturb any potential MPPEH items that may be left at Site 1 from previous ABL/ATL operations.** • In the event that a MPPEH item is encountered during site operations, , the following procedures shall be executed: – **Immediately Stop Work (RECOGNIZE)***: Do not disturb or move a suspect MPPEH hazard. Only trained EOD Technicians are authorized to investigate potential MPPEH hazards. Make sure*	M

Job Steps	Hazards	Controls	RAC
		that cell phones/two way radios or other electro-magnetic sources are not engaged in the area of the suspect item. – **Secure area/location where the MPPEH item is discovered (RETREAT):** *Stop and secure any operating equipment to the extent possible. Mark the general area/location of the MPPEH hazard with tape, colored cloth, or colored ribbon. Avoid using markers that penetrate the ground surface.* – **Immediately make notification to NAVFAC (REPORT):** *Once area has been evacuated, appropriate notifications shall be made immediately to the* **ABL Guard Headquarters**, *supervisor, project manager, ABL and NAVFAC POCs. Provide as much information as possible, including location, approximate size, shape, color, and any other distinguishing features.* – **Operations can not resume until such safeguards and approvals are in place to safely continue the assigned work, in accordance with ABL/NAVFAC approvals to so.**	
	Slips, Trips, Falls	• Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet/steep slopes, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid areas of unprotected holes, ramps and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). Use sturdy hard toe work boots with sufficient ankle support. • Institute and maintain good housekeeping practices. Clean Work Areas as activities proceed. Clear/removed materials and debris from pathways and commonly traveled areas as soon as possible.	L
	Cuts and Abrasions	• Use leather gloves when cutting or rolling up fence fabric. • During mechanical power augering operations for the reinstallation of fence posts, personnel shall keep all hands/feet away from the rotating auger flights. Sufficient separation between ground personnel and operating power augers must be maintained. • During fence pulling operations, personnel shall not position themselves between the pulling device and the fence fabric being pulled taught.	L
	Chemical Exposure	• Where activities result in ground disturbance (fence post installation) and exposure to contaminated materials may exist, then all personnel performing this task shall be trained in accordance with 29CFR1910.120 and have been enrolled in a medical monitoring program. • Always exercise good hygiene practices regardless of the potential for contact with site contaminants. Always wash hands	L

Job Steps	Hazards	Controls	RAC
		before eating, drinking, smoking and leaving site. Only eat, drink, smoke or chew tobacco in designated areas. • Do not allow incidental dermal contact or incidental ingestion of sediment or contaminated water during this activity. **Where contact with these materials cannot be avoided or controlled Level D Modified PPE shall be used.** • Do not breathe cement dust or come in contact with mixed concrete when mixing or placing concrete during fence post installations. Liquid resistant gloves shall be used when placing wet concrete to avoid chemical burns.	
	High Ambient Temperature	• Provide and drink fluids to prevent worker dehydration. • Minimize intake of caffeinated fluids. • Institute a proper work-break regiment in a cool area to avoid heat stress symptoms and overexertion. • Monitor for signs and symptoms of heat stress (maintain use of buddy system) when the ambient air temperature exceeds 70°F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress and especially when wearing disposable or other types of coveralls. 1) Heat Syncope = Sluggishness or fainting while standing erect or immobile in heat. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.* 2) Heat Rash = Profuse tiny raised red blister-like vesicles on affected areas, along with prickling sensations during heat exposure. *Treatment = Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.* 3) Heat Cramps = Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake.* 4) Heat exhaustion = 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. *Treatment = Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.* 5) Heat Stroke = Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature. *Treatment = Cool rapidly by soaking in cool–but not cold–water. Call ambulance, and get medical attention immediately!*	L
	Hand and Power tools	• Perform daily or more frequent inspections on power tools, as may be needed • All required guards are in place, functioning and utilized. • Hand held power tools equipped with constant pressure switch.	L

Job Steps	Hazards	Controls	RAC
		• Tools inspected before use. Maintain all tools in proper operating condition. • Select and use the proper tool for the task. • Do not use tools that have been damaged or repaired in a manner which is not consistent with manufacturer's requirements.	
	Heavy Equipment	• Seat belts or other restraint system shall be used by heavy equipment operators. • Perform daily maintenance and inspections on operating equipment. Keep documentation on site. • Use caution around pressurized lines/hoses. Inspect hoses daily for cuts, abrasions and wear. • Equipment shall only be operated by personnel qualified by prior training or experience. • Ensure that a stable ground surface is available for the operation of heavy equipment. • Equipment operators shall not leave the cab of the equipment while they are lifting/controlling a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured/disengaged and equipment is "de-energized". • Walk down/inspect work areas prior to starting heavy equipment operations. Inspect areas for potential ground protrusions which could be impacted by the operations.	L
	Material Handling	• Only one person shall signal the equipment operator during material handling operations. This person shall be able to communicate with the operator(s) with the appropriate hand signals. • No one shall walk under or in front of suspended loads. Loads shall not be lifted over ground personnel. • Any rigging used shall be inspected prior to use and shall be load rated (tagged or labeled). User shall familiarize themselves with design load rate capacities (i.e. vertical, basket/cradle or choker applications) for the selected rigging. • Equipment operators shall not leave the cab of the equipment while they are lifting a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured.	L
	Pinched/Struck-by/ Caught-in-between	• Sufficient separation between ground support personnel and any operating heavy equipment/ must be maintained. • Wear reflective vests or high visibility clothing to promote	L

Job Steps	Hazards	Controls	RAC
		visibility of ground personnel by equipment operators. • Isolate equipment swing areas from workers, fixed objects or other equipment. Ground personnel shall avoid positioning themselves between fixed objects, operating equipment. Make/maintain eye contact with operators before approaching equipment. Do not approach equipment from rear or from blind spot of operator. Stay out of the swing radius of operating heavy equipment. • During the removal of fence fabric, personnel must position themselves in a way which will eliminate the potential for being struck by fencing being dropped to the ground surface. • Understand and review hand signals. Designate one person to provide hand signals to equipment operators performing lifting/hoisting operations. • Ensure equipment has operable back-up alarms. • Step away from heavy equipment when adjustments (positioning) are made. • Ensure heavy equipment operator has spotter for obstructed views and backing up. • Use a come-along device, with sufficiently rated cable, to stretch fence fabric taught during the reinstallation of fence fabric. Stretching of the fabric should only be done in conjunction with/from a pull post.	
	Vehicular Traffic	• Shut off and secure site vehicles prior to exiting them. Park on level ground where possible. If parking on an incline, engage parking brake. If the vehicle has a manual transmission, ensure the transmission is in gear (not neutral) and the parking brake is engaged before exiting the vehicle. • 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. • The Plant speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed. • ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way. • When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes. When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.	L
	Other	• **Review and Follow all requirements established by "ABL Safety, Security, and Environmental Rules for Contractors and**	L

Job Steps	Hazards	Controls	RAC
		Subcontractors". • **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location.** • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly and must avoid exposing their eyes to direct or indirect laser light energy sources.	

Equipment to be Used ACCIDENT PREVENTION PLAN	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
• Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • EMR or GPS utility locating equipment • Communication devices.	• Visual Inspections of designated work areas identify and address hazardous/MR conditions. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.).	• Review APP for new site personnel. • 1st Aid/CPR 1st Aid/CPR (2 per site when medical attention a medical facility or physician is more than 5 minutes away to two or more employees.	

Authored By: Rachel Francis; AGVIQ LLC

Date: 11/19/12

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Excavation	Overall Risk Assessment Code (RAC) (Use highest code)	**H**
	SIGNATURES	Activity #	AHA # **4**
PWD/OICC/ROICC OFFICE	Naval Weapons Station Yorktown		
NAME & DATE ACCEPTED BY GDA:	NAVFAC MIDLANT Safety Officer-TBD		
CONTRACT NUMBER:	**N62470-08-D-1006**		
TASK ORDER/DELIVERY #:	**WE28**		
PRIME CONTRACTOR:	**AGVIQ-CH2M HILL, Constructors, Inc. Joint Venture III**		
SUBCONTRACTOR:			
DATE OF PREPARATORY MEETING:	**TBD**		
DATE OF INITIAL INSPECTION:	TBD		
CONTRACTOR COMPETENT PERSON:			
SITE SAFETY and HEALTH OFFICER	TBD		

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)

E = EXTREMELY HIGH (PWO/OICC/ROICC)	
H = HIGH RISK (FEAD DIRECTOR)	
M = MODERATE RISK (CM or ET or PAR)	
L = LOW RISK (ET or PAR)	

Review each **"Hazard"** with identified safety **"Controls"** and determine (RAC)

Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place

"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.

Job Steps	Hazards	Controls	RAC
Excavation	Adverse Weather	• Check internet, local TV weather or radio channels for daily forecasts and plan daily work activities accordingly. Have a portable radio available onsite to monitoring local weather or marine forecasts. If onsite internet or radio monitoring are not available, check with home office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the eastern skyline for developing rain squalls and thunder storms systems that may develop. • Bring clothing suitable for anticipated daily weather conditions. • Shut down operations during heavy rain/lightning events or high wind conditions. For storms producing lightning, seek safe haven in a grounded structure or rubber vehicle. Implement 30 – 30 rule. Do not seek refuge under trees during electrical or high wind storm events. • Stay away from ravines and gullies during heavy rain events, because of the possibility of flash flood events. • Do not use telephones during electrical storms, except in the case of emergency.	L

Job Steps	Hazards	Controls	RAC
Excavation (Cont.)	Biological	• Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, snakes etc. • Observe areas for presence of stinging insects. Prior to starting field activities, **notify supervisors of known allergies to stinging insects and location of antidotes.** • Use insect repellant or permethrin (clothes). Tape pant legs to boots and ensure there are no open seams between boots and pant legs. Frequently check body and clothing for ticks, spiders, chiggers and fire ants. Where tick or chigger exposure is likely, the use of disposable coveralls shall be evaluated. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure.	L
	Fire - Explosion Prevention	• Matches and other spark producing devices, including automobile cigarette lighters, are not allowed on this facility. • SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so. • Use only metal safety cans for storage and transfer of fuel. • Use funnels and nozzles during fueling operations. • Appropriately sized, easily accessible ABC fire extinguisher in work area. Fire extinguishers must be inspected monthly (inspection tag) and have an annual maintenance/inspection certification (tag) attached to the extinguisher. • Fire extinguishers shall be approved by a nationally recognized testing laboratory and labeled to identify the listing and labeling organization and the fire test and performance standard that the fire extinguisher meets or exceeds..	M
	Visible Lighting	• Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable lightly must be provided to sufficient illuminate work area(s).	L
	Manual Lifting	• AGVIQ-CH2M HILL or subcontract personnel must notify supervisors or safety representatives of preexisting medical conditions that may be aggravated or re-injured by lifting activities, especially lifting operation involving repetitive motions. • When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports may be considered. Use heavy equipment to transfer heavy or awkward loads wherever possible. Have someone assist with the lift—especially for heavy (> 40lbs.) or awkward loads. Do not attempt to manually lift objects that should otherwise be lifted with heavy equipment.	L

Job Steps	Hazards	Controls	RAC
		• Plan storage and staging to minimize lifting or carrying distances. Make sure the path of travel is clear prior to the lift. • Avoid carrying heavy objects above shoulder level.	
	Excavations	• An excavation competent person shall inspect open excavations every day and after everyday hazard increasing event. If evidence of a situation that could result in possible cave-ins, slides, failure of protective systems, hazardous atmospheres, or other hazardous condition is identified, exposed workers shall be removed from the hazard and all work in the excavation stopped until necessary safety precautions have been implemented. Documentation of this inspection must be maintained daily and available as part of the project record. Documentation should be available onsite for inspection. • Where excavation edges are exposed to public, excavations shall be protected and identified from inadvertent access by the public until the excavation is backfilled. • Provide Excavation Perimeter Protection and Warning signs as necessary to be in compliance with EM 385 11-1, Section 25B Safe Access and Appendix Q, "Perimeter Protection". • No person shall access/enter an open excavation unless deemed suitable to do so by the excavation competent person. Each person who enters an excavation must be protected from cave-ins by adequate protective systems designed in accordance with applicable OSHA standards (i.e. Design of Sloping and Benching Systems and Design of Support Systems, Shield Systems and other Protective Systems) or EM 385 1-1, Section 25 criteria except when: 1. excavations are made entirely in rock; or 2. excavations are less than 5 feet (1.52m) in depth AND examination by a competent person provides there is no indication of cave-in. • Each person who must enter an excavation, must be provided by a means of egress from trench excavations. A ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees.	M
Excavation (Cont.)	Slips, Trips, Falls	• Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet/steep slopes, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid areas of unprotected holes, ramps and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). Use sturdy hard toe work boots	L

Job Steps	Hazards	Controls	RAC
		with sufficient ankle support. • Institute and maintain good housekeeping practices. Clean Work Areas as activities proceed. Clear/removed materials and debris from pathways and commonly traveled areas as soon as possible.	
	Cuts and Abrasions	• Use leather gloves when cutting or rolling up fence fabric. • During mechanical power augering operations for the reinstallation of fence posts, personnel shall keep all hands/feet away from the rotating auger flights. Sufficient separation between ground personnel and operating power augers must be maintained. • During fence pulling operations, personnel shall not position themselves between the pulling device and the fence fabric being pulled taught.	L
	Chemical Exposure	• Where activities result in ground disturbance (fence post installation) and exposure to contaminated materials may exist, then all personnel performing this task shall be trained in accordance with 29CFR1910.120 and have been enrolled in a medical monitoring program. • Always exercise good hygiene practices regardless of the potential for contact with site contaminants. Always wash hands before eating, drinking, smoking and leaving site. Only eat, drink, smoke or chew tobacco in designated areas. • Do not allow incidental dermal contact or incidental ingestion of sediment or contaminated water during this activity. **Where contact with these materials cannot be avoided or controlled Level D Modified PPE shall be used.** • Do not breathe cement dust or come in contact with mixed concrete when mixing or placing concrete during fence post installations. Liquid resistant gloves shall be used when placing wet concrete to avoid chemical burns.	L
Excavation (Cont.)	High Ambient Temperature	• Provide and drink fluids to prevent worker dehydration. • Minimize intake of caffeinated fluids. • Institute a proper work-break regiment in a cool area to avoid heat stress symptoms and overexertion. • Monitor for signs and symptoms of heat stress (maintain use of buddy system) when the ambient air temperature exceeds 70°F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress and especially when wearing disposable or other types of coveralls. 1) Heat Syncope = Sluggishness or fainting while standing erect or immobile in heat. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.* 2) Heat Rash = Profuse tiny raised red blister-like vesicles on	L

Job Steps	Hazards	Controls	RAC
		affected areas, along with prickling sensations during heat exposure. *Treatment = Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.* 3) Heat Cramps = Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake.* 4) Heat exhaustion = 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. *Treatment = Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.* 5) Heat Stroke = Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature. *Treatment = Cool rapidly by soaking in cool–but not cold–water. Call ambulance, and get medical attention immediately!*	
	Hand and Power tools	• Perform daily or more frequent inspections on power tools, as may be needed • All required guards are in place, functioning and utilized. • Hand held power tools equipped with constant pressure switch. • Tools inspected before use. Maintain all tools in proper operating condition. • Select and use the proper tool for the task. • Do not use tools that have been damaged or repaired in a manner which is not consistent with manufacturer's requirements.	M
Excavation (Cont.)	Heavy Equipment	• Seat belts or other restraint system shall be used by heavy equipment operators. • Perform daily maintenance and inspections on operating equipment. Keep documentation on site. • Use caution around pressurized lines/hoses. Inspect hoses daily for cuts, abrasions and wear. • Equipment shall only be operated by personnel qualified by prior training or experience. • Ensure that a stable ground surface is available for the operation of heavy equipment. • Equipment operators shall not leave the cab of the equipment while they are lifting/controlling a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured/disengaged and equipment is "de-energized". • Walk down/inspect work areas prior to starting heavy	M

Job Steps	Hazards	Controls	RAC
		equipment operations. Inspect areas for potential ground protrusions which could be impacted by the operations.	
	Material Handling	• Only one person shall signal the equipment operator during material handling operations. This person shall be able to communicate with the operator(s) with the appropriate hand signals. • No one shall walk under or in front of suspended loads. Loads shall not be lifted over ground personnel. • Any rigging used shall be inspected prior to use and shall be load rated (tagged or labeled). User shall familiarize themselves with design load rate capacities (i.e. vertical, basket/cradle or choker applications) for the selected rigging. • Equipment operators shall not leave the cab of the equipment while they are lifting a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured.	L
	Pinched/Struck-by/ Caught-in-between	• Sufficient separation between ground support personnel and any operating heavy equipment/ must be maintained. • Wear reflective vests or high visibility clothing to promote visibility of ground personnel by equipment operators. • Isolate equipment swing areas from workers, fixed objects or other equipment. Ground personnel shall avoid positioning themselves between fixed objects, operating equipment. Make/maintain eye contact with operators before approaching equipment. Do not approach equipment from rear or from blind spot of operator. Stay out of the swing radius of operating heavy equipment. • During the removal of fence fabric, personnel must position themselves in a way which will eliminate the potential for being struck by fencing being dropped to the ground surface. • Understand and review hand signals. Designate one person to provide hand signals to equipment operators performing lifting/hoisting operations. • Ensure equipment has operable back-up alarms. • Step away from heavy equipment when adjustments (positioning) are made. • Ensure heavy equipment operator has spotter for obstructed views and backing up. • Use a come-along device, with sufficiently rated cable, to stretch fence fabric taught during the reinstallation of fence fabric. Stretching of the fabric should only be done in conjunction with/from a pull post.	L

Job Steps	Hazards	Controls	RAC
Excavation (Cont.)	Vehicular Traffic	• Shut off and secure site vehicles prior to exiting them. Park on level ground where possible. If parking on an incline, engage parking brake. If the vehicle has a manual transmission, ensure the transmission is in gear (not neutral) and the parking brake is engaged before exiting the vehicle. • 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. • The Plant speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed. • ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way. • When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes. When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.	L
	Other	• **Review and Follow all requirements established by "ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors".** • **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location.** • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly and must avoid exposing their eyes to direct or indirect laser light energy sources.	L

Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
• Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • EMR or GPS utility locating equipment • Communication devices.	• Visual Inspections of designated work areas identify and address hazardous/MR conditions. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.).	• Review APP for new site personnel. • 1st Aid/CPR 1st Aid/CPR (2 per site when medical attention a medical facility or physician is more than 5 minutes away to two or more employees.	

Authored By: Rachel Francis; AGVIQ LLC

Date: 11/19/12

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Stock Pile Management	Overall Risk Assessment Code (RAC) (Use highest code)	**M**
	SIGNATURES	Activity #	AHA # **5**
PWD/OICC/ROICC OFFICE	Naval Weapons Station Yorktown		
NAME & DATE ACCEPTED BY GDA:	NAVFAC MIDLANT Safety Officer-TBD		
CONTRACT NUMBER:	**N62470-08-D-1006**		
TASK ORDER/DELIVERY #:	**WE28**		
PRIME CONTRACTOR:	**AGVIQ-CH2M HILL, Constructors, Inc. Joint Venture III**		
SUBCONTRACTOR:			
DATE OF PREPARATORY MEETING:	**TBD**		
DATE OF INITIAL INSPECTION:	TBD		
CONTRACTOR COMPETENT PERSON:			
SITE SAFETY and HEALTH OFFICER	TBD		

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)

Review each **"Hazard"** with identified safety **"Controls"** and determine (RAC)

E = EXTREMELY HIGH (PWO/OICC/ROICC)

H = HIGH RISK (FEAD DIRECTOR)

M = MODERATE RISK (CM or ET or PAR)

L = LOW RISK (ET or PAR)

Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place

"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.

Job Steps	Hazards	Controls	RAC
Stock Pile Management	Preparedness	• Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Buddy System maintained for all phases of work. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. • Verify common fill materials have been tested and approved for use. • Ensure that spill control and spill clean-up and materials are on hand prior to initiating any heavy equipment or fueling operations to prevent entry into sensitive receptors.	L

Job Steps	Hazards	Controls	RAC
	Biological	• Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, snakes etc. • Observe areas for presence of stinging insects. Prior to starting field activities, **notify supervisors of known allergies to stinging insects and location of antidotes.** • Use insect repellant or permethrin (clothes). Tape pant legs to boots and ensure there are no open seams between boots and pant legs. Frequently check body and clothing for ticks, spiders, chiggers and fire ants. Where tick or chigger exposure is likely, the use of disposable coveralls shall be evaluated. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure.	L
	Fire - Explosion Prevention	• Matches and other spark producing devices, including automobile cigarette lighters, are not allowed on this facility. • SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so.	M
	Manual Lifting	• AGVIQ-CH2M HILL or subcontract personnel must notify supervisors or safety representatives of preexisting medical conditions that may be aggravated or re-injured by lifting activities, especially lifting operation involving repetitive motions. • When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports may be considered. Use heavy equipment to transfer heavy or awkward loads wherever possible. Have someone assist with the lift—especially for heavy (> 40lbs.) or awkward loads. Do not attempt to manually lift objects that should otherwise be lifted with heavy equipment. • Plan storage and staging to minimize lifting or carrying distances. Make sure the path of travel is clear prior to the lift. • Avoid carrying heavy objects above shoulder level.	L
	Slips, Trips, Falls	• Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet/steep slopes, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid areas of unprotected holes, ramps and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). Use sturdy hard toe work boots with sufficient ankle support. • Institute and maintain good housekeeping practices. Clean Work Areas as activities proceed. Clear/removed materials and debris from pathways and commonly traveled areas as soon as possible.	L

Job Steps	Hazards	Controls	RAC
	Cuts and Abrasions	• Use leather gloves when cutting or rolling up fence fabric. • During mechanical power augering operations for the reinstallation of fence posts, personnel shall keep all hands/feet away from the rotating auger flights. Sufficient separation between ground personnel and operating power augers must be maintained. • During fence pulling operations, personnel shall not position themselves between the pulling device and the fence fabric being pulled taught.	L
	High Ambient Temperature	• Provide and drink fluids to prevent worker dehydration. • Minimize intake of caffeinated fluids. • Institute a proper work-break regiment in a cool area to avoid heat stress symptoms and overexertion. • Monitor for signs and symptoms of heat stress (maintain use of buddy system) when the ambient air temperature exceeds 70°F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress and especially when wearing disposable or other types of coveralls. 1) Heat Syncope = Sluggishness or fainting while standing erect or immobile in heat. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.* 2) Heat Rash = Profuse tiny raised red blister-like vesicles on affected areas, along with prickling sensations during heat exposure. *Treatment = Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.* 3) Heat Cramps = Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake.* 4) Heat exhaustion = 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. *Treatment = Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.* 5) Heat Stroke = Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature. *Treatment = Cool rapidly by soaking in cool–but not cold–water. Call ambulance, and get medical attention immediately!*	L
	Heavy Equipment	• Seat belts or other restraint system shall be used by heavy equipment operators. • Perform daily maintenance and inspections on operating	

Job Steps	Hazards	Controls	RAC
		equipment. Keep documentation on site. • Use caution around pressurized lines/hoses. Inspect hoses daily for cuts, abrasions and wear. • Equipment shall only be operated by personnel qualified by prior training or experience. • Ensure that a stable ground surface is available for the operation of heavy equipment. • Equipment operators shall not leave the cab of the equipment while they are lifting/controlling a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured/disengaged and equipment is "de-energized". • Walk down/inspect work areas prior to starting heavy equipment operations. Inspect areas for potential ground protrusions which could be impacted by the operations.	
	Material Handling	• Only one person shall signal the equipment operator during material handling operations. This person shall be able to communicate with the operator(s) with the appropriate hand signals. • No one shall walk under or in front of suspended loads. Loads shall not be lifted over ground personnel. • Any rigging used shall be inspected prior to use and shall be load rated (tagged or labeled). User shall familiarize themselves with design load rate capacities (i.e. vertical, basket/cradle or choker applications) for the selected rigging. • Equipment operators shall not leave the cab of the equipment while they are lifting a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured.	
	Pinched/Struck-by/ Caught-in-between	• Sufficient separation between ground support personnel and any operating heavy equipment/ must be maintained. • Wear reflective vests or high visibility clothing to promote visibility of ground personnel by equipment operators. • Isolate equipment swing areas from workers, fixed objects or other equipment. Ground personnel shall avoid positioning themselves between fixed objects, operating equipment. Make/maintain eye contact with operators before approaching equipment. Do not approach equipment from rear or from blind spot of operator. Stay out of the swing radius of operating heavy equipment. • During the removal of fence fabric, personnel must position themselves in a way which will eliminate the potential for being	

Job Steps	Hazards	Controls	RAC
		struck by fencing being dropped to the ground surface. • Understand and review hand signals. Designate one person to provide hand signals to equipment operators performing lifting/hoisting operations. • Ensure equipment has operable back-up alarms. • Step away from heavy equipment when adjustments (positioning) are made. • Ensure heavy equipment operator has spotter for obstructed views and backing up. • Use a come-along device, with sufficiently rated cable, to stretch fence fabric taught during the reinstallation of fence fabric. Stretching of the fabric should only be done in conjunction with/from a pull post.	
	Vehicular Traffic	• Shut off and secure site vehicles prior to exiting them. Park on level ground where possible. If parking on an incline, engage parking brake. If the vehicle has a manual transmission, ensure the transmission is in gear (not neutral) and the parking brake is engaged before exiting the vehicle. • 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. • The Plant speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed. • ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way. • When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes. When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.	L
	Other	• **Review and Follow all requirements established by "ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors".** • **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location.** • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly and must avoid	L

Job Steps	Hazards	Controls	RAC
		exposing their eyes to direct or indirect laser light energy sources.	

Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
• Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • EMR or GPS utility locating equipment • Communication devices.	• Visual Inspections of designated work areas identify and address hazardous/MR conditions. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.).	• Review APP for new site personnel. • 1st Aid/CPR 1st Aid/CPR (2 per site when medical attention a medical facility or physician is more than 5 minutes away to two or more employees.	

Authored By: Rachel Francis; AGVIQ LLC

Date: 11/19/12

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Installation of Soil Stabilization Structure	Overall Risk Assessment Code (RAC) (Use highest code)	**M**
	SIGNATURES	Activity #	AHA # **6**
PWD/OICC/ROICC OFFICE	Naval Weapons Station Yorktown		
NAME & DATE ACCEPTED BY GDA:	NAVFAC MIDLANT Safety Officer-TBD		
CONTRACT NUMBER:	**N62470-08-D-1006**		
TASK ORDER/DELIVERY #:	**WE28**		
PRIME CONTRACTOR:	**AGVIQ-CH2M HILL, Constructors, Inc. Joint Venture III**		
SUBCONTRACTOR:			
DATE OF PREPARATORY MEETING:	**TBD**		
DATE OF INITIAL INSPECTION:	TBD		
CONTRACTOR COMPETENT PERSON:			
SITE SAFETY and HEALTH OFFICER	TBD		

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)

E = EXTREMELY HIGH (PWO/OICC/ROICC)	
H = HIGH RISK (FEAD DIRECTOR)	
M = MODERATE RISK (CM or ET or PAR)	
L = LOW RISK (ET or PAR)	

Review each **"Hazard"** with identified safety **"Controls"** and determine (RAC)

Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place

"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.

Job Steps	Hazards	Controls	RAC
Installation of soil stabilization structure	Preparedness	• Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Buddy System maintained for all phases of work. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. • Verify common fill materials have been tested and approved for use. • Ensure that spill control and spill clean-up and materials are on hand prior to initiating any heavy equipment or fueling operations to prevent entry into sensitive receptors.	L

Job Steps	Hazards	Controls	RAC
	Biological	• Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, snakes etc. • Observe areas for presence of stinging insects. Prior to starting field activities, **notify supervisors of known allergies to stinging insects and location of antidotes.** • Use insect repellant or permethrin (clothes). Tape pant legs to boots and ensure there are no open seams between boots and pant legs. Frequently check body and clothing for ticks, spiders, chiggers and fire ants. Where tick or chigger exposure is likely, the use of disposable coveralls shall be evaluated. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure.	L
	Fire Prevention	• Matches and other spark producing devices, including automobile cigarette lighters, are not allowed on this facility. • SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so.	M
	Manual Lifting	• AGVIQ-CH2M HILL or subcontract personnel must notify supervisors or safety representatives of preexisting medical conditions that may be aggravated or re-injured by lifting activities, especially lifting operation involving repetitive motions. • When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports may be considered. Use heavy equipment to transfer heavy or awkward loads wherever possible. Have someone assist with the lift—especially for heavy (> 40lbs.) or awkward loads. Do not attempt to manually lift objects that should otherwise be lifted with heavy equipment. • Plan storage and staging to minimize lifting or carrying distances. Make sure the path of travel is clear prior to the lift. • Avoid carrying heavy objects above shoulder level.	L
	Slips, Trips, Falls	• Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet/steep slopes, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid areas of unprotected holes, ramps and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). Use sturdy hard toe work boots with sufficient ankle support. • Institute and maintain good housekeeping practices. Clean Work	L

Job Steps	Hazards	Controls	RAC
		Areas as activities proceed. Clear/removed materials and debris from pathways and commonly traveled areas as soon as possible.	
Demobilization (Cont)	Cuts and Abrasions	• Use leather gloves when cutting or rolling up fence fabric. • During mechanical power augering operations for the reinstallation of fence posts, personnel shall keep all hands/feet away from the rotating auger flights. Sufficient separation between ground personnel and operating power augers must be maintained. • During fence pulling operations, personnel shall not position themselves between the pulling device and the fence fabric being pulled taught.	L
	Material Handling	• Only one person shall signal the equipment operator during material handling operations. This person shall be able to communicate with the operator(s) with the appropriate hand signals. • No one shall walk under or in front of suspended loads. Loads shall not be lifted over ground personnel. • Any rigging used shall be inspected prior to use and shall be load rated (tagged or labeled). User shall familiarize themselves with design load rate capacities (i.e. vertical, basket/cradle or choker applications) for the selected rigging. • Equipment operators shall not leave the cab of the equipment while they are lifting a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured.	L
	Pinched/Struck-by/ Caught-in-between	• Sufficient separation between ground support personnel and any operating heavy equipment/ must be maintained. • Wear reflective vests or high visibility clothing to promote visibility of ground personnel by equipment operators. • Isolate equipment swing areas from workers, fixed objects or other equipment. Ground personnel shall avoid positioning themselves between fixed objects, operating equipment. Make/maintain eye contact with operators before approaching equipment. Do not approach equipment from rear or from blind spot of operator. Stay out of the swing radius of operating heavy equipment. • During the removal of fence fabric, personnel must position themselves in a way which will eliminate the potential for being struck by fencing being dropped to the ground surface. • Understand and review hand signals. Designate one person to provide hand signals to equipment operators performing lifting/hoisting operations. • Ensure equipment has operable back-up alarms.	M

Job Steps	Hazards	Controls	RAC
		• Step away from heavy equipment when adjustments (positioning) are made. • Ensure heavy equipment operator has spotter for obstructed views and backing up. • Use a come-along device, with sufficiently rated cable, to stretch fence fabric taught during the reinstallation of fence fabric. Stretching of the fabric should only be done in conjunction with/from a pull post.	
	Spill Prevention	• Ensure that spill control and spill clean-up and materials are on hand prior to initiating any heavy equipment or fueling operations to prevent entry into sensitive receptors.	L
	Vehicular Traffic	• Shut off and secure site vehicles prior to exiting them. Park on level ground where possible. If parking on an incline, engage parking brake. If the vehicle has a manual transmission, ensure the transmission is in gear (not neutral) and the parking brake is engaged before exiting the vehicle. • 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. • The Plant speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed. • ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way. • When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes. When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.	L
	Other	• **Review and Follow all requirements established by "ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors".** • **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location.** • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly and must avoid exposing their eyes to direct or indirect laser light energy sources.	L

Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
• Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • EMR or GPS utility locating equipment • Communication devices.	• Visual Inspections of designated work areas identify and address hazardous/MR conditions. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.).	• Review APP for new site personnel. • 1st Aid/CPR 1st Aid/CPR (2 per site when medical attention a medical facility or physician is more than 5 minutes away to two or more employees.	

Authored By: Rachel Francis; AGVIQ LLC

Date: 11/19/12

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Soil Sampling	Overall Risk Assessment Code (RAC) (Use highest code)			**M**
	SIGNATURES	Activity #	7	AHA #	**7**
PWD/OICC/ROICC OFFICE	Naval Weapons Station Yorktown				
NAME & DATE ACCEPTED BY GDA:	NAVFAC MIDLANT Safety Officer-TBD				
CONTRACT NUMBER:	**N62470-08-D-1006**				
TASK ORDER/DELIVERY #:	**WE28**				
PRIME CONTRACTOR:	**AGVIQ-CH2M HILL, Constructors, Inc. Joint Venture III**				
SUBCONTRACTOR:					
DATE OF PREPARATORY MEETING:	**TBD**				
DATE OF INITIAL INSPECTION:	TBD				
CONTRACTOR COMPETENT PERSON:					
SITE SAFETY and HEALTH OFFICER	TBD				

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)

Review each **"Hazard"** with identified safety **"Controls"** and determine (RAC)

E = EXTREMELY HIGH (PWO/OICC/ROICC)	Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity
H = HIGH RISK (FEAD DIRECTOR)	**"Severity"** is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place
M = MODERATE RISK (CM or ET or PAR)	
L = LOW RISK (ET or PAR)	**"Probability"** is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.

Job Steps	Hazards	Controls	RAC
Soil Sampling	Preparedness	• Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Buddy System maintained for all phases of work. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. • Verify common fill materials have been tested and approved for use. • Ensure that spill control and spill clean-up and materials are on hand prior to initiating any heavy equipment or fueling operations to prevent entry into sensitive receptors.	L

Job Steps	Hazards	Controls	RAC
	Biological	• Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, snakes etc. • Observe areas for presence of stinging insects. Prior to starting field activities, **notify supervisors of known allergies to stinging insects and location of antidotes.** • Use insect repellant or permethrin (clothes). Tape pant legs to boots and ensure there are no open seams between boots and pant legs. Frequently check body and clothing for ticks, spiders, chiggers and fire ants. Where tick or chigger exposure is likely, the use of disposable coveralls shall be evaluated. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure.	L
	Chemical Exposure	• Where activities result in ground disturbance (fence post installation) and exposure to contaminated materials may exist, then all personnel performing this task shall be trained in accordance with 29CFR1910.120 and have been enrolled in a medical monitoring program. • Always exercise good hygiene practices regardless of the potential for contact with site contaminants. Always wash hands before eating, drinking, smoking and leaving site. Only eat, drink, smoke or chew tobacco in designated areas. • Do not allow incidental dermal contact or incidental ingestion of sediment or contaminated water during this activity. **Where contact with these materials cannot be avoided or controlled Level D Modified PPE shall be used.** • Do not breathe cement dust or come in contact with mixed concrete when mixing or placing concrete during fence post installations. Liquid resistant gloves shall be used when placing wet concrete to avoid chemical burns.	L
	Fire Prevention	• Matches and other spark producing devices, including automobile cigarette lighters, are not allowed on this facility. • SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so.	M
	Manual Lifting	• AGVIQ-CH2M HILL or subcontract personnel must notify supervisors or safety representatives of preexisting medical conditions that may be aggravated or re-injured by lifting activities, especially lifting operation involving repetitive motions. • When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports may be considered. Use heavy equipment to transfer heavy or awkward	L

Job Steps	Hazards	Controls	RAC
		loads wherever possible. Have someone assist with the lift—especially for heavy (> 40lbs.) or awkward loads. Do not attempt to manually lift objects that should otherwise be lifted with heavy equipment. • Plan storage and staging to minimize lifting or carrying distances. Make sure the path of travel is clear prior to the lift. • Avoid carrying heavy objects above shoulder level.	
	Slips, Trips, Falls	• Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet/steep slopes, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid areas of unprotected holes, ramps and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). Use sturdy hard toe work boots with sufficient ankle support. • Institute and maintain good housekeeping practices. Clean Work Areas as activities proceed. Clear/removed materials and debris from pathways and commonly traveled areas as soon as possible.	L
	Cuts and Abrasions	• Use leather gloves when cutting or rolling up fence fabric. • During mechanical power augering operations for the reinstallation of fence posts, personnel shall keep all hands/feet away from the rotating auger flights. Sufficient separation between ground personnel and operating power augers must be maintained. • During fence pulling operations, personnel shall not position themselves between the pulling device and the fence fabric being pulled taught.	L
	High Ambient Temperature	• Provide and drink fluids to prevent worker dehydration. • Minimize intake of caffeinated fluids. • Institute a proper work-break regiment in a cool area to avoid heat stress symptoms and overexertion. • Monitor for signs and symptoms of heat stress (maintain use of buddy system) when the ambient air temperature exceeds 70˚F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress and especially when wearing disposable or other types of coveralls. 1) Heat Syncope = Sluggishness or fainting while standing erect or immobile in heat. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.* 2) Heat Rash = Profuse tiny raised red blister-like vesicles on affected areas, along with prickling sensations during heat exposure.	L

Job Steps	Hazards	Controls	RAC
		Treatment = Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection. 3) Heat Cramps = Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours. *Treatment = Remove to cooler area. Rest lying down. Increase fluid intake.* 4) Heat exhaustion = 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. *Treatment = Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.* 5) Heat Stroke = Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature. *Treatment = Cool rapidly by soaking in cool–but not cold–water. Call ambulance, and get medical attention immediately!*	
	Material Handling	• Only one person shall signal the equipment operator during material handling operations. This person shall be able to communicate with the operator(s) with the appropriate hand signals. • No one shall walk under or in front of suspended loads. Loads shall not be lifted over ground personnel. • Any rigging used shall be inspected prior to use and shall be load rated (tagged or labeled). User shall familiarize themselves with design load rate capacities (i.e. vertical, basket/cradle or choker applications) for the selected rigging. • Equipment operators shall not leave the cab of the equipment while they are lifting a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured.	L
	Pinched/Struck-by/ Caught-in-between	• Sufficient separation between ground support personnel and any operating heavy equipment/ must be maintained. • Wear reflective vests or high visibility clothing to promote visibility of ground personnel by equipment operators. • Isolate equipment swing areas from workers, fixed objects or other equipment. Ground personnel shall avoid positioning themselves between fixed objects, operating equipment. Make/maintain eye contact with operators before approaching equipment. Do not approach equipment from rear or from blind spot of operator. Stay out of the swing radius of operating heavy equipment. • During the removal of fence fabric, personnel must position themselves in a way which will eliminate the potential for being struck by fencing being dropped to the ground surface.	M

Job Steps	Hazards	Controls	RAC
		• Understand and review hand signals. Designate one person to provide hand signals to equipment operators performing lifting/hoisting operations. • Ensure equipment has operable back-up alarms. • Step away from heavy equipment when adjustments (positioning) are made. • Ensure heavy equipment operator has spotter for obstructed views and backing up. • Use a come-along device, with sufficiently rated cable, to stretch fence fabric taught during the reinstallation of fence fabric. Stretching of the fabric should only be done in conjunction with/from a pull post.	
	Spill Prevention	• Ensure that spill control and spill clean-up and materials are on hand prior to initiating any heavy equipment or fueling operations to prevent entry into sensitive receptors.	L
	Vehicular Traffic	• Shut off and secure site vehicles prior to exiting them. Park on level ground where possible. If parking on an incline, engage parking brake. If the vehicle has a manual transmission, ensure the transmission is in gear (not neutral) and the parking brake is engaged before exiting the vehicle. • 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. • The Plant speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed. • ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way. • When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes. When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.	L
	Other	• **Review and Follow all requirements established by "ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors".** • **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location.**	L

Job Steps	Hazards	Controls	RAC
		• Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly and must avoid exposing their eyes to direct or indirect laser light energy sources.	

Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
• Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • EMR or GPS utility locating equipment • Communication devices.	• Visual Inspections of designated work areas identify and address hazardous/MR conditions. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.).	• Review APP for new site personnel. • 1st Aid/CPR 1st Aid/CPR (2 per site when medical attention a medical facility or physician is more than 5 minutes away to two or more employees.	

Authored By: Rachel Francis; AGVIQ LLC

Date: 11/19/12

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Excavation Restoration	Overall Risk Assessment Code (RAC) (Use highest code)			**M**
	SIGNATURES	Activity #	8	AHA #	**8**
PWD/OICC/ROICC OFFICE	Naval Weapons Station Yorktown				
NAME & DATE ACCEPTED BY GDA:	NAVFAC MIDLANT Safety Officer-TBD				
CONTRACT NUMBER:	**N62470-08-D-1006**				
TASK ORDER/DELIVERY #:	**WE28**				
PRIME CONTRACTOR:	**AGVIQ-CH2M HILL, Constructors, Inc. Joint Venture III**				
SUBCONTRACTOR:					
DATE OF PREPARATORY MEETING:	**TBD**				
DATE OF INITIAL INSPECTION:	TBD				
CONTRACTOR COMPETENT PERSON:					
SITE SAFETY and HEALTH OFFICER	TBD				

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)

E = EXTREMELY HIGH (PWO/OICC/ROICC)

H = HIGH RISK (FEAD DIRECTOR)

M = MODERATE RISK (CM or ET or PAR)

L = LOW RISK (ET or PAR)

Review each **"Hazard"** with identified safety **"Controls"** and determine (RAC)

Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place

"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.

Job Steps	Hazards	Controls	RAC
Excavation Restoration	Preparedness	• Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Buddy System maintained for all phases of work. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. • Verify common fill materials have been tested and approved for use. • Ensure that spill control and spill clean-up and materials are on hand prior to initiating any heavy equipment or fueling operations to prevent entry into sensitive receptors.	L

Job Steps	Hazards	Controls	RAC
	Heavy Equipment	• Seat belts or other restraint system shall be used by heavy equipment operators. • Perform daily maintenance and inspections on operating equipment. Keep documentation on site. • Use caution around pressurized lines/hoses. Inspect hoses daily for cuts, abrasions and wear. • Equipment shall only be operated by personnel qualified by prior training or experience. • Ensure that a stable ground surface is available for the operation of heavy equipment. • Equipment operators shall not leave the cab of the equipment while they are lifting/controlling a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured/disengaged and equipment is "de-energized". • Walk down/inspect work areas prior to starting heavy equipment operations. Inspect areas for potential ground protrusions which could be impacted by the operations.	
	Biological	• Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, snakes etc. • Observe areas for presence of stinging insects. Prior to starting field activities, **notify supervisors of known allergies to stinging insects and location of antidotes.** • Use insect repellant or permethrin (clothes). Tape pant legs to boots and ensure there are no open seams between boots and pant legs. Frequently check body and clothing for ticks, spiders, chiggers and fire ants. Where tick or chigger exposure is likely, the use of disposable coveralls shall be evaluated. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure.	L
	Fire Prevention	• Matches and other spark producing devices, including automobile cigarette lighters, are not allowed on this facility. • SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so.	M
	Manual Lifting	• AGVIQ-CH2M HILL or subcontract personnel must notify supervisors or safety representatives of preexisting medical conditions that may be aggravated or re-injured by lifting activities, especially lifting operation involving repetitive	L

Job Steps	Hazards	Controls	RAC
		motions. • When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports may be considered. Use heavy equipment to transfer heavy or awkward loads wherever possible. Have someone assist with the lift—especially for heavy (> 40lbs.) or awkward loads. Do not attempt to manually lift objects that should otherwise be lifted with heavy equipment. • Plan storage and staging to minimize lifting or carrying distances. Make sure the path of travel is clear prior to the lift. • Avoid carrying heavy objects above shoulder level.	
	Slips, Trips, Falls	• Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet/steep slopes, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid areas of unprotected holes, ramps and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). Use sturdy hard toe work boots with sufficient ankle support. • Institute and maintain good housekeeping practices. Clean Work Areas as activities proceed. Clear/removed materials and debris from pathways and commonly traveled areas as soon as possible.	L
	Cuts and Abrasions	• Use leather gloves when cutting or rolling up fence fabric. • During mechanical power augering operations for the reinstallation of fence posts, personnel shall keep all hands/feet away from the rotating auger flights. Sufficient separation between ground personnel and operating power augers must be maintained. • During fence pulling operations, personnel shall not position themselves between the pulling device and the fence fabric being pulled taught.	L
	Material Handling	• Only one person shall signal the equipment operator during material handling operations. This person shall be able to communicate with the operator(s) with the appropriate hand signals. • No one shall walk under or in front of suspended loads. Loads shall not be lifted over ground personnel. • Any rigging used shall be inspected prior to use and shall be load rated (tagged or labeled). User shall familiarize themselves with design load rate capacities (i.e. vertical, basket/cradle or choker applications) for the selected rigging. • Equipment operators shall not leave the cab of the equipment while they are lifting a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and	L

Job Steps	Hazards	Controls	RAC
		the equipment and controls are fully secured.	
	Pinched/Struck-by/ Caught-in-between	• Sufficient separation between ground support personnel and any operating heavy equipment/ must be maintained. • Wear reflective vests or high visibility clothing to promote visibility of ground personnel by equipment operators. • Isolate equipment swing areas from workers, fixed objects or other equipment. Ground personnel shall avoid positioning themselves between fixed objects, operating equipment. Make/maintain eye contact with operators before approaching equipment. Do not approach equipment from rear or from blind spot of operator. Stay out of the swing radius of operating heavy equipment. • During the removal of fence fabric, personnel must position themselves in a way which will eliminate the potential for being struck by fencing being dropped to the ground surface. • Understand and review hand signals. Designate one person to provide hand signals to equipment operators performing lifting/hoisting operations. • Ensure equipment has operable back-up alarms. • Step away from heavy equipment when adjustments (positioning) are made. • Ensure heavy equipment operator has spotter for obstructed views and backing up. • Use a come-along device, with sufficiently rated cable, to stretch fence fabric taught during the reinstallation of fence fabric. Stretching of the fabric should only be done in conjunction with/from a pull post.	M
	Spill Prevention	• Ensure that spill control and spill clean-up and materials are on hand prior to initiating any heavy equipment or fueling operations to prevent entry into sensitive receptors.	L
	Vehicular Traffic	• Shut off and secure site vehicles prior to exiting them. Park on level ground where possible. If parking on an incline, engage parking brake. If the vehicle has a manual transmission, ensure the transmission is in gear (not neutral) and the parking brake is engaged before exiting the vehicle. • 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. • The Plant speed limit is 20 miles per hour unless otherwise	L

Job Steps	Hazards	Controls	RAC
		designated. All road control devices and signs are to be obeyed. • ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way. • When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes. When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.	
	Other	• **Review and Follow all requirements established by "ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors".** • **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location.** • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly and must avoid exposing their eyes to direct or indirect laser light energy sources.	L

Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
• Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • EMR or GPS utility locating equipment • Communication devices.	• Visual Inspections of designated work areas identify and address hazardous/MR conditions. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.).	• Review APP for new site personnel. • 1st Aid/CPR 1st Aid/CPR (2 per site when medical attention a medical facility or physician is more than 5 minutes away to two or more employees.	

Authored By: Rachel Francis; AGVIQ LLC

Date: 11/19/12

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Transportation and Disposal	Overall Risk Assessment Code (RAC) (Use highest code)			**M**
	SIGNATURES	Activity #	9	AHA #	**9**
PWD/OICC/ROICC OFFICE	Naval Weapons Station Yorktown				
NAME & DATE ACCEPTED BY GDA:	NAVFAC MIDLANT Safety Officer-TBD				
CONTRACT NUMBER:	**N62470-08-D-1006**				
TASK ORDER/DELIVERY #:	**WE28**				
PRIME CONTRACTOR:	**AGVIQ-CH2M HILL, Constructors, Inc. Joint Venture III**				
SUBCONTRACTOR:					
DATE OF PREPARATORY MEETING:	**TBD**				
DATE OF INITIAL INSPECTION:	TBD				
CONTRACTOR COMPETENT PERSON:					
SITE SAFETY and HEALTH OFFICER	TBD				

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)

E = EXTREMELY HIGH (PWO/OICC/ROICC)

H = HIGH RISK (FEAD DIRECTOR)

M = MODERATE RISK (CM or ET or PAR)

L = LOW RISK (ET or PAR)

Review each **"Hazard"** with identified safety **"Controls"** and determine (RAC)

Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place

"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.

Job Steps	Hazards	Controls	RAC
Transportation and Disposal	Preparedness	• Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Buddy System maintained for all phases of work. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. • Verify common fill materials have been tested and approved for use. • Ensure that spill control and spill clean-up and materials are on hand prior to initiating any heavy equipment or fueling operations to prevent entry into sensitive receptors.	L

Job Steps	Hazards	Controls	RAC
	Biological	• Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, snakes etc. • Observe areas for presence of stinging insects. Prior to starting field activities, **notify supervisors of known allergies to stinging insects and location of antidotes.** • Use insect repellant or permethrin (clothes). Tape pant legs to boots and ensure there are no open seams between boots and pant legs. Frequently check body and clothing for ticks, spiders, chiggers and fire ants. Where tick or chigger exposure is likely, the use of disposable coveralls shall be evaluated. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure.	L
	Fire Prevention	• Matches and other spark producing devices, including automobile cigarette lighters, are not allowed on this facility. • SMOKING IS PROHIBITED ON THE PLANT. All smoking materials must remain at the Security building. All Contractors wanting to smoke must return to Building 415 (Security) to do so.	M
	Manual Lifting	• AGVIQ-CH2M HILL or subcontract personnel must notify supervisors or safety representatives of preexisting medical conditions that may be aggravated or re-injured by lifting activities, especially lifting operation involving repetitive motions. • When lifting objects, lift using knees not back. For repetitive lifting tasks, the use of lifting braces/supports may be considered. Use heavy equipment to transfer heavy or awkward loads wherever possible. Have someone assist with the lift—especially for heavy (> 40lbs.) or awkward loads. Do not attempt to manually lift objects that should otherwise be lifted with heavy equipment. • Plan storage and staging to minimize lifting or carrying distances. Make sure the path of travel is clear prior to the lift. • Avoid carrying heavy objects above shoulder level.	L
	Slips, Trips, Falls	• Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet/steep slopes, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid areas of unprotected holes, ramps and ground penetrations or protrusions (stumps, roots, holes curbs, utility structures etc). Use sturdy hard toe work boots with sufficient ankle support. • Institute and maintain good housekeeping practices. Clean Work	L

Job Steps	Hazards	Controls	RAC
		Areas as activities proceed. Clear/removed materials and debris from pathways and commonly traveled areas as soon as possible.	
	Cuts and Abrasions	• Use leather gloves when cutting or rolling up fence fabric. • During mechanical power augering operations for the reinstallation of fence posts, personnel shall keep all hands/feet away from the rotating auger flights. Sufficient separation between ground personnel and operating power augers must be maintained. • During fence pulling operations, personnel shall not position themselves between the pulling device and the fence fabric being pulled taught.	L
	Material Handling	• Only one person shall signal the equipment operator during material handling operations. This person shall be able to communicate with the operator(s) with the appropriate hand signals. • No one shall walk under or in front of suspended loads. Loads shall not be lifted over ground personnel. • Any rigging used shall be inspected prior to use and shall be load rated (tagged or labeled). User shall familiarize themselves with design load rate capacities (i.e. vertical, basket/cradle or choker applications) for the selected rigging. • Equipment operators shall not leave the cab of the equipment while they are lifting a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured.	L
	Pinched/Struck-by/ Caught-in-between	• Sufficient separation between ground support personnel and any operating heavy equipment/ must be maintained. • Wear reflective vests or high visibility clothing to promote visibility of ground personnel by equipment operators. • Isolate equipment swing areas from workers, fixed objects or other equipment. Ground personnel shall avoid positioning themselves between fixed objects, operating equipment. Make/maintain eye contact with operators before approaching equipment. Do not approach equipment from rear or from blind spot of operator. Stay out of the swing radius of operating heavy equipment. • During the removal of fence fabric, personnel must position themselves in a way which will eliminate the potential for being struck by fencing being dropped to the ground surface. • Understand and review hand signals. Designate one person to provide hand signals to equipment operators performing lifting/hoisting operations. • Ensure equipment has operable back-up alarms.	M

Job Steps	Hazards	Controls	RAC
		• Step away from heavy equipment when adjustments (positioning) are made. • Ensure heavy equipment operator has spotter for obstructed views and backing up. • Use a come-along device, with sufficiently rated cable, to stretch fence fabric taught during the reinstallation of fence fabric. Stretching of the fabric should only be done in conjunction with/from a pull post.	
	Spill Prevention	• Ensure that spill control and spill clean-up and materials are on hand prior to initiating any heavy equipment or fueling operations to prevent entry into sensitive receptors.	L
	Vehicular Traffic	• Shut off and secure site vehicles prior to exiting them. Park on level ground where possible. If parking on an incline, engage parking brake. If the vehicle has a manual transmission, ensure the transmission is in gear (not neutral) and the parking brake is engaged before exiting the vehicle. • 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. • The Plant speed limit is 20 miles per hour unless otherwise designated. All road control devices and signs are to be obeyed. • ANY vehicle on plant displaying a flashing red light or ANY forklift truck (loaded or empty) shall be given the right-of-way. • When meeting a vehicle so equipped or a forklift truck, pull to the right edge of the road and stop until the approaching vehicle passes. When approaching from the rear, maintain a 100-foot distance. DO NOT PASS.	L
	Other	• **Review and Follow all requirements established by "ABL Safety, Security, and Environmental Rules for Contractors and Subcontractors".** • **To report fires, accidents, injuries, or environmental spills dial extension 5400 from any plant phone. When calling from a cell phone, you must dial 304-726-5310 (Guard Headquarters). When the guard answers, report your emergency need (fire or medical) and your location.** • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly and must avoid exposing their eyes to direct or indirect laser light energy sources.	L

Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
• Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • EMR or GPS utility locating equipment • Communication devices.	• Visual Inspections of designated work areas identify and address hazardous/MR conditions. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.).	• Review APP for new site personnel. • 1st Aid/CPR 1st Aid/CPR (2 per site when medical attention a medical facility or physician is more than 5 minutes away to two or more employees.	

Authored By: Rachel Francis; AGVIQ LLC

Date: 11/19/12

Attachment 1
Accident Prevention Plan Acknowledgement Form

ACCIDENT PREVENTION PLAN

ACKNOWLEDGEMENT FORM

AGVIQ-CH2M HILL SBRAC,

Task Order WE 28

AGVIQ-CH2M HILL project employees and subcontractors listed below have been provided with a copy of this Health and Safety Plan, have read or been briefed on its contents and agree to abide by its provisions.

Project Name: **Task Order:**

EMPLOYEE NAME (Please print)	**EMPLOYEE SIGNATURE**	**COMPANY**	**DATE**

Attachment 2
Subcontractor H&S Tracking Form

Subcontractor H&S Tracking Form

Project Name: **Task Number:** **Date:**

Subcontractor		Completed as Needed						Completed Within the Last 12 Months		
Name	Company	40-hour Training	8-hour Site Supervisor Training	Confined Space Entry Training	FA/CPR /BBP	Hazard Specific Training	Equipment Specific Training	Med Clearance	Fit Test	8-hour Refresher Training
		Enter "√" if Completed						Enter Date Last Completed		

Hazard Specific Training may include Hazard Communication (HAZCOM), asbestos, lead, fall protection, electrical, lock-out tag-out, drilling, demolition, etc.
Equipment Specific Training may include Industrial (fork) truck, aerial lift, crane, portable extinguisher, respirator, scaffolding, etc.
Medical Clearance documents must **not** include actual medical reports. Only accept a signed physician's statement of fitness to work.

Attachment 3
Project H&S Forms/Permits

AGVIQ LLC
AGVIQ ENVIRONMENTAL SERVICES
CH2M HILL
JOINT VENTURE

AGVIQ-CH2M HILL , SBRAC - TO WE 28
FDP 1 & 3 ABL – Site Sign In Sheet

DATE	NAME	COMPANY	IN	OUT	IN	OUT

AGVIQ-CH2M HILL , SBRAC - TO WE 28
FDP 1 and 3 - AIR MONITORING LOG

Date	Time	Activity	Location	PID	

Stop Work Order Form

REPORT PREPARED BY:

Name:	Title:	Signature:	Date:

ISSUE OF NONPERFORMANCE

Description:_____	Date of Nonperformance:
_____ _____ _____ _____ _____	_____

SUBCONTRACTOR SIGNATURE OF NOTIFICATION:

Name:	Title:	Signature:	Date:

** Corrective action is to be taken immediately. Note below the action taken, sign and return to CCI.*

SUBCONTRACTOR'S CORRECTIVE ACTION

Description:_____	Date of Corrective Actions:
_____ _____ _____ _____ _____	_____

SUBCONTRACTOR SIGNATURE OF CORRECTION:

Name:	Title:	Signature:	Date:

WORKING ALONE STANDARD

CALL – IN CONTACT FORM

Date of site work:_____ Expected start time:_____

Name of CH2M HILL employee in the field:_____

Name of CH2M HILL employee responsible to receive contact:

Client Emergency Contact (if any):

CH2M HILL employee's contact numbers:

Radio #_____

Cell Phone #_____

Address and Location of work:_____

Directions/Map:

Planned Activity:_____

Specified Frequency and time for call in:_____

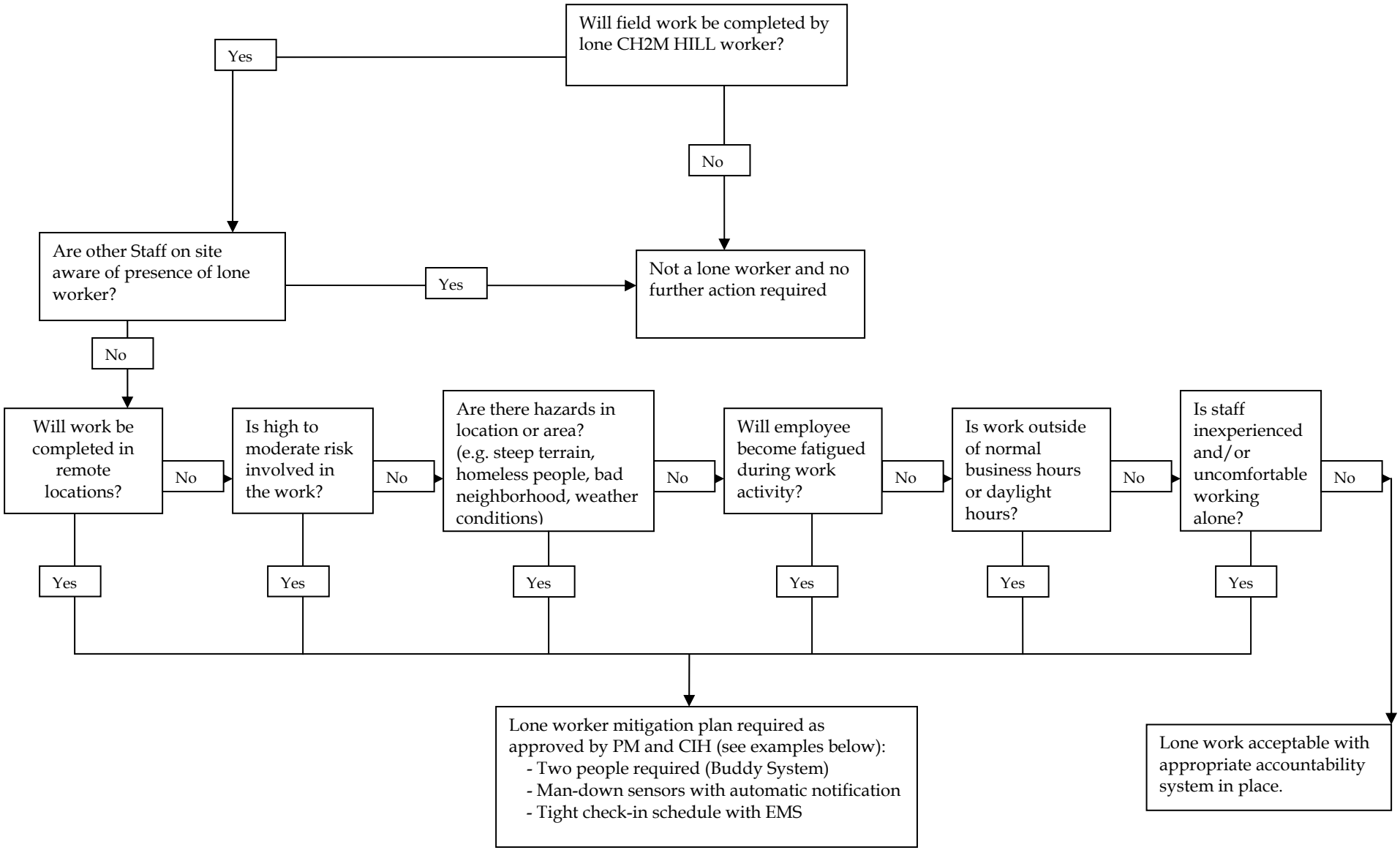
Time	Verified	Location

If lone worker fails to call in at specified frequency/time:

1) Call worker's radio and cell to determine if an emergency exists.
2) If no reply, immediately call Client security/emergency service if there is one at the site.
3) If there is no client security call Emergency Services (911). Inform the dispatcher there is a lone worker that cannot be contacted and there may be an emergency on site. Provide the lone worker's name, their last known location, and your contact information.

After Emergency Services have been contacted, call the other emergency contacts, Project Manager, and Health and Safety Manager.

Lone Worker Protocol



Attachment 4
Emergency Contact List

Emergency Contact List

24-hour CH2M HILL Serious Incident Reporting Contact/Pager: 720-286-4911
CH2M HILL 24-hour Nurse Number: 866-893-2514

Medical Emergency 911
Fire/Spill Emergency 911
Security Emergency 911

ATK Security Office: (304) 726-5310

ATK Security must be informed of emergency, otherwise emergency 911 response will be delayed.

Client POC *:
Les Mull (307)-726-5425/ 301-697-8615 (cell)

***Contact to client shall only be made after contacting Project Manager with regard to emergency situations, site access/control procedures relative to site burning issues.**

CH2M HIL- Medical Consultant
WorkCare
Dr. Peter Greaney M.D.
300 S. Harbor Blvd, Suite 600
Anaheim , CA 92805
800-455-6155
714-978-7488
(After hours calls will be returned within 20 minutes)

AGVIQ Medical Consultant(s)
Refer to AQVIQ VBO office for a detailed list of Medical Facilities/contacts.

AGVIQ Medical Consultant(s)
Refer to AQVIQ VBO office for a detailed list of Medical Facilities/contacts.

AGVIQ-CH2M HILL SBRAC Program Manager
Name: Sidney Allison AGVIQ
Phone 843-242-8018 (o); 843-813-2672 (cell)

AGVIQ-CH2M HILL Project Manager (overall)
Name: Paul Rakowski, PE AGVIQ
Phone: (757) 213- 8581(757) 544-6744 (cell)

AGVIQ-CH2M HILL SBRAC Deputy Program Manager
Name: Sam Naik CH2M HILL – (ATL?)
Phone: 678-530-4248/678-860-9626 (cell)

AGVIQ-CH2M HILL Technical Support/Consultation
Name: Janice Derby
Mobile: (617) 416-1211

AGVIQ-CH2M HILL Alternate SSHO
Name: TBD
Phone: (757) /757- (cell)

AGVIQ-CH2M HILL HSPA
Name: Rachel Francis – AGVIQ VBO
Cell Phone: (757) 354-5820

AGVIQ-CH2M HILL Program CIH
Name: Angelo Liberatore, CH2M HILL Constructors, Inc. (ATL)
Phone: (678) 530-4210/(770) 335-2076 (cell)

AGVIQ-CH2M HILL HSPA
Name: Mark Orman, CH2M HILL Constructors, Inc. (MKE)
Phone: (414) 847-0597 / (414) 712-4138 (Cell)

AGVIQ-CH2M HILL SSHO
Name: TBD Phone:

AGVIQ Corporate Human Resources Department & AGVIQ Worker's Compensation & Auto Claims
Name: Sabrina Ben
TIKIGAQ Corp. Anchorage, AK
Phone: (907) 365 6129/ (907) 341-6139 (fax)

AGVIQ personnel to report all accidents or injuries to AGVIQ Corporate HSM or HSO immediately but no later than 24 hrs. Fatalities and hospitalizations shall require immediate notification to AGVIQ Corporate HSM.

CH2M HILL Worker's Compensation & Auto Claims
Zurich American Ins. Co
1400 American Lane
Schaumburg IL 60196-1056
1800-987-3373
Contact Business Group Human Resources Dept. to have form completed or contact Albert Jerman after hours: 303/741-5927
Rental: Linda Anderson/COR 720/286-2401
CH2M HILL owned vehicle: Linda George 720-286-2057
Fatalities and hospitalizations shall require immediate notification to AGVIQ-CH2M HILL Program CIH.

AGVIQ Corporate HSM
Name: Troy Izatt –
Office phone # (907) 365-6182
Cell phone # (907) 947-6851

Federal Express Dangerous Goods Shipping
Phone: 800/238-5355

Emergency Number for Shipping Dangerous Goods
Phone: 800/255-3924

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

Facility Alarms

Warble Tone	**Test Fire Alarm. Rocket test area.**
Wail sound	**Plant Fire Alarm.**
Siren	**Emergency conditions exists.**
Westminster Chimes	**All Clear Signal.**

Evacuation Assembly and Routes Area(s):
See Site 1 ABL Evacuation Routes Map as Figures 9-1 of this APP.

Hospital Name/Address: See site specific Hospital Route Map as Figures 9-2 of this APP.

Attachment 5
Material Safety Data Sheets

Attachment 6
Chemical Specific Training Form and Project Specific Chemical Product Hazard Communication Form

CHEMICAL-SPECIFIC TRAINING FORM

Location:	Task Order:
SSHO:	Trainer:

TRAINING PARTICIPANTS:

NAME	SIGNATURE	NAME	SIGNATURE

REGULATED PRODUCTS/TASKS COVERED BY THIS TRAINING:

The SSHO will 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 will 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 the written hazard communication program will be made available for employee review in the facility/project hazard communication file.

Project-Specific Chemical Product Hazard Communication Form

This form must be completed prior to performing activities that expose personnel to hazardous chemicals products. Upon completion of this form, the SSHO will verify that training is provided on the hazards associated with these chemicals and the control measures to be used to prevent exposure to AGVIQ-CH2M HILL and subcontractor personnel. Labeling and MSDS systems will also be explained.

Project Name: **Task Order:**

MSDSs will be maintained at the following location(s):

Hazardous Chemical Products Inventory

Chemical	**Quantity**	**Location**	**MSDS Available**	**Container labels**	
				Identity	**Hazard**

Refer to SOP HS-107 Hazard Communication for more detailed information.

Attachment 7
Pre-Task Safety Plan

AGVIQ ENVIRONMENTAL SERVICES
CH2M HILL JOINT VENTURE

EXAMPLE ONLY

DAILY PRE-TASK SAFETY PLAN (PTSP)

Project: _____ Location: _____ Date:_____
Site Safety & Health Officer: _____ Job Activity: _____ Site #:_____

Task Personnel:

_____
_____
_____

List Tasks:

_____

Tools/Equipment/Materials required (ladders, scaffolds, fall protection, cranes/rigging, heavy equipment, power tools, cords, generators, compressed gases, regulated chemical products, etc.):

_____

Potential H&S Hazards, including chemical, physical, safety, biological and environmental (Check all that apply):

_X_ Chemical burns/contact Dermal protection (hands), eye protection. See APP for PPE requirements per task.	__ Trench, excavations, cave-ins	__Ergonomics
__ Pressurized lines/equipment	X_ Overexertion Work/break regiment as dictated by task. Maintain fluid intake for hydration	_X_ Chemical splash Use PPE in accordance with the APP. Protect hands from splash during decon. activities.
_X_Thermal burns Watch for warm engine/muffler components on generators.	__ Pinch points	X Poisonous plants/insects Review APP for identification of poisonous snakes in the geographic area. Long sleeves in areas where poison ivy, sumac or oak may exist. Use insect repellent. Tape pant legs to boots (ticks).
X_ Electrical GCFIs for generators, Inspect. & protect extension cords, cords rated for use & have 3rd wire grounding	X_Cuts/abrasions Do not use razor knives. Cut away from body. Identify and avoid rusty/jagged or sharp surfaces from above ground features (brush, pipe chases/supports, utility structures, doors)	X_ Eye hazards/flying projectile Use eye protection at all times. Ensure head protection is used in areas where heavy brush, trees, thorns, vines exist when accessing well heads.
__ Weather conditions Foul and cold weather clothing as dictated by expected conditions	X_ Spills Use funnels & nozzles during fueling of generators.	__ Inhalation hazard
__Heights/fall> 6’	__ Overhead Electrical hazards	X_ **Heat**/cold stress Work/break regiment as dictated by heat exposure Provide sufficient fluids for employee intake. Recommended employees begin with 16 oz. of water before initiating field work.
X_Noise Use hear protection in loud work environments	__ Elevated loads	__ Water/drowning hazard
X_Explosion/fire Metal safety cans for fuel storage, No open flame, sparks ignition in hazardous/flammable/ combustible storage areas. Let engine surfaces cool before fueling.	X_ Slips, trip and falls Exercise good general housekeeping practices Identify/remove slip/trip falls hazards in work area. Watch for and avoid holes, ground protrusions. Watch for entanglement of feet around vines and brush.	__ Heavy equipment
X_ Radiation Solar. UV protection on skin and UV eye protection. ANSI rated safety eye protection only.	X_Manual lifting >50 lbs or awkward loads, get assistance. If employee not capable of lifting 40 lbs. seek assistance.	__ Aerial lifts/platforms
__ Confined space entry	__Welding/cutting	__ Demolition

Continue on page 3 of 3 (if necessary)

Hazard Control Measures (Check all that apply):

PPE	**Protective Systems**	**Fire Protection**	**Electrical**
X_ Head protection	__ Locate buried utilities	__ Fire extinguishers	__ Lockout/tagout
__ Face protection	__ Competent person	__ Fire watch	__ Grounded
X_Hard toe work boots	__ Daily inspections	__ Non-spark tools	__ Panels covered
__ Thermal/lined	__ Sloping	__ Grounding/bonding	X_GFCI/extension cords
X_ Eye	__ Shoring	__ Intrinsically safe equipment	__ Power tools/cord inspected
X_Dermal/hand	__ Trench box	__Combustible materials storage	__Insulated tools/gloves
__ Hearing	__ Barricades	__Chemical Storage	
__ Respiratory			
X_Reflective vests			
Fall Protection	**Air Monitoring**	**Proper Equipment**	**Welding & Cutting**
__ Harness/lanyards	__ PID/FID	__ Aerial lift/ladders/scaffolds	__ Cylinders secured/capped
__ Adequate anchorage	__ Detector tubes	__ Forklift/ Heavy equipment	__ Cylinders separated/upright
__ Guardrail system	__ Radiation	__ Backup alarms	__ Flash-back arrestors
__ Covered opening	__ Personnel sampling	__ Hand/power tools	__ No cylinders in CSE
__ Fixed barricades	__ LEL/O2	__ Crane w/current inspection	__ Flame retardant clothing
__ Warning system	__ Other	__ Proper rigging	__ Appropriate goggles
		__ Operator qualified	
Confined Space Entry	**Medical/Emerg. Response**	**Heat/Cold Stress**	**Vehicle/Traffic**
__ Isolation	X_ First-aid & BBP kit	X_Work/rest regime	__ Traffic Awareness
__ Air monitoring	X_Eye wash	X_ Rest area	__Traffic control
__ Trained personnel	X_FA-CPR training	X_Liquids available	__ Barricades
__ Permit completed	X_Route to hospital	X_Monitoring	__ Flags
__ Rescue provisions		__ Training	__ Signs
Permits	**Demolition**	**Inspections**	**Training**
__ Hot work	__ Pre-demolition survey	__ Ladders/aerial lifts	X_ Hazwaste
__ Confined space	__ Structure condition	__ Lanyards/harness	__ Construction
__ Lockout/tagout	__ Isolate area/utilities	__ Scaffolds	__Equipment
__ Excavation	__ Competent person	__ Heavy equipment	__ Competent person
__ Demolition	__ Hazmat present	__Cranes and rigging	X_Task-specific (AHA)
__ Energized work		__Other per Field Safety Plan	X_ Hazcom
__Local/Environmental			

Field Notes:

_____

_____

_____

Additional Space for Project Specific Hazard Awareness (if necessary):

1) Observe government/military facility posted speed limits.
2) Wear seat belts in vehicles while on government/military facilities.
3) Do not use cell phones or two way radios while driving or actively operating equipment on government/military facilities.
4) Failure to do so may result in loss of driving privileges on government/military facilities.
5) Report all accidents/injuries and property damage to the Project Manager and Program CIH immediately.
6) Maintain hospital route maps in site vehicles. Know facility EMS, Fire and Security dispatch #s.
7) Secure any loads to hauling vehicle (pick-up truck) with appropriate rated tie down straps.
8) Use reflective vests/ high visibility clothing in high traffic areas or in areas were material handling operations are occurring.

Attendees:

Name (Printed):	Signature:

Meeting Conducted By:

Name Printed	Signature

Attachment 8
Loss Prevention Observation Form

Loss Prevention Observation Form		
Project:	Observer:	
Position/Title of worker observed:	Background Information/comments:	
Task/Observation Observed:		Date:

- Identify and reinforce safe work practices/behaviors
- Identify and improve on at-risk practices/acts
- Identify and improve on practices, conditions, controls, and compliance that eliminate or reduce hazards
- Proactive PM/Site Manager support facilitates eliminating/reducing hazards (material/personnel resources)
- Positive, corrective, cooperative, collaborative feedback/recommendations

Actions & Behaviors	**Consistent w/ H&S Program**	**Not Consistent w/ H&S Program**	**Observations/Comments**
Current & accurate Pre-Task Planning/Briefing (Project safety plan, AHA, PTSP, tailgate briefing, c., as needed)			**Positive Work Practices Observed:**
Personnel properly trained/qualified/experienced			
Tools/equipment available and adequate			
Proper use of tools			**Questionable Activity/Condition Observed:**
Barricades/work zone control			
Housekeeping			
Communication			
Work Approach/Habits			
Attitude			
Focus/attentiveness			**Actions/Comments:**
Pace			
Uncomfortable position			
Inconvenient location			
Position/Line of fire			
Apparel (hair, loose clothing, jewelry)			
Repetitive motion			**Observed Worker's Corrective Actions/Comments:**
Other…			

Safety and Occupational Health Deficiency Tracking Log						
Item	Date Identified	Identified By	Deficiency Description	Resolution Date	Corrected By	Actual Correction Date
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

Attachment 9
Loss/Near Loss Incident Report Form

Incident Report Form

Type of Incident (Select at least one)

- ☐ Injury/Illness
- ☐ Environmental/Permit Issue
- ☐ Property Damage
- ☐ Near Miss
- ☐ Spill/Release
- ☐ 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)

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

Location of Incident (Select one)

- ☐ Company Premises (JVI 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)

- ☐ Northeast
- ☐ Southeast
- ☐ Northwest
- ☐ Southwest
- ☐ Corporate
- ☐ Canadian
- ☐ Asia Pacific
- ☐ Europe Middle East
- ☐ Latin America

If an AGVIQ-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 AGVIQ-CH2M HILL employee injured

Employee Name: _____ Employee Number: _____

If AGVIQ-CH2M HILL Subcontractor employee injured
Employee Name: _____ Company: _____

Injury Type

- ☐ Allergic Reaction
- ☐ Amputation
- ☐ Asphyxia
- ☐ Bruise/Contusion/Abrasion
- ☐ Burn (Chemical)
- ☐ Burn/Scald (Heat)
- ☐ Cancer
- ☐ Carpal Tunnel
- ☐ Concussion
- ☐ Cut/Laceration
- ☐ Dermatitis
- ☐ Dislocation
- ☐ Electric Shock
- ☐ Foreign Body in eye
- ☐ Fracture
- ☐ Freezing/Frost Bite
- ☐ Headache
- ☐ Hearing Loss
- ☐ Heat Exhaustion
- ☐ Hernia
- ☐ Infection
- ☐ Irritation to eye
- ☐ Ligament Damage
- ☐ Multiple (Specify)

_____

- ☐ Muscle Spasms
- ☐ Other (Specify)

_____

- ☐ Poisoning (Systemic)
- ☐ Puncture
- ☐ Radiation Effects
- ☐ Strain/Sprain
- ☐ Tendonitis
- ☐ Wrist Pain

Part of Body Injured

- ☐ Abdomen
- ☐ Ankle(s)
- ☐ Arms (Multiple)
- ☐ Back
- ☐ Blood
- ☐ Body System
- ☐ Buttocks
- ☐ Chest/Ribs
- ☐ Ear(s)
- ☐ Elbow(s)
- ☐ Eye(s)
- ☐ Face
- ☐ Finger(s)
- ☐ Foot/Feet
- ☐ Hand(s)
- ☐ Head
- ☐ Hip(s)
- ☐ Kidney
- ☐ Knee(s)
- ☐ Leg(s)
- ☐ Liver
- ☐ Lower (arms)
- ☐ Lower (legs)
- ☐ Lung
- ☐ Mind
- ☐ Multiple (Specify)
- ☐ Neck
- ☐ Nervous System
- ☐ Nose
- ☐ Other (Specify)

_____

- ☐ Reproductive System
- ☐ Shoulder(s)
- ☐ Throat
- ☐ Toe(s)
- ☐ Upper Arm(s)
- ☐ Upper Leg(s)
- ☐ Wrist(s)

10.6.1.1.1.1.1.1.1 *Nature of Injury*

- ☐ Absorption
- ☐ Bite/Sting/Scratch
- ☐ Cardio-Vascular/Respiratory System Failure
- ☐ Caught In or Between
- ☐ Fall (From Elevation)
- ☐ Fall (Same Level)
- ☐ Ingestion
- ☐ Inhalation
- ☐ Lifting
- ☐ Mental Stress
- ☐ Motor Vehicle Accident
- ☐ Multiple (Specify)

_____

- ☐ Other (Specify)

_____

- ☐ Overexertion
- ☐ Repeated Motion/Pressure
- ☐ Rubbed/Abraded
- ☐ Shock
- ☐ Struck Against
- ☐ Struck By
- ☐ Work Place Violence

- Initial Diagnosis/Treatment Date: _____

Type of Treatment

- ☐ Admission to hospital/medical facility
- ☐ Application of bandages
- ☐ Cold/Heat Compression/Multiple Treatment
- ☐ Cold/Heat Compression/One Treatment
- ☐ First Degree Burn Treatment
- ☐ Heat Therapy/Multiple treatment
- ☐ Multiple (Specify)

_____

- ☐ Heat Therapy/One Treatment
- ☐ Non-Prescriptive medicine
- ☐ None
- ☐ Observation
- ☐ Other (Specify)

_____

- ☐ Prescription- Multiple dose
- ☐ Prescription- Single dose
- ☐ Removal of foreign bodies
- ☐ Skin Removal
- ☐ Soaking therapy- Multiple Treatment
- ☐ Soaking Therapy- One Treatment
- ☐ Stitches/Sutures
- ☐ Tetanus
- ☐ Treatment for infection
- ☐ Treatment of 2nd /3rd degree burns
- ☐ Use of Antiseptics – multiple treatment
- ☐ Use of Antiseptics – single treatment
- ☐ Whirlpool bath therapy/multiple treatment
- ☐ Whirlpool bath 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		Hospital Information	
Name:	_____	Name:	_____
Address:	_____	Address:	_____
City:	_____	City:	_____
Zip Code:	_____	Zip Code:	_____
Phone:	_____	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 Exceedance:
_____

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

AGVIQ-CH2M HILL Personnel Notified: _____
Client Notified: _____

Root Cause Investigation

This attachment is provided to assist in accessing, completing, and reviewing an incident investigation. It is important to remember the following when conducting an investigation:

Gather relevant facts, focusing on fact-finding, not fault-finding.
Draw conclusions, pitting facts together into a probable scenario.
Determine incident root cause(s), the basic causes why an unsafe act/condition existed.
Develop and implement solutions, matching all identified root causes with solutions.

Documentation
The following should be included in the Incident Report Form (IRF) to document the incident.

Description

Provide a description of the event and the sequence of events and actions that took place prior to the incident. Start with the incident event and work backwards in time through all of the preceding events that directly contributed to the incident. The information should identify why the event took place as well as who was involved, when and where the event took place, and what actions were taken.

Cause Analysis

Using the form and flowchart in this attachment the root cause of the incident will be determined. This form must be retained in the project and/or regional HS&E files.

Immediate Causes—List the substandard actions or conditions that directly affected the incident. The following are examples of immediate causes:

> ***Substandard Actions*:** Operating equipment without authority; failure to warn; failure to secure; operating at improper speed; making safety device inoperable; using defective equipment; failing to use PPE; improper loading; improper lifting; improper position for task; under influence of alcohol or drugs; horseplay.
>
> ***Substandard Conditions:*** Exposure to hazardous materials; exposure to extreme temperatures; improper lighting; improper ventilation; congestion; exposure to fire and explosive hazard; defective tools, equipment or materials; exposure to extreme noise; poor ventilation; poor visibility; poor housekeeping.

Basic Causes—List the personal and job factors that caused the incident. The following are examples of basic causes:

> ***Personal Factors:*** Capability; knowledge; skill; stress; motivation.
>
> ***Job Factors:*** Abuse or misuse; engineering; maintenance; purchasing; supervision; tools and equipment; wear and tear; work standards.

Corrective Action Plan

Include all corrective actions taken or those that should be taken to prevent recurrence of the incident. Include the specific actions to be taken, the employer and personnel responsible for implementing the actions, and a time frame for completion. Be sure the corrective actions address the causes. For example, training may prevent recurrence of an incident caused by a lack of knowledge, but it may not help an incident caused by improper motivation.

The following are examples of management programs that may be used to control future incidents. These programs should be considered when determining specific corrective actions.

Management Programs: Accident/incident analysis; emergency preparedness; engineering controls; general promotion; group meetings; health control; hiring and placement; leadership and administration; management training; organizational rules; personal protective equipment; planned inspections; program audits; program controls; purchasing controls; task analysis and procedures; task observation.

Loss/Near-Loss Investigation Report Form

Employer Information

Company Name: _____

Project Name: _____ Task Order: _____

Project Location: _____

Task Location: _____

Job Assignment: _____

Preparer's Name: _____ Preparer's Employee Number: _____

Incident Specific Information

Date of Incident: _____ Time of Incident: _____ a.m./p.m.

Location of incident:
☐ Company premises
☐ Field
☐ In Transit
☐ Other:_____
_____

Address where the incident occurred: _____

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

Describe any property damage: _____

Specific activity the employee was engaged in when the incident occurred:
_____
_____

All equipment, materials, or chemicals the employee was using when the incident occurred:
_____
_____

Describe the specific incident and how it occurred:
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Describe how this incident may have been prevented:

_____
_____
_____
_____
_____
_____
_____
_____

Contributing Factors (Describe in detail why incident occurred):

_____
_____
_____
_____
_____

Date employer notified of incident: _____ To whom reported: _____

Witness Information (First Witness)

Name: _____
Employee Number_____
Address:_____
City: _____
Zip Code : _____
Phone: _____

Witness Information (Second Witness)

Name: _____
Employee Number_____
Address:_____
City: _____
Zip Code : _____
Phone: _____

Additional information or
comments:_____
_____
_____

A ROOT CAUSE ANALYSIS FORM MUST BE COMPLETED FOR ALL INJURIES AND ILLNESSES OR ACTUAL LOSSES.

COMPLETION OF THE ROOT CAUSE ANALYSIS FORM FOR NEAR LOSSES IS OPTIONAL, AT THE DISCRETION OF THE HEALTH AND SAFETY MANAGER.

Determination of Root Cause(s)

For losses or near losses the information may be gathered by the supervisor or other personnel immediately following the loss or near loss. Based on the complexity of the situation, this information may be all that is necessary to enable the investigation team to analyze the loss, to determine the root cause, and to develop recommendations. More complex situations may require the investigation team to revisit the loss site or re-interview key witnesses to obtain answers to questions that may arise during the investigation process.

Photographs or videotapes of the scene and damaged equipment should be taken from all sides and from various distances. This point is especially important when the investigation team will not be able to review the loss scene.

The investigation team must use the Root Cause Analysis Flow Chart to assist in identifying the root cause(s) of a loss. Any loss may have one or more "root causes" and "contributing factors". The "root cause" is the primary or immediate cause of the incident, while a "contributing factor" is a condition or event that contributes to the incident happening, but is not the primary cause of the incident. Root causes and contributing factors that relate to the *person* involved in the loss, his or her peers, or the supervisor should be referred to as "personal factors". Causes that pertain to the *system* within which the loss or injury occurred should be referred to as "job factors".

<u>Personal Factors</u>

1. Lack of skill or knowledge, lack of motivation
5. Correct way takes more time and/or requires more effort
6. Short-cutting standard procedures is positively reinforced or tolerated
7. Person thinks that there is no personal benefit to always doing the job according to standards

<u>Job Factors</u>

2. Lack of or inadequate operational procedures or work standards.
3. Inadequate communication of expectations regarding procedures or standards
4. Inadequate tools or equipment

<u>Other</u>

8. Uncontrollable Factors *****

The root cause(s) could be any one or a combination of these seven possibilities or some other "uncontrollable factor". In the vast majority of losses, the root cause is very much related to one or more of these seven factors. * **Uncontrollable factors should be used rarely and only after a thorough review eliminates "all" seven other factors.**

Root Cause Analysis Form

Root Cause Analysis (RCA)

Root Cause Categories (RCC): Select the RCC numbered below that applies for the root cause (RC) and/or contributing factor (CF) in the first column, then describe the specific root cause and corrective actions in each column.

1. **Lack of skill or knowledge**
2. **Lack of or inadequate operational procedures or work standards**
3. **Inadequate communication of expectations regarding procedures or work standards**
4. **Inadequate tools or equipment**
5. **Correct way takes more time and/or requires more effort**
6. **Short-cutting standard procedures is positively reinforced or tolerated**
7. **Person thinks there is no personal benefit to always doing the job according to standards**
8. **Uncontrollable Factor (Note: Uncontrollable factors should be used rarely and only after a thorough review eliminates "all" seven other factors.)**

RCC #	Root Cause(s)	Corrective Actions	RC[1]	CF[2]	Due Date	Completion Date	Date Verified

[1] RC = Root Cause; [2] CF = Contributing Factors (check which applies)

Investigation Team Members

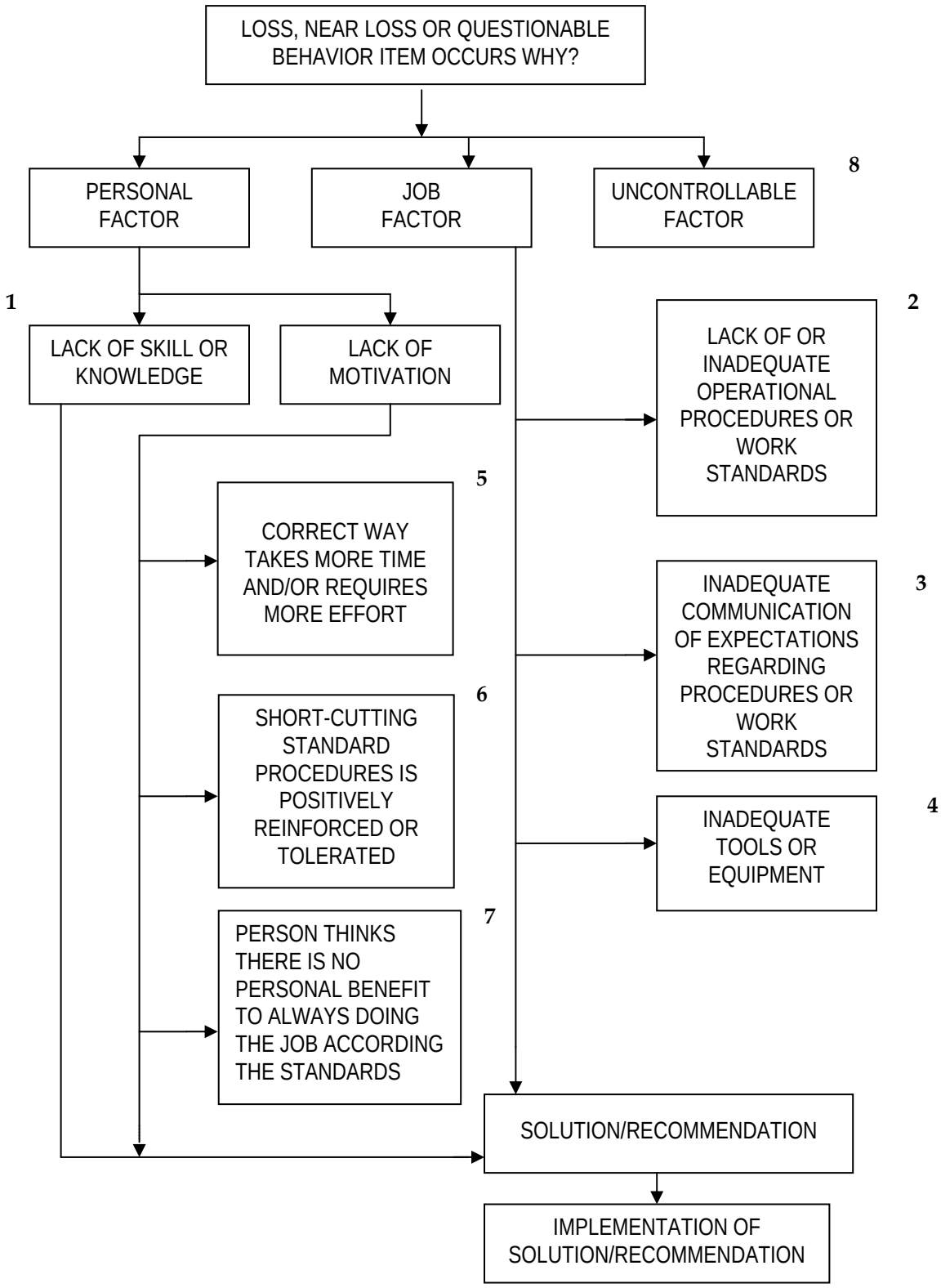
Name	Job Title	Date

Results of Solution Verification and Validation

Reviewed By

Name	Job Title	Date

Root Cause Analysis Flow Chart



Emergency Nurse Assistance Instructions
(CH2M HILL personnel only)

- After informing their supervisor (AGVIQ-CH2M HILL Project Manager and/or AGVIQ-CH2M HILL Deputy Program Manager), the injured employee calls CH2M HILL's contracted Occupational Nurse.

- 24-hour CH2M HILL Emergency Nurse Assistance
- 1-866-893-2514
- The Occupational Injury Nurse listens to the injured employee to understand the injury/illness.
- Employee is provided guidance on appropriate treatment options (triage).
- If instructed to visit a medical facility by the Occupational Injury Nurse, the Supervisor is responsible for instructing the injured employee to take a copy of the **CH2M HILL Initial Medical Treatment Form (Attachment 9– For Use by CH2M HILL Personnel Only)** with them to the physician, clinic or hospital.
- Appropriate treatment details are handled by the Occupational Injury Nurse, and Workers Compensation Groups.
- Nurse communicates and troubleshoots with and for employee through full recovery
- Upon any project incident (fire, spill, injury, near miss, death, etc.), immediately notify the AGVIQ-CH2M HILL PM (overall) and AGVIQ-CH2M HILL Program Manager, Project Manager and CIH/HSPA.
- For work-related injuries or illnesses to CH2M HILL personnel, contact and help Human Resources administrator complete a Hours and Incident Tracking System (HITS) Form. HITS must be completed within 24 hours of incident.

For AGVIQ-CH2M HILL subcontractor incidents, complete the IRF, Near Loss Investigation Report and Root Cause Analysis and submit to the AGVIQ-CH2M HILL PM and CIH/HSPA.

CH2MHILL

INITIAL MEDICAL TREATMENT FORM

To be completed by CH2M HILL Supervisor – Send with employee visiting medical facility or forward within 24 hours.

Employee name: _____Date of Injury:_____
Supervisor: _____ HS
Representative:_____
Visit Authorized by: _____Phone #;_____

CH2M HILL Workers Compensation Administrator: Cambridge
Send Bills to: CH2M HILL
Attn: Jennifer Rindahl
P.O. Box 22508
Denver, Colorado 80222-0508

To be completed by medical provider:

Physician's name: _____ Phone #: _____
Address: _____
CH2M HILL employee: _____ has been treated for:_____

It is the policy of CH2M HILL to provide temporary modified duty whenever possible for employees with physical restrictions resulting from an occupational injury or illness.

Released to full duty

Released to restricted duty only (list restrictions below)

Out of work until _____(date)

Please list any physical restrictions:
_____
_____

Expected duration of restricted duty?
_____

CH2M HILL would like the best and most efficient care extended to all our employees. Please recommend over-the-counter (OTC) medication as a suitable alternative when medically feasible.

Prescribed medication:_____

Recommended OTC alternative:_____

Date of follow-up appointment:_____

Physician's signature: _____ Date: _____

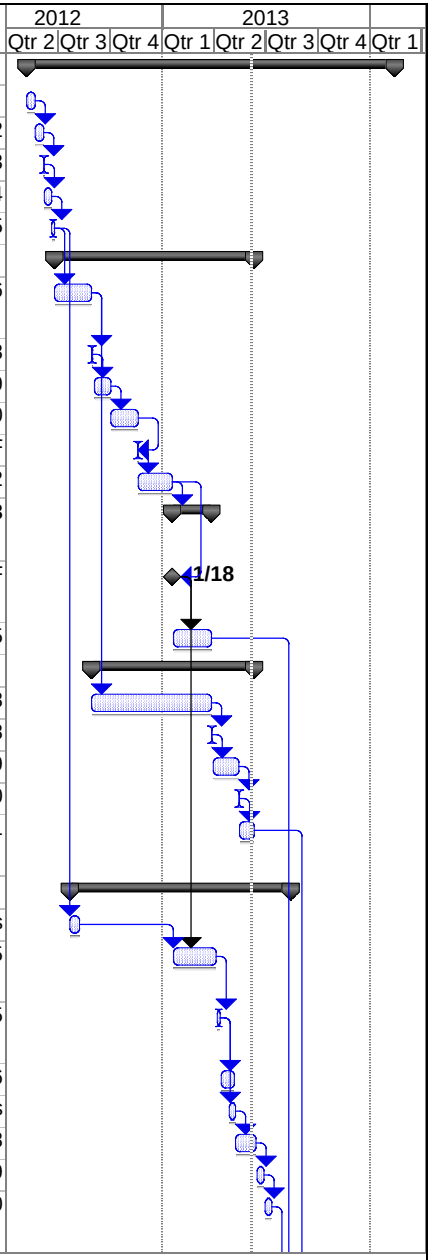
Please return this form to the injured employee and FAX to Health Resources at 1-800-853-2641. If you want to discuss the employee's work restrictions, please call the person listed in the "Visit Authorized by" field.

Attachment 10
Hurricane Preparedness Plan

(Reserved)

Appendix B
Project Schedule

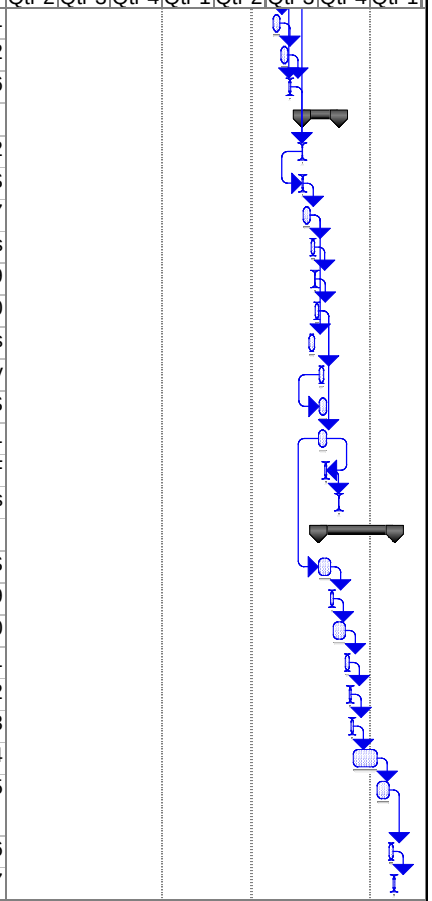
ID	Task Name	Physical % Complete	Duration	Start	Finish	Predecessors
1	**Former Disposal Pits 1 and 3 Remediation**	**0%**	**455 days**	**Tue 5/8/12**	**Thu 2/13/14**	
2	Submit Proposal to Navy	100%	11 days	Tue 5/8/12	Tue 5/22/12	
3	Navy review of proposal	100%	10 days	Wed 5/23/12	Wed 6/6/12	2
4	Proposal Negotiations	100%	1 day	Thu 6/7/12	Thu 6/7/12	3
5	Revise Proposal	100%	9 days	Fri 6/8/12	Wed 6/20/12	4
6	Award	100%	3 days	Thu 6/21/12	Mon 6/25/12	5
7	**Project Planning**	**0%**	**244 days**	**Tue 6/26/12**	**Tue 6/11/13**	
8	Prepare Draft RAWP	100%	47 days	Tue 6/26/12	Wed 8/29/12	6
9	Submit Draft RAWP to Navy	100%	2 days	Thu 8/30/12	Fri 8/31/12	8
10	Navy Review of RAWP	100%	21 days	Tue 9/4/12	Tue 10/2/12	9
11	Address Navy comments on RAWP	100%	34 days	Wed 10/3/12	Mon 11/19/12	10
12	Submit Draft RAWP to Navy & Regulators	100%	1 day	Mon 11/19/12	Mon 11/19/12	11FF
13	Regulatory review of Draft RAWP	100%	38 days	Tue 11/20/12	Fri 1/18/13	12
14	**Receive & address regulatory comments on Draft RAWP**	**0%**	**49 days**	**Fri 1/18/13**	**Thu 3/28/13**	**13**
15	Receive regulator comments	100%	0 days	Fri 1/18/13	Fri 1/18/13	13FF
16	Address regulatory comments	100%	49 days	Mon 1/21/13	Thu 3/28/13	15
17	**APP**	**0%**	**197 days**	**Thu 8/30/12**	**Tue 6/11/13**	
18	Prepare Draft APP	100%	144 days	Thu 8/30/12	Thu 3/28/13	8
19	Submit Draft APP to Navy	100%	1 day	Fri 3/29/13	Fri 3/29/13	18
20	Navy review of Draft APP	100%	33 days	Mon 4/1/13	Wed 5/15/13	19
21	Incorporate Navy comments on APP	100%	1 day	Thu 5/16/13	Thu 5/16/13	20
22	Submit Final RAWP with Final APP to Navy and Regulators	99%	18 days	Fri 5/17/13	Tue 6/11/13	21
23	**Soil Stabilization Structure Design**	**0%**	**271 days**	**Mon 7/23/12**	**Wed 8/14/13**	
24	Review existing geotechnical data	100%	13 days	Mon 7/23/12	Wed 8/8/12	6FS+19 days
25	Geotechnical drilling subcontractor, analytical lab and surveyor procurement activities	100%	55 days	Mon 1/21/13	Fri 4/5/13	24,15
26	Geotechnical & chemical soil sampling and topographic survey	100%	5 days	Mon 4/8/13	Fri 4/12/13	25
27	Receive soil boring chemical data results	100%	17 days	Mon 4/15/13	Tue 5/7/13	26
28	Receive geotech boring data results	100%	9 days	Mon 4/29/13	Thu 5/9/13	26FS+10 days
29	Develop 3 conceptual soil stabilization designs	90%	26 days	Fri 5/10/13	Fri 6/14/13	28
30	Receive Navy approval for recommended design	0%	10 days	Mon 6/17/13	Fri 6/28/13	29
31	Address Navy comments, develop design/build package & send to bidders	0%	10 days	Mon 7/1/13	Fri 7/12/13	30



Project: Site 1 FDPs 1 & 3 NTCRA
Date: Wed 6/5/13

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External MileTask
Split

ID	Task Name	Physical % Complete	Duration	Start	Finish	Predecessors
32	Subcontractor review	0%	10 days	Mon 7/15/13	Fri 7/26/13	31
33	Receive & evaluate subcontractor bids	0%	10 days	Mon 7/29/13	Fri 8/9/13	32
34	Award soil stabilization design/build scope	0%	3 days	Mon 8/12/13	Wed 8/14/13	33,16
35	**Construction**	**0%**	**47 days**	**Wed 9/4/13**	**Thu 11/7/13**	
36	Pre-construction Meeting	0%	1 day	Wed 9/4/13	Wed 9/4/13	34FS+14 days,22
37	Mobilization	0%	2 days	Wed 9/4/13	Thu 9/5/13	36SS
38	Site Set-Up	0%	8 days	Fri 9/6/13	Tue 9/17/13	37
39	Well abandonment	0%	4 days	Fri 9/20/13	Wed 9/25/13	38FS+2 days
40	Sampling for disposal	0%	1 day	Thu 9/26/13	Thu 9/26/13	39
41	FDP-1 Excavation/sampling	0%	4 days	Fri 9/27/13	Wed 10/2/13	40
42	Construct soil stabilization structure	0%	8 days	Mon 9/16/13	Wed 9/25/13	38FS-2 days
43	FDP-3 Excavation/sampling	0%	6 days	Fri 10/4/13	Fri 10/11/13	41FS+1 day
44	T&D	0%	9 days	Fri 10/4/13	Wed 10/16/13	43SS
45	Backfilling/Site Restoration/Seeding	0%	10 days	Thu 10/3/13	Wed 10/16/13	41
46	Demobilization/Punch List Inspection	0%	3 days	Mon 10/14/13	Wed 10/16/13	45FF
47	Silt Fence Removal/Final Punch List Review	0%	1 day	Thu 11/7/13	Thu 11/7/13	46FS+15 days
48	**Construction Completion Report (CCR)**	**0%**	**96 days**	**Thu 10/3/13**	**Thu 2/13/14**	
49	Prepare Draft CCR	0%	15 days	Thu 10/3/13	Wed 10/23/13	45SS
50	Submit Draft CCR to Navy	0%	3 days	Thu 10/24/13	Mon 10/28/13	49
51	Navy Review of Draft CCR	0%	15 days	Tue 10/29/13	Mon 11/18/13	50
52	Address Navy comments on Draft CCR	0%	5 days	Tue 11/19/13	Mon 11/25/13	51
53	Navy review of Draft-Final CCR	0%	3 days	Tue 11/26/13	Thu 11/28/13	52
54	Submit Draft-Final CCR to Navy & Regulators	0%	2 days	Fri 11/29/13	Mon 12/2/13	53
55	Regulatory review of Draft-Final CCR	0%	30 days	Tue 12/3/13	Mon 1/13/14	54
56	Receive & address regulatory comments on Draft-Final CCR	0%	15 days	Tue 1/14/14	Mon 2/3/14	55
57	Submit Final CCR	0%	5 days	Tue 2/4/14	Mon 2/10/14	56
58	Project Closure	0%	3 days	Tue 2/11/14	Thu 2/13/14	57



Project: Site 1 FDPs 1 & 3 NTCRA
Date: Wed 6/5/13

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External MileTask
Split

Appendix C
Quality Control Attachments

Submittal Register

Contract Number: N62470-08-D-1006		TO No.: WE28			TO Title: Soil Removal Action, Former Soil Disposal Pits 1 & 3						Location: Rocket Center, WV			Contractor: AGVIQ CH2M HILL		
Spec Section	Item Description	Para. Number	Approving Authority	Other Reviewers	Submittal Number	Scheduled Submission Date	AGVIQ-CH2M Review Date	AGVIQ-CH2M Disposition	AGVIQ-CH2M Transmit Date	QC Admin Received Date	QC Disposition	QC Admin Transmit Date	Contracting Officer Received	Contracting Officer Disposition	Contracting Officer Return	Remarks
	SD- Project Schedule															
	SD- Environmental Conditions Survey															
	SD- Preconstruction Survey															
	SD- Quality Control Plan															
	SD- Remedial Action Work Plan															
	SD- Design: Engineered Soil Stabilization Structure															
	SD- Health and Safety Plan/Accident Prevention Plan															
	SD- Activity Hazard Analysis															
	SD- Environmental Protection Plan															
	SD- Utility Locate Drawing															
	SD- Construction Completion Report															
	SD- Geotextile Product Data															
	SD- Standard Penetration Test Data															
	SD- Precon Meeting															
	SD- List of Proposed Subcontractors															
	SD- List of Proposed Products															
	SD- Calibration Records															
	SD- Laboratory Data - waste characterization															
	SD- Laboratory Data - post Excavation															
	SD- Well Driller License															
	SD- Surveyor Qualifications															
	SD- Well Abandonment Report															
	SD- Soil Screening Data															
	SD- Laboratory Analytical Data - Import Fill															
	SD- Laboratory - Certifications															
	SD- Chain of Custody Records															
	SD- Air Monitoring Data															
	SD- Photographic Records															
	SD- As-Built Records															
	SD- Geotechnical Data - Results															
	SD- Waste Profile															
	SD- Waste Disposal Manifests															
	SD- Certificates of Disposal, waste															
	SD- Monthly Summary Report of Field Tests															
	SD- Testing Plan and Log															
	SD- Field Data - soil classification															
	SD- Chain of Custody Records															
	SD- Seed Mix, Fertilizer Data															
	SD-															
	SD-															
	SD-															
	SD-															

Testing Plan and Log

SMALL BUSINESS RAC	TO No.: WE28	TO Title: Soil Removal Action	Location: Rocket Center, WV

Spec Section and Paragraph	Test Required	Proposed Lab	Sampled By	Tested By	Test Location	Frequency	Date Test Made	Test Results	Date Results Forwarded	Remarks
	D2216									
	D2850									
	D7012									
	D5731-95									

Monthly Summary Report of Field Tests

Start Date:	End Date:	Submitted Date:	
Contract Number: N62470-08-D-1006	TO No.: WE28	TO Title: Soil Removal Action Former Disposal Pits 1 and 3	Location: Allegany Ballistics Laboratory, Rocket Center, West Virginia

A	B	C	D
Type of Test Required	Date of Test	Reporting Laboratory	Test Results

AGVIQ-CH2M HILL **SOUTHDIV SBRAC** **N62470-08-D-1006**	**CONTRACTOR PRODUCTION REPORT** (ATTACH ADDITIONAL SHEETS IF NECESSARY)	DATE OF REPORT: REVISION NO: REVISION DATE:
TO NO: **WE28**	PROJECT NAME / LOCATION: **Soil Removal Action Former Disposal Pits 1 and 3, Allegany Ballistics Laboratory, Rocket Center, West Virginia**	REPORT NO:
PROJECT NO:	SUPERINTENDENT:	SITE H&S SPECIALIST: Greg Ramey
AM WEATHER:	PM WEATHER: / MAX TEMP	MIN TEMP:

SUMMARY OF WORK PERFORMED TODAY

JOB SAFETY

Was A Job Safety Meeting Held This Date? ☐ Yes ☐ No	**TOTAL WORK HOURS ON JOB SITE THIS DATE** (Including Continuation Sheets)	
Were there any lost-time accidents this date? (If Yes, attach copy of completed OSHA report) ☐ Yes ☐ No	CH2MHILL On-Site Hours	
Was a Confined Space Entry Permit Administered This Date? (If Yes, attach copy of each permit) ☐ Yes ☐ No	AGVIQ	
Was Crane/Manlift/Trenching/Scaffold/HV Elec/High Work/Hazmat Work Done?? (If Yes, attach statement or checklist showing inspection performed) ☐ Yes ☐ No		
	Total On-Site Hours This Date	
Was Hazardous Material/Waste Released into the Environment? (If Yes, attach description of incident and proposed action) ☐ Yes ☐ No	Cumulative Total of Work Hours From Previous Report	
	Total Work Hours From Start of Construction	

SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED :

EQUIPMENT/MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB

DESCRIPTION OF EQUIPMENT/MATERIAL RECEIVED	MAKE/ MODEL/ MANUFACTURER	EQUIPMENT/ LOT NUMBER	INSPECTION PERFORMED BY	NUMBER/ VOLUME/ WEIGHT

EQUIPMENT USED ON JOB SITE TODAY.

EQUIPMENT DESCRIPTION	EQUIPMENT MAKE/MODEL	SAFETY CHECK PERFORMED BY	NUMBER OF HOURS		
			USED	IDLE	REPAIR

CHANGED CONDITIONS/DELAY/CONFLICTS ENCOUNTERED (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.)

VISITORS TO THE SITE:

LIST OF ATTACHMENTS (OSHA report, confined space entry permit, incident reports, etc.):

SAFETY REQUIREMENTS HAVE BEEN MET ☐

SUPERINTENDENT SIGNATURE _____ DATE _____

AGVIQ-CH2M HILL **SOUTHDIV SBRAC** **N62470-08-D-1006**	**CONTRACTOR PRODUCTION REPORT** (ATTACH ADDITIONAL SHEETS IF NECESSARY)	DATE OF REPORT: REVISION NO: REVISION DATE:
TO NO: **WE28**	PROJECT NAME/LOCATION: **Soil Removal Action Former Disposal Pits 1 and 3, Allegany Ballistics Laboratory, Rocket Center, West Virginia**	REPORT NO:

WORK PERFORMED TODAY

EMPLOYEE	WORK PERFORMED	EMPLOYER	EMPLOYEE NUMBER	TITLE/TRADE	HRS

INCLUDE ALL PERSONNEL WORK HOURS IN THE TOTAL WORK HOURS ON JOB SITE

SAFETY REQUIREMENTS HAVE BEEN MET ☐

SUPERINTENDENT SIGNATURE _____ DATE _____

AGVIQ ENVIRONMENTAL SERVICES CH2M HILL JOINT VENTURE

N62470-08-D-1006

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE OF REPORT:
REVISION NO:
REVISION DATE:

TO NO: **WE28**	PROJECT NAME/LOCATION: **Soil Removal Action Former Disposal Pits 1 and 3, Allegany Ballistics Laboratory, Rocket Center, West Virginia**	**REPORT NO:**
PROJECT NO:	PROJECT QC MANAGER:	SITE H&S SPECIALIST:

SAFETY MEETINGS AND INSPECTIONS

WAS A SAFETY MEETING HELD THIS DAY?	☐ YES ☐ NO	IF YES, ATTACH SAFETY MEETING MINUTES
WAS CRANE USED ON THE SITE THIS DAY?	☐ YES ☐ NO	IF YES, ATTACH DAILY CRANE REPORT OF INSPECTION AND CONTRACTOR CRANE OPERATION CHECKLIST

DEFINABLE FEATURES OF WORK STATUS

DFOW No.	Definable Feature Of Work	Preparatory	Initial	Follow-Up

PREPARATORY

WAS PREPARATORY PHASE WORK PERFORMED TODAY? ☐ YES ☐ NO

IF YES, FILL OUT AND ATTACH SUPPLEMENTAL PREPARATORY PHASE CHECKLIST.

DFOW No.(from list above).	TASK/ACTIVITY	PREPARATORY PHASE REPORT NO.

INITIAL AND FOLLOW-UP FEATURE OF WORK COMMENTS

DFOW No.(from list above)	Phase	Comment/Finding/Action
1	Initial ☐ Follow up ☐	
2	Initial ☐ Follow up ☐	
3	Initial ☐ Follow up ☐	
4	Initial ☐ Follow up ☐	
5	Initial ☐ Follow up ☐	
	Initial ☐ Follow up ☐	
	Initial ☐ Follow up ☐	

REWORK ITEMS IDENTIFIED TODAY (NOT CORRECTED BY CLOSE OF BUSINESS)			**REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)**	
TASK/ACTIVITY	DATE ISSUED	DESCRIPTION	TASK/ACTIVITY	CORRECTIVE ACTION(S) TAKEN

AGVIQ - CH2M HILL JOINT VENTURE **N62470-08-D-1006**	**CONTRACTOR QUALITY CONTROL REPORT** (ATTACH ADDITIONAL SHEETS IF NECESSARY)	**DATE OF REPORT**: **REVISION NO:** **REVISION DATE:**

TO NO: **WE28**	PROJECT NAME/LOCATION: **Soil Removal Action Former Disposal Pits 1 and 3, Allegany Ballistics Laboratory, Rocket Center, West Virginia**	**REPORT NO:**

PROJECT NO:	PROJECT QC MANAGER:	SITE H&S SPECIALIST:

SAMPLING/TESTING PERFORMED

SAMPLING/TESTING PERFORMED	SAMPLING/TESTING COMPANY	SAMPLING/TESTING PERSONNEL

MATERIALS/EQUIPMENT INSPECTION (Materials received and inspected against specifications)

MATERIAL/EQUIPMENT DESCRIPTION	SPECIFICATION	MATERIAL ACCEPTED?	COMMENT/REASON/ACTION
		YES ☐ NO ☐	
		YES ☐ NO ☐	
		YES ☐ NO ☐	
		YES ☐ NO ☐	
		YES ☐ NO ☐	

SUBMITTALS INSPECTION / REVIEW

SUBMITTAL NO	SUBMITTAL DESCRIPTION	SPEC/PLAN REFERENCE	SUBMITTAL APPROVED?	COMMENT/REASON/ACTION
			YES ☐ NO ☐	
			YES ☐ NO ☐	
			YES ☐ NO ☐	
			YES ☐ NO ☐	

OFF-SITE SURVEILLANCE ACTIVITIES, INCLUDING ACTIONS TAKEN:

ACCUMULATION/STOCKPILE AREA INSPECTION

INSPECTION PERFORMED BY:	NA	SIGNATURE OF INSPECTOR:	NA
ACCUMULATION/ STOCKPILE AREA LOCATION	NA		

NO OF CONTAINERS:	0	NO OF TANKS:	0	NO OF ROLL-OFF BOXES:	0	NO OF DRUMS:	0

INSPECTION RESULTS:

TRANSPORTATION AND DISPOSAL ACTIVITIES/SUMMARY/QUANTITIES:

GENERAL COMMENTS (rework, directives, etc.):

LIST OF ATTACHMENTS (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.):

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.			
	PROJECT QC MANAGER'S SIGNATURE		DATE
On behalf of the contractor, I attest that the work for which payment is requested, including stored material, is in compliance with contract requirements.			
	PROJECT QC MANAGER'S SIGNATURE		DATE

AGVIQ CH2M HILL	**PREPARATORY PHASE REPORT**	REPORT NO:	DATE:	TO NO: WE28
PROJECT NO:	DEFINABLE FEATURE OF WORK:	SITE/ACTIVITY:		

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED _____ HOURS IN ADVANCE: YES ☐ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER.	HAVE ALL SUBMITTALS BEEN APPROVED? YES ☐ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

ARE ALL MATERIALS ON HAND? YES ☐ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES).

COMMENTS:

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☐ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK.

CLARIFY ANY DIFFERENCES.

PRELIMINARY WORK & PERMITS

ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NO, WHAT ACTION IS TAKEN?

AGVIQ CH2M HILL	**PREPARATORY PHASE REPORT**	REPORT NO:	DATE:	TO NO: WE28
PROJECT NO: 362843	DEFINABLE FEATURE OF WORK:	SITE/ACTIVITY:		

TESTING

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 ☐ NO ☐
	YES ☐ NO ☐

SAFETY

ACTIVITY HAZARD ANALYSIS APPROVED? YES ☐ NO ☐

REVIEW APPLICABLE PORTION OF EM 385-1-1.

MEETING COMMENTS

NAVY/ROICC COMMENTS DURING MEETING.

OTHER ITEMS OR REMARKS

OTHER ITEMS OR REMARKS:

PROJECT QC MANAGER NAME	PROJECT QC MANAGER'S SIGNATURE		DATE	

WASTE TRANSPORTATION AND DISPOSAL LOG

TO No	Project No	Project Name	Site Description	Container Type	Container Desig.	Waste Profile Sample No	Contractor	Transporter	Date Transported	Transporter EPA ID	Load ID	Disposal Facility	Disp Fac EPA ID	Media	Waste Type (Haz, Nonhaz, TSCA)	Waste Code/ Haz Waste No	Disposal Date	Manifest Number	Disposal Treatment Method (Enter disposal quantity under appropriate method)					Certif of Disp/ Destruc Date	Comments/Notes	File Status (see note)
																			Incineration	Recycle	Landfill	Other	Unit			
											1												tons			
											2												tons			
											3												tons			
											4												tons			
											5												tons			
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											19												tons			

NON-CONFORMANCE/DEFICIENCY REPORT

PART 1 – General Information

Date Submitted:	NCR Number:
Submitted To:	Company/ Title/Position:
Prepared By:	Company/ Title/Position:
Project Name:	Project Number:

PART 2 – Non-Conformance/Deficiency Report

Description of Non-Conforming Item or Condition or Deficiency				
Contract Requirement or Project Specification/Drawing				
Test/Inspection/Audit Identifying Non-Conformance/Deficiency				
Reportable Release?	Yes ☐		No ☒	
Material Name:	Not applicable		Quantity: Not applicable	
Disposition:	Repair ☐	Rework ☐	Use-As-Is ☐	Reject ☐

PART 3 – Investigation/Root Cause Determination

Personnel Responsible for Investigative Process:
Investigative Process Findings:
Probable Root and Contributing Cause(s):

PART 4 – Corrective Actions

Proposed Corrective Actions and Completion Dates:		
Personnel Responsible for Implementation of Corrective Actions:		
Resulting Actions and Effectiveness of Those Actions:		
Personnel Responsible for Monitoring Effectiveness of Corrective Actions:		
Corrective actions have been completed and monitored for effectiveness.		
Signature	Company/Title	Date

PART 5 – Response Approval

Responses Accepted By		
Signature	Company/Title	Date
Signature	Company/Title	Date

PART 6 – Quality Control Follow-Up

Comments/Findings of Follow-Up Observation / Inspection / Audit:			
Verification Results	Satisfactory ☐	Unsatisfactory ☐	

PART 7 – NCR Closure

NCR Closed		
	Regional Construction Quality	
Signature	Company/Title	Date

REQUEST FOR INFORMATION

Project Name/Description:	Soil Removal Action Former Disposal Pits 1 and 3, Allegany Ballistics Laboratory, Rocket Center, West Virginia	RFI No.:		Date Submitted:
Contract/TO No:	WE28	Project No:		
To: Name		Title		
From: Name		Title		

REFERENCES

Document *(Work Plan, Scope of Work, etc.)*:	
Drawing(s)/Specification *(Drawing No, Specification No., etc.)*:	
Detail/Section *(Page No., Section No., Paragraph No., etc.)*:	
Discipline *(Architecture, Electrical, Mechanical, Chemical, Hydrogeology, etc.):*	

POTENTIAL IMPACT: Cost ☐ Schedule ☐ Activity/Task Impacted:

REQUEST		
Requested By: *(Name/Company/Title)*		Response Requested by Date:
REPLY:		
Responded By: *(Name/Company/Title)*		Date of Response:
RESPONSE DISPOSITION/ CONCURRENCE:		
Response Dispositioned / Concurred With By: *(Name/Company/Title)*		Date Response Dispositioned Concurred With:

FURTHER ACTIONS REQUIRED:

REVIEW DISTRIBUTION			**FINAL DISTRIBUTION**		
☐ CH2M HILL PM	☐	☐	☐ CH2M HILL PM	☐	☐
☐ CH2M HILL CM	☐	☐	☐ CH2M HILL CM	☐	☐
☐ CH2M HILL QC	☐	☐ Project Files	☐ CH2M HILL QC	☐	☐ Project Files