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DEMOLITION WORK PLAN BUILDINGS 642/643 AND OTHER ITEMS FORMER NAS
BRUNSWICK ME
05/01/2014
AGVIQ/ CH2M HILL

Demolition Work Plan
Buildings 642/643 and Other Items
Former Naval Air Station Brunswick
Brunswick, Maine

Revision No. 00

Contract No. N62470-08-D-1006
Task Order No. WE01

Submitted to:



Department of the Navy
U.S. Naval Facilities Engineering Command
Mid-Atlantic Division

Prepared by:



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May 2014

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May 2014

Prepared/Approved By:



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May 7, 2014

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May 7, 2014

Date

Client Acceptance:

U.S. Navy Responsible Authority

Date

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Acronyms and Abbreviations

ACM	asbestos-containing material
AGVIQ-CH2M HILL	AGVIQ-CH2M HILL Constructors, Inc. Joint Venture
AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
AUW	Anti-Underwater Warfare
C&D	construction and demolition
CFR	Code of Federal Regulations
CM	Construction Manager
DEP	Department of Environmental Protection
DFOW	definable feature of work
DoD	Department of Defense
DOT	Department of Transportation
EPA	U.S. Environmental Protection Agency
ft ²	square feet
H&S	Health and Safety
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRP	Installation Restoration Program
kVA	kilovolt-amps
LDR	Land Disposal Restriction
NAS	Naval Air Station
NAVFAC MIDLANT	Naval Facilities Engineering Command, Mid-Atlantic
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NRC	National Response Center
OSHA	Occupational Safety and Health Administration
PCR	Project Completion Report
PEL	permissible exposure limit
QC	quality control
QCP	Quality Control Plan
RCRA	Resource Conservation and Recovery Act
ROICC	Resident Officer in Charge of Construction
RPM	Remedial Project Manager
TtNUS	Tetra Tech NUS, Inc.
TO	Task Order

1.0 Introduction

AGVIQ-CH2M HILL Constructors, Inc. Joint Venture III (AGVIQ-CH2M HILL) has been contracted by the Naval Facilities Engineering Command, Mid-Atlantic (NAVFAC MIDLANT) to prepare this Demolition Work Plan under Response Action Contract No. N62470-08-D-1006, Task Order (TO) No. WE09. The purpose of this Demolition Work Plan is to outline the procedures for the demolition of Buildings 642/643 and other items located within Landfill Site 1/3 at the former Naval Air Station (NAS), Brunswick, Maine.

This Demolition Work Plan is organized into the following six sections and three appendices:

Section 1.0 Introduction includes the site description, project scope of work, and regulatory framework.

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

Section 3.0 Environmental Protection Plan contains general procedures that will be implemented to prevent pollution and protect the environment during the demolition activities at Buildings 642/643.

Section 4.0 Waste Management Plan provides specific requirements and procedures to manage and dispose of wastes generated during the demolition activities at Buildings 642/643.

Section 5.0 Quality Control Plan includes the definable features of work (DFOWs) and QC procedures for work described in this Work Plan. The site-specific project organization for this TO is also included in this section.

Section 6.0 References includes references to documents used to prepare this Demolition Plan.

Appendix A contains the Resource Conservation and Recovery Act (RCRA) Partial Closure Report prepared by Tetra Tech, NUS, Inc. (TtNUS).

Appendix B contains the Accident Prevention Plan (APP) which addresses project-specific health and safety (H&S) issues for the demolition activities at Buildings 642/643.

Appendix C contains the QC attachments (templates such as submittal register, testing plan and log, waste disposal log, daily reports, and meeting minutes).

1.1 Site Description and History

1.1.1 Former NAS Brunswick

Former NAS Brunswick is located on 3,094 acres of land along the mid-coastal area of Maine in Brunswick, Cumberland County, about 27 miles northeast of Portland. The installation is situated just south of the Androscoggin River and is located north of several coves

(Harpowell, Buttermilk, and Woodward), which connect with Casco Bay. It was formerly home to long-range maritime patrol aircraft squadrons.

1.1.2 Buildings 642/643

Buildings 642 and 643 are located in the southern portion of former NAS Brunswick, east of the southernmost portion of the runway (Figure 1). Buildings 642 and 643 (Figure 2) are located within the Anti-Underwater Warfare (AUW) Facility, which is located in the Weapons Area along an unnamed road running east-west from Merriconeag Road to Orion Street. To the east of Buildings 642 and 643 within the AUW are Building 626 (Inert Ordnance Storage) and Building 539 (Explosives Administration/ Armory). Access to the AUW was restricted; the AUW is surrounded by a double security fence. Directly to the north and northwest of Buildings 642 and 643 is Installation Restoration Program (IRP) Site 1 (Orion Street Landfill-North) and Site 3 (Orion Street Landfill-South [Hazardous Waste Burial Area]).

Constructed in 1978, Building 642 served as both a weapons administration and a security facility (operated by the Marine Corps). The building consists of a 4,450-square-foot (ft²) multi-room, single level building on a concrete slab foundation and was heated by natural gas. A septic tank and seepage bed, and a 75-kilovolt- amp (kVA) transformer are located at the northeast corner of Building 642.

Building 643 was constructed in 1978 and served as a guard shack (sentry house). It consists of a single-level, one-room building on a slab foundation, and has an area of 140 ft².

TtNUS completed the Maine Department of Environmental Protection (DEP) RCRA or hazardous waste closure requirements for these two buildings and it has been determined that neither further inspection nor sampling are required to complete the Maine DEP hazardous waste closure requirements (TtNUS, 2010). A copy of the RCRA Partial Closure Report is included in Appendix A.

1.2 Project Scope of Work

The scope of work for this project is as follows: 1) perform asbestos abatement of floor tiles and pipe wraps (if required) in Building 642; 2) perform universal waste abatement (including removal and disposal of the 75-kVA transformer and three pole transformers); 3) complete the demolition of Buildings 642/643; 4) transport and dispose of offsite all generated wastes; 5) remove and dispose of approximately 550 linear feet of concertina razor wire; 6) remove and dispose of lighting posts and perimeter security fence within the Weapons Area of Site 1/3 Landfill; 7) clean out and abandon in-place the septic tank and associated piping; and 8) grout any floor openings in Building 642/643 with lean concrete mixture.

1.3 Regulatory Framework

All fieldwork will be performed in accordance with all applicable federal, state, and local codes; industry standards; Department of Defense (DoD) instructions, manuals, handbooks, regulations, guidance, and policy letters; Executive Orders; Occupational Safety and Health Administration (OSHA) regulations; U.S. Environmental Protection Agency (EPA)

regulations; and Maine DEP regulations, including all changes and amendments in effect on the date of this Demolition Work Plan.

The universal wastes will be managed in accordance with regulations are set forth in 40 Code of Federal Regulations (CFR) Part 273 and Maine DEP – Chapter 850, Section 3A, Universal Waste Rule, and Maine Revised Statutes – Title 38, Chapter 16-B (Mercury Added Products and Services).

The removal, transportation, and disposal of asbestos containing materials (ACM) will be conducted in accordance with applicable rules and regulations under; 40 CFR 61 subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAPs); 29 CFR 1926.1101 OSHA Occupational Exposure to Asbestos, Construction; and State of Maine regulations including Maine DEP, Chapter 425, Asbestos Management Regulation.

All spills and releases to the environment above a reportable quantity will be immediately reported to Maine DEP at 1-800-482-0777 (24 hours/day), Department of Public Safety (State Police) at 800-452-4664, and the National Response Center (NRC) at 1-800-424-8802 by Base personnel. The AGVIQ-CH2M HILL Site Superintendent will notify the Navy Resident Officer In-Charge of Construction (ROICC), who in turn will report all such spills to Maine DEP and the NRC. Additionally, hazardous waste spills will be reported in writing to Maine DEP within 15 days.

To the extent possible, AGVIQ-CH2M HILL will implement “green” demolition techniques using appropriate remediation, segregation, and recycling of debris generated from the project site.

2.0 Project Execution Plan

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

2.1 Scope of Work

The work activities associated with demolition actions at Buildings 642/643 are categorized in the following definable features of work (DFOW):

- Pre-Mobilization Submittals
- Mobilization and Site Preparation
- Asbestos and Universal Waste Abatement
- Demolition and Removal Actions
- Waste Management
- Demobilization
- Project Completion Report Submittal

Details of each of the DFOWs listed above are summarized in the following sections.

2.1.2 Pre-Mobilization Submittals

Upon approval of this Demolition Work Plan and prior to mobilization, AGVIQ-CH2M HILL will submit Health and Safety Medical Surveillance and OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) Training Records for all onsite workers (where required). Additionally, AGVIQ-CH2M HILL will submit certificates of supervisory training for the site superintendent, also referred to as the Construction Manager (CM) to the ROICC.

2.1.3 Mobilization and Site Preparation

Mobilization will commence following receipt of a Notice to Proceed from the ROICC. Mobilization activities will include transporting personnel, equipment, materials, supplies, instruments, and subcontracted services required to implement the cleanup action. AGVIQ-CH2M HILL will use areas near the building as a staging area for the duration of the field work. Field office space, restroom facilities, and first aid equipment will be provided by AGVIQ-CH2M HILL. Field personnel will use cell phones as a means of communication.

A pre-construction/coordination and mutual understanding meeting will be held with the ROICC and base personnel during the initial project mobilization to discuss the project communication plan, schedule, and activities to be performed during the work; conduct initial task coordination with project personnel; introduce personnel who will be working on the project; and outline contractor daily reporting and quality control (QC) methods and procedures. A personnel roster of all field personnel, Navy contacts, and regulatory contacts will be prepared and distributed at the pre-construction meeting.

AGVIQ-CH2M HILL will construct a decontamination pad in an appropriate location outside the work zones approved by the ROICC. The decontamination pad will be used to

decontaminate workers and equipment exposed to contaminated media. Decontamination activities will be required for all equipment before the initiation of work and at the completion of the work. An exclusion zone will be established and maintained for the safety of the visitors; access will be limited to project personnel only.

AGVIQ-CH2M HILL will protect and secure existing facility utilities, including but not limited to electric, water, sewer, computer, telephone, facility heat, and natural gas. Additionally, AGVIQ-CH2M HILL will protect adjacent facility and work areas from cross contamination during demolition operations.

All safety shut-off equipment (i.e., “kill switch”) will be in full working condition and will be tested by the ROICC prior to initiating activities and periodically as needed thereafter. Other equipment that will be periodically checked prior to initiating activities at the Site includes, but is not limited to, an audible backup warning indicator, electrical contacts, fire extinguisher, etc. All equipment will be in good condition with no oil or other fluid leaks.

AGVIQ-CH2M HILL will keep the work site and adjacent areas as free of material, debris, and rubbish as is practicable and will remove from any portion of the site any such materials that the ROICC determines may interfere with the work or constitute a nuisance to onsite personnel. All activities will be conducted in an efficient and professional manner, with the minimum practical damage to the site environment.

Prior to beginning any work, all personnel to be assigned to work at the site will attend a one-time, site-specific H&S orientation at the site. The Health and Safety orientation will be held at the site on the first scheduled day of field activity. All field personnel will have completed the standard 40-hour Health and Safety Training per 29 CFR 1910.120, as well as the annual 8-hour refresher course. In addition, all field personnel will have medical approval to work at hazardous waste sites, as well as document their participation in a medical monitoring program.

AGVIQ-CH2M HILL will coordinate with the local electric service company and permanently disconnect the electrical service to Buildings 642/643 and the lighting posts. A licensed electrician will be used to verify that all electrical service has been disconnected from the buildings and lighting posts. All utility appurtenances removed will be disposed of or recycled as part of the demolition services.

AGVIQ-CH2M HILL’s onsite CM will be the single point of contact for the project to communicate and interact with the Navy. The CM will be onsite at all times during normal working hours, and be available to attend scheduled meetings as necessary. The CM will submit daily Contractor Production and QC reports to the ROICC on the following day. The daily reports will include details of site activities and milestones, along with the quantities, types and classification of materials generated and transported.

The AGVIQ-CH2M HILL onsite CM will be accompanied by a Quality Control Manager/Health and Safety Officer, two equipment operators, one driver, and one laborer. Major demolition equipment will include one excavator with thumb, a skid steer, a dozer, an articulated dump truck, and a vac truck.

2.1.4 Asbestos and Universal Waste Abatement

AGVIQ-CH2M HILL's subcontractor will abate all identified ACM and universal wastes prior to demolition activities. The removal, transportation, and disposal will be conducted in accordance with applicable rules and regulations under 40 CFR 61 subpart M, NESHAPs; 29 CFR 1926.1101 OSHA Occupational Exposure to Asbestos, Construction; and the State of Maine regulations including Maine DEP - Chapter 425, Asbestos Management Regulation; Maine DEP - Chapter 850, Section 3A, Universal Waste Rule; and Maine Revised Statutes - Title 38, Chapter 16-B (Mercury Added Products and Services).

Universal waste components (including light ballasts; fluorescent tubes; mercury vapor lamps; refrigerant; mercury-containing thermostats, thermometers, and gauges; or similar materials) will be removed and disposed of at an approved disposal facility.

The 75-kVA transformer and three pole transformers will be removed and disposed of at an approved disposal facility.

2.1.5 Demolition and Removal Actions

All demolition and removal actions will follow the APP included in Appendix B. Demolition activities will comply with ANSI Standard A10.6, Safety Requirements for Demolition. General guidelines for demolition of Buildings 642/643 are provided below.

- The isolation of the utilities will be performed by AGVIQ-CH2M HILL prior to the initiation of demolition activities.
- Establishment of work zones will be consistent with demolition projects.
- Security for equipment and tools will be provided.
- Temporary construction fencing with adequate signage to limit access to the site will be provided.
- Uncontrolled felling of buildings is prohibited. Building demolition will generally proceed from the top level down to the ground floor.
- Reusable materials will be removed and relocated in a manner that prevents damage or contamination.
- Demolition will be conducted in such a manner to minimize damage to trees, plants, and natural landscape environment.
- Adequate collection, storage, segregation, and transportation to deliver the recovered materials to the approved recycling center or processing facility will be arranged.
- In general, all building contents and site trash and debris will be removed and disposed of and grounds left in "broom-clean" condition.
- The concrete floor slabs and footers and asphalt driveways will remain.

In addition to demolishing Buildings 642/643, AGVIQ-CH2M HILL will complete the following removal actions: 1) remove and dispose of approximately 550 linear feet of concertina razor wire; 2) remove and dispose of lighting posts and perimeter security fence within the Weapons Area of Site 1/3 Landfill; 3) clean out the septic tank and associated

pipng using a Vac Truck and abandon it in-place by placing crushed stone and finishing with lean concrete mixture; and 4) grout any floor openings in Building 642/643 with lean concrete mixture.

2.1.6 Waste Management

Storage, transportation, and disposal of all generated wastes (construction and demolition [C&D] debris, recyclable wastes, and decontamination water) will be in accordance with Section 4.0, Waste Management Plan.

2.1.7 Demobilization

The NAVFAC MIDLANT Remedial Project Manager (RPM), ROICC, and AGVIQ-CH2M HILL Project Manager will participate in a final inspection to ensure all tasks have been conducted to the satisfaction of the Navy and in accordance with the scope of work.

Upon completion of final inspection, AGVIQ-CH2M HILL will remove all field equipment, temporary facilities, and other miscellaneous items (e.g., temporary containment structures, barricades, and caution tapes and signs) resulting from or used during the field operations.

As a part of demobilization, AGVIQ-CH2M HILL will repair any damages to the areas used and will restore them to their original condition at no cost to the Navy.

2.1.8 Project Completion Report

Within 30 days of demobilization, AGVIQ-CH2M HILL will prepare and submit to the Navy, a written Internal Draft Project Completion Report (PCR) to summarize the work performed. Within 7 days of receiving comments from the Navy internal review, AGVIQ-CH2M HILL will prepare and submit a Draft PCR. The Navy will present the Draft PCR to Maine DEP for comment. Within 7 days of receipt of those comments, AGVIQ-CH2M HILL will provide a written response to Maine DEP comments and issue a final PCR.

The PCR will include the following:

- Statement that the work was conducted in accordance with the Work Plan, with any exceptions noted
- Summary of demolition and removal activities
- Representative site photographs
- All disposal documentation (weight tickets, waste profiles, manifests, land disposal restriction forms, and certificates of disposal/treatment/recycling)
- Final ROICC inspection and acceptance report

2.2 Project Schedule

The goal of the project is to complete the demolition activities and finish demobilization by December 31, 2014. AGVIQ-CH2M HILL will begin working once the work plan is approved. A tentative schedule is provided below.

Activity	Start Date	Duration
Asbestos Abatement Activities	07/21/2014	5 days
Mobilization and Site Preparation	07/28/2014	1 day
Demolition and Removal Actions	07/28/2014	10 days
Waste Management	08/11/2014	3 days
Site Restoration	08/11/2014	3 day
Post-Construction Inspection	08/14/2014	1 day
Demobilization	08/15/2014	1 day
Draft RACR	09/15/2014	4 weeks after demobilization

The work hours for field activities are 7:00 AM to 5:00 PM, Monday through Friday, except federal and state holidays. Equipment, supplies, and materials will be received or shipped during the defined work hours.

Extended work hours or different work hours will be coordinated with the ROICC prior to the start of work. Depending on the magnitude of adverse weather and its potential impact to the project schedule, time lost during the scheduled workweek may be made up on an accelerated schedule (including evenings and weekends).

2.3 Traffic Control Plan

Traffic control will be the responsibility of AGVIQ-CH2M HILL CM. Disposal vehicles will only arrive and leave the site between the working hours (7:00 AM to 5:00 PM). AGVIQ-CH2M HILL will ensure that all roll-off bins are equipped with appropriate appurtenances (e.g., liners and tarps) in good working condition. AGVIQ-CH2M HILL will ensure that all liners and covers are properly secured, and that the vehicles are not leaking or releasing any waste constituents at any time, from loading at the source site, along the haul route, until off-loading at the approved disposal site.

Drivers of the offsite disposal trucks will not come in physical contact with the contaminated material while covering the load or preparing it for transport. AGVIQ-CH2M HILL will ensure there is no visible waste material on the sides or tires of any trucks leaving the staging area, or vehicle leaving the site. AGVIQ-CH2M HILL will use proper decontamination procedures to remove debris from the outsides of the vehicles if necessary to ensure debris is not tracked beyond designated work areas onto surrounding roadways.

3.0 Environmental Protection Plan

The demolition work to be performed at Buildings 642/643 may have adverse impacts on the environment. During the field work, temporary controls will be installed and maintained to minimize the environmental impacts and to meet the intent of federal, state, and local regulations designed to protect the environment. The temporary controls will include, but are not limited to site access control, debris and waste control, water pollution control, dust control, and spill control.

All spills and releases to the environment above a reportable quantity will be immediately reported to Maine DEP at 1-800-482-0777 (24 hours/day), Department of Public Safety (State Police) at 800-452-4664, and the NRC at 1-800-424-8802 by Base personnel. AGVIQ-CH2M HILL will notify the Navy ROICC, who in turn will report all such spills to Maine DEP and the NRC. Additionally, hazardous waste spills will be reported in writing to Maine DEP within 15 days.

The following sections provide details of spill prevention and control measures that will be implemented during demolition activities.

3.1 Spill Prevention

All fuel, chemical, and waste storage areas will be properly protected from on- and offsite vehicle traffic. All tanks (including fuel storage and waste storage) and containers will be equipped with secondary containment. These tanks and containers will be inspected daily for signs of leaks. Accumulated water will be inspected for signs of contamination (e.g., product sheen, discoloration, and odor) before being discarded. If accumulated water shows signs of contamination, then store the water along with other generated water for characterization and disposal. Fire protection provisions outlined in the APP will be adhered to.

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

3.2 Spill Containment and Control

Spill control materials will be maintained in the support zone, at fuel storage and dispensing locations, at waste storage areas, and at areas where liquids are transferred from one vessel to another. Incidental spills will be contained with sorbent and disposed of properly. Spilled materials must be immediately contained and controlled. Spill response procedures include:

- Immediately warn any nearby workers and notify supervisor.
- Assess the spill area to ensure that it is safe to respond.
- Evacuate area if spill presents an emergency.
- Ensure any nearby ignition sources are immediately eliminated.

- Stop source of spill.
- Establish site control for spill area.
- Contain and control spilled material through use of sorbent booms, pads, or other material.
- Use proper personal protective equipment in responding to spills.

3.3 Spill Cleanup and Removal

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

3.4 Temporary Access Control

Temporary barricades and caution signs will be provided around the work areas to limit and control traffic in and around the work areas.

3.5 Dust Control

All field activities will be performed in a manner that limits blowing dust and tracking of debris onto access roads. Access roads will be swept or washed as necessary to keep roads clean and free of debris from demolition activities.

The dust control program will consist of conventional dust suppression measures, including but not limited to:

- Wetting demolition equipment and active demolition areas as required
- Covering waste/debris piles
- Hauling wastes/debris leaving the site in covered or closed containers
- Keeping vehicles speeds below 10 miles per hour on unpaved surfaces
- Applying a water spray during waste/debris handling and to unpaved vehicle access routes at the site, as required

A spray nozzle and pump system will be used to suppress fugitive dust while preventing overly wet conditions, avoiding ponding and runoff, and conserving water.

3.6 Noise Control

Noise levels during demolition activities may exceed the OSHA Permissible Exposure Level (PEL) of 85 decibels, particularly in the immediate vicinity of the equipment. Hearing protection will be required when operating heavy equipment. Noise monitoring may be performed to ensure that noise levels are below permissible limits at the site boundaries and at the location of nearby receptors.

3.7 Non-Structural Controls

Good housekeeping practices are designed to maintain a clean and orderly work environment. Often, the most effective first step toward preventing pollution of stormwater simply involves using good common sense to improve basic housekeeping methods. A clean and orderly work area reduces the possibility of accidental spills caused by mishandling chemicals and equipment and reduces safety hazards. The following practices will be incorporated into the field activities as part of good housekeeping practices:

- Garbage, waste materials, and construction debris will be regularly picked up and disposed of.
- The site will be maintained in an orderly condition.
- Good housekeeping practices, including the following, will be reviewed with workers at the beginning of the project site activities:
 - Keeping materials in their original containers whenever possible
 - Maintaining original labels and material safety data sheets
 - Using proper disposal methods for surplus materials

Preventive maintenance involves the regular inspection and testing of equipment and operational systems. Breakdowns and failures can often be avoided by adjustment, repair, or replacement of equipment. The following practices will be incorporated into the field program as part of preventive maintenance:

- Equipment will be maintained on a regular basis.
- Any leaking equipment will be repaired or replaced.
- Records of all preventive maintenance activities will be maintained.

Visual inspections are an effective way to confirm that chosen measures are in place and working. The following actions will be taken as part of the visual inspection program:

- All equipment will be checked daily to identify leaks.
- Records of the daily inspections will be maintained in daily logs.

4.0 Waste Management Plan

This plan addresses the management and disposal requirements for wastes generated during demolition of Buildings 642/643 and other items specified in Section 1.2. The following wastes will be generated during these activities:

- Asbestos and universal wastes
- Demolition debris including:
 - Refuse from demolition: concrete piers, plastic sheets, etc.
 - Recyclable metal

4.1 Waste Profile

Based on generator knowledge, characterization information for wastes will be documented on a waste profile form provided by the designated offsite treatment and disposal facility as part of the waste acceptance process. The profile will be reviewed by the CH2M HILL Waste Coordinator and approved and signed by the Base Environmental Manager. Signed profile(s) will then be submitted to the offsite facility for acceptance.

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

- Generator information including name, address, contact, and phone number
- Site name including street and mailing address
- Process generating waste
- Source of contamination
- Historical use for area
- Waste composition
- Physical state of waste
- Hazardous waste codes (if applicable)

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

4.2 General Waste Management Requirements

Wastes will be accumulated in an area identified or approved by the Navy ROICC. All containers will be inspected on arrival at the site for signs of disrepair or contamination and to verify that the containers are empty. If a container does not arrive in good condition, is contaminated, or is not empty, it will be immediately rejected and documented. Good housekeeping practices will be implemented at all waste accumulation areas.

4.2.2 Containment

The following guidelines relate to containment:

- Demolition debris will be placed in roll-off containers for transport and disposal.
- Recyclable materials will be placed in scrap bins for recycling.

- ACM wastes will be double-bagged and shipped offsite.
- Universal wastes will be placed in open-top 55-gal drums for offsite disposal.

4.2.2.1 Drums and Small Containers

The following guidelines relate to drums and small containers:

- Drums and small containers will be transported to the temporary accumulation areas on wood pallets and will be secured together with non-metallic banding under secondary containment.
- Drums will be inspected and inventoried upon arrival onsite for signs of contamination and/or deterioration.
- Adequate aisle space (for example, 30 inches) will be provided for containers (such as 55-gallon drums) to allow the unobstructed movement of personnel and equipment. A row of drums should be no more than two drums wide.
- Each drum will be provided with its own label, and labels will be visible.
- Drums will remain closed except when removing or adding waste to the drum. Covers will be properly secured at the end of each workday. "Closed" means that the lid and/or bung must be on and securely tightened (except when adding or removing waste).
- Drums will be disposed with the contents. If the contents are removed from the drums for offsite transportation and treatment or disposal, the drums will be decontaminated prior to re-use or before leaving the site.
- Drums containing liquids or hazardous waste will be provided with secondary containment and may not be located near a stormwater inlet or conveyance.

4.2.2.2 Roll-off Containers

The following guidelines relate to roll-off containers:

- Roll-off containers will be inspected upon arrival onsite. Any roll-off containers arriving with contents or deterioration will be rejected.
- Roll-off containers for contaminated soil will be provided with covers and disposable liners. Liners will be disposed as contaminated debris.
- When not in use, and at the end of each workday, covers will be properly secured.
- Old labels will be removed and each box will be provided with its own label; labels will be visible.
- Roll-off containers will be inspected by the transporter after removal of the liner and decontaminated in the event of evidence of liner failure.
- Roll-off containers will be filled until half full, or they will otherwise be monitored to ensure that they will meet U.S. Department of Transportation (DOT) weight restrictions.
- Roll-off containers may not be located near a stormwater inlet or conveyance.

4.2.3 Waste Storage Time Limit

In the event that dangerous or hazardous wastes are generated, they will be removed from the site within 90 days of the date of generation. Other wastes will be removed from the site as soon as possible. The “date of generation” is the day that a waste is first placed in a container (drum, roll-off box, or tank) or stockpile.

4.2.4 Labels

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

- “Analysis Pending” - Temporary or handwritten label until analytical results are received and reviewed; this label will include the accumulation start date
- “Hazardous Waste” - Pre-printed hazardous waste labels with the following information:
 - Accumulation start date
 - Generator Name
 - U.S. Environmental Protection Agency (EPA) Identification number
 - Waste codes
 - Prior to transport, the manifest number must be added (for containers of less than 110-gallon capacity)
- “Non-Hazardous Waste” - Preprinted labels with the following information:
 - Accumulation start date
 - Generator name
 - EPA Identification number
 - Waste-specific information (such as contaminated soil)

Where applicable, the major hazards (such as flammable, oxidizer, and carcinogen) will also be included on the label.

4.2.5 Inspections

Waste accumulation and equipment storage areas will be inspected daily for malfunctions, deterioration, discharges, and leaks that could result in a release.

- Containers and roll-off containers will be inspected for leaks, signs of corrosion, or signs of general deterioration.
- All areas will be inspected to ensure that good housekeeping practices are maintained.

Any deficiencies observed or noted during inspection will be corrected immediately, and corrective measures will be documented. Appropriate measures may include transfer of waste from leaking container to new container, replacement of liner or cover, or repair of containment berm. Copies of inspection reports and corrective measures will be maintained onsite and available for review.

4.3 Security and Emergency Response

A barrier, such as barricade tape or temporary fencing, will be provided for hazardous waste accumulation areas and for other waste storage areas that are accessible to the public. Hazardous waste storage areas will also have signs that provide 24-hour emergency contacts and telephone numbers.

Waste accumulation areas will contain emergency response equipment appropriate to the wastes' hazards. The APP (Appendix A) identifies the project emergency response procedures and equipment, including emergency response contacts and phone numbers.

In addition to the APP procedures, hazardous waste accumulation areas will be provided with fire extinguishers (for wastes known or suspected to be flammable or ignitable), decontamination equipment, and an alarm system (if radio equipment is not available to all staff working in accumulation area). Spill control equipment (such as sorbent pads) will be available in the waste accumulation areas and where liquids are transferred from one vessel to another.

4.4 Employee Training

Field staff that will manage hazardous or potentially hazardous waste will comply with 40 CFR 265.16 through:

- OSHA 1910.120 Hazardous Waste Operations and Emergency Response (HAZWOPER) training
- On-the-job training, which includes:
 - Site-specific APP review - requires each site worker and guests to review and sign the plan
 - AHA and daily "tailgate" meetings
 - Project-specific Work Plan review

Additionally, AGVIQ-CH2M HILL staff with DOT hazardous material training (49 CFR 172.704) will oversee waste profiling and preparing shipping documentation.

4.5 Waste Transportation

4.5.2 Shipping Documentation

Prior to offsite disposal of any waste, a waste approval package for each waste stream will be prepared. This package will include a waste profile naming NAS Brunswick as the generator of the waste, analytical summary table(s) applicable to the waste, Land Disposal Restriction (LDR) notification for any hazardous wastes, a completed waste manifest, and any other applicable information necessary for the Navy to complete its review of the disposal package and signature as the generator. The profile will be reviewed, approved, and signed by the Base Environmental Manager. The signed profile will then be submitted to the offsite facility for acceptance and approval. Transportation can be scheduled once the approval letter is received from the offsite facility.

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, phone number, and EPA Identification number
- Transporter information including name, address, phone number, and EPA Identification number
- Designated facility information including name, address, phone number, and EPA Identification number
- Site name, including street and mailing address
- DOT Proper Shipping Name (for example, Hazardous Waste Solid, n.o.s., 9, UN 3077, PG III [D008])
- Type and number of container(s)
- Quantity of waste (volumetric estimate)
- TO or job number
- Profile number
- 24-hour emergency phone number

Additionally, each shipment of waste will also have a weight ticket. The generator and the transporter must sign the manifest prior to the load of waste leaving the site. All waste manifests will be signed by the Base Environmental Manager. The original signed manifest will be returned to the address of the generator.

4.6 Department of Transportation Requirements

Requirements under 49 CFR 171 will apply to all offsite shipments of hazardous materials. The information contained in this section is provided as a general guide. Requirements specific to each hazardous material will be determined in the field. It is the responsibility of a DOT-trained individual to ensure that the requirements of 49 CFR 171 are met.

4.6.2 Shipping Name

Material that exhibits one of the nine DOT hazard class characteristics (such as explosive, flammable, poison, or combustible) is regulated under DOT rules for the transportation of hazardous material. If material is suspected to be hazardous, it will be shipped under the suspected hazard class.

Each shipment of a suspected hazardous material will be properly classified using the Hazardous Materials Table in 49 CFR 172.101. All determinations will be made by DOT-trained personnel.

4.6.3 Packaging, Marking, and Labeling

The shipping name, hazard class, identification number, technical names (if applicable), EPA markings and waste code numbers, and consignee and consignor designations will be

marked on packages for shipment (49 CFR 172.301). Once a waste is characterized, reference will be made to the Hazardous Materials Table in 49 CFR 172.101 to determine the appropriate label.

4.6.4 Placards

Appropriate placards will be determined by DOT-trained personnel. Specific placard descriptions are found starting at 49 CFR 172.521. If a placard is required, it will be affixed on each side and at each end of the vehicle.

4.7 Transporter 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 on a transportation and disposal log. A contractor licensed for commercial transportation will transport non-hazardous wastes. In the event that wastes are hazardous, the transporter will have an EPA Identification number and will comply with transportation requirements outlined in 49 CFR 171-179 (DOT) and 40 CFR 263.11 and 263.31 (Hazardous Waste Transportation).

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

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

- Minimize impacts to public traffic.
- Repair road damage caused by construction and/or hauling traffic.
- Line and cover trucks and trailers used for hauling hazardous or regulated waste to prevent spills or releases.
- Decontaminate vehicles prior to re-uses other than hauling contaminated waste.
- Seal trucks transporting liquids.

Wastes or materials from other projects may not be combined with wastes generated during this project.

All personnel involved in offsite disposal activities will follow safety and spill response procedures outlined in the APP.

4.7.2 Spill Reporting

In the event of a spill or release of a reportable quantity of waste, the transporter must immediately notify AGVIQ-CH2M HILL and the Navy. The following information about the spill will be reported and recorded:

- Type of material (for example, soil, sludge, or water) and contaminant
- Location

- Estimated volume
- Media affected (for example, spilled on concrete pad or soil)
- Time of spill or release
- Final disposal of spilled material

The transporter will also report any spill or release of hazardous waste, as required by 49 CFR 171.15, to the NRC at 800-424-8802 or 202-426-2675. The transporter will also report in writing, as required by 49 CFR 171.16, to the Director, Office of Hazardous Materials Regulations, Materials Transportation Bureau, DOT, Washington, D.C. 20590.

For any spill of hazardous wastewater from a bulk shipment (for example, tanker), the transporter will immediately notify the NRC (800-424-8802 or 202-267-2675), as required in 40 CFR 263.30.

4.7.3 Spill Response

The transporter will clean up any spill or release of waste (including soil or water) that occurs during transportation, or take such action as may be required or approved by federal, state, or local officials. Spilled waste will be immediately cleaned up, including soils on the outside of the trucks, the truck and/or container, or road surface. Where appropriate, the spilled material will be returned to the original waste container. In any case, the spilled material will be properly contained and disposed of.

4.8 Waste Management Requirements

All transportation will be compliant with Maine DOT requirements for offsite transportation of hazardous and nonhazardous materials. The transporter will be required to possess a Maine DEP Waste Transporter Permit to transport non-contaminated construction debris, ACM waste, and universal waste.

Offsite treatment and disposal facilities will use the waste profile and supporting documentation (for example, analytical data) to determine whether a waste will be accepted. The following is a summary of wastes and anticipated treatment, disposal, or recycling requirements:

4.9 Recordkeeping

The following records and documents will be maintained:

- Transportation and offsite disposal records, including:
 - Profiles and associated characterization data
 - Manifests, LDR notifications and certifications, bills of lading, and weight tickets
 - Offsite facility waste receipts and certificates of disposal and destruction
- Training records
- Inspection records

5.0 Quality Control Plan

This plan includes the DFOWs and QC procedures for work described in the demolition work plan. The site-specific project organization for this TO is also included in this section.

Implementation of the site quality system will be documented using various QC forms, field logbooks, and other records. Appendix C contains the basic QC templates that will be used on the project. When necessary, additional documents will be generated to document the field activities.

The project organization chart on Figure 3 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 5-1.

5.1 Project QC Manager

The Project QC Manager will be Ms. Rachel Clennon. Ms. Clennon has successfully completed the SBRAC contract required Construction Quality Management training. A copy of the letter appointing Ms. Clennon to the project QC manager position is provided in Appendix C.

5.2 General Quality Control

The Project QC Manager will verify the following:

- Work has been performed in accordance with the project plans.
- Changes to the project plans are fully documented and approved, as appropriate.

5.3 Construction Quality Control

The construction QCs applicable to the work activities described in Section 2 of the work plan are outlined in the following subsections. The Project QC Manager and/or the Project Superintendent will verify conformance with the field requirements. The Project QC Manager will perform final inspections of the materials and the 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 Plan.

The work tasks for this project are grouped into DFOWs, which are work activities that are significant enough to warrant distinct plans and specifications. The following are the DFOWs for the field work associated with this project:

- Mobilization and Site Preparation
- Asbestos and Universal Waste Abatement
- Demolition and Removal Actions
- Waste Management
- Demobilization

TABLE 5-1
Roles, Responsibilities, and Authorities of Key Project Personnel

Role	Responsibility	Authority
Project Manager	<ul style="list-style-type: none"> • Management and technical direction of all work • Communicate with NAVFAC MIDLANT RPM • Subcontractor management • Select staff to implement the demolition activities • Develop this Work Plan and supporting plans • Meet performance objectives for the work specified in the work plan • Prepare monthly status reports • Prepare Field Change Requests 	<ul style="list-style-type: none"> • Review technical qualifications of subcontractors • Approve subcontractor selection • Approve invoices to sent NAVFAC MIDLANT • Approve baseline remedial schedule • Stop work at the site for any reason • Approve payment to vendors and suppliers • Approve payment to subcontractors • Respond to Design Change Notices
Site Superintendent	<ul style="list-style-type: none"> • Responsible for all site activities • Provide direction to field personnel and subcontractors • Onsite construction management • Provide daily status reports • Implement this Work Plan • Review subcontractor qualifications • Stop work for unsafe conditions or practices 	<ul style="list-style-type: none"> • Stop 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	<ul style="list-style-type: none"> • Monitor and oversee implementation compliance with scope of work • Review requests for changes in scope of work • Recommend improvements in work techniques or metrics • Monitor and report on subcontractor quality and quantities • Audit subcontractor's offsite fabrication • Maintain Submittal Register 	<ul style="list-style-type: none"> • Complete daily quality report • Monitor and report on subcontractor quality and quantities • Audit offsite fabrication • Maintain Submittal Register • Stop work for non-compliant operations • Maintain Rework Items list • Stop work for non-compliant operations
Site Health and Safety Specialist	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Stop work for unsafe practices or conditions • Approve site-specific APP • Set weekly safety objectives • Approve resumption of work for resolved safety issues
Subcontract Specialist	<ul style="list-style-type: none"> • Prepare and submit bid packages • Purchase disposable materials • Maintain subcontract log • Approve payables for disposable items • Maintain government property records 	<ul style="list-style-type: none"> • Review contractual qualifications of subcontractors • Review subcontractor selection • Maintain record of all procurement

TABLE 5-1
Roles, Responsibilities, and Authorities of Key Project Personnel

Role	Responsibility	Authority
Project Chemist	<ul style="list-style-type: none"> • Prepare bid packages for laboratories • Data review and data validation 	<ul style="list-style-type: none"> • Review technical qualifications of laboratories • Review laboratory selection • Perform data reviews and data validation

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

5.3.1 Mobilization and Site Preparation

As part of the mobilization activity, a pre-construction meeting will be held to discuss the project objectives, reporting and field documentation, and the project schedule. The building layout plans, locations of utilities, lines of communication, and material/equipment staging areas will be reviewed. The project team will verify that the resources, materials, and supplies needed to commence the investigation activities are on hand.

Preparatory Phase

The preparatory phase will include a review of the relevant activity hazard analyses (AHAs), signage and barricades, communications matrix, project schedule, submittal status, and confirmation that appropriate resources, materials and equipment are available.

Initial Phase

Inspections will be made as necessary to ensure relevant and pertinent features are identified, utilities marked, and equipment staged in the designated areas.

Follow-up Phase

The Project QC Manager will provide continuous oversight of the site preparation activities to verify that the work is completed in accordance with the requirements provided in this work plan. Deficiencies will be noted and corrected.

Mobilization/site preparation inspections include:

Task	Procedures/Construction Details
Pre-construction Meeting	<ul style="list-style-type: none"> • Verify training • Prepare project daily reports and conduct meetings • Verify designated locations of equipment layout, material and waste staging, and decontamination • Verify building demolition plan • Discuss maintaining marked up drawings and recording field data

Task	Procedures/Construction Details
Site Preparation	<ul style="list-style-type: none"> • Review pre-construction and construction quality control submittals to ensure they are approved • Review qualifications of personnel, testing and disposal facility, and waste facility permits to ensure they meet the specifications and QC Plan requirements (certifications, licenses, etc.) • Confirm that materials and equipment are in working order and in compliance with work plans and specifications • Discuss Construction Schedule • Review traffic routes for compliance with Navy requirements • Review site security measures for compliance with Navy requirements • Review layout drawings for completeness and accuracy • Review site-specific Navy requirements and ensure the erosion controls are properly installed • Ensure that personnel have proper personal protective equipment (PPE) to perform the work • Ensure that break and rest areas are established and set up
Waste Management	<ul style="list-style-type: none"> • Select area for equipment decontamination and temporary waste storage • Handling and storage of hazardous materials, engineering controls • Waste tracking requirements • Review decontamination procedure

5.3.2 Asbestos and Universal Waste Abatement

Abatement of Buildings 642/643 includes construction and demolition debris, aqueous water, asbestos and/or asbestos containing materials, mercury, and lead-based paint. Hazardous material surveys were performed, but we not completed; therefore, available information will be utilized to identify and determine the appropriate waste handling and disposal methods.

Preparatory Phase

The preparatory phase will include reviewing the available information pertaining to the buildings, discussing the areas and specific features of areas to be inspected, evaluating the impacts of the existing utilities, coordinating temporary utility disconnects, and reviewing field recording forms and the abatement plan. Additionally, the status of the selected disposal facilities and waste transport vehicles will be discussed.

Initial Phase

Investigated areas and recording forms will be reviewed for accuracy and completeness. As the surveys proceed, interviews and meetings will be held to discuss the findings. Markings will be inspected for legibility and work approaches inspected for consistency.

Follow-up Phase

During the follow-up phase, the completed work, project records and written procedures will be inspected to ensure compliant with this Work Plan Addendum and any approved work plan revisions or procedures developed during the project. Deficiencies will be noted and corrected immediately.

Building abatement inspections include:

Task	Procedures/Construction Details
Building Abatement	<ul style="list-style-type: none"> • Verify personnel training qualifications • Inspect abatement activities • Acquire copy of laboratory certification • Inspect investigated areas for markings, proper identification, and sample identification numbers • Segregate hazardous materials, manage according to waste management plan, document disposal and estimated quantities • Observe and assist with walk through inspection to identify suspected/known areas • Document results of observations and site conditions • Verify utility disconnects and lock out/tag out • Verify appropriate facilities and testing equipment are available and comply with testing standards and methods • Document field measurements and quantity take-offs • Verify recording forms, including all of the test documentation requirements, have been prepared and are accurate and complete

5.3.3 Demolition and Removal Actions

Demolition of structures and abandonment of associated with building utilities will be conducted. The demolition of the structures is outlined in this work plan; although specific demolition means and methods are provided within subcontractor work plans. QC controls and inspections will include, but not limited to, certified operators of demolition machinery, proper traffic route and staging area, H&S training and practice, proper documentation of disposed materials and manifests, and the use of approved disposal facilities.

Preparatory Phase

The preparatory phase will include the following controls: a review of the relevant AHAs, a review of the requirements provided in demolition specifications and site specific Accident Prevention Plan (Appendix B), verifying approval of the utility clearance, verifying hot work permit is in place, and confirming that competent personal and demolition equipment is available to complete the work, traffic route and staging area are setup, and blank manifests are in place.

Initial Phase

The Project QC Manager will conduct initial inspections and monitor the work performed in accordance with the requirements in this work plan and requirements in the demolition scope of work. The traffic route and staging area will be inspected for proper sign and fencing. Manifests for disposal of the demolished structures will be proper maintained.

Follow-up Phase

The Project QC Manager will be responsible for the ongoing inspections of the demolition activities. He or she will verify that the work is being completed according to the work plan and demolition requirements. Inspections will be performed to ensure satisfactory removal of materials and debris on concrete foundations. Any deficiencies will be documented and corrected as necessary.

Demolition inspections will include:

Task	Procedure
Demolition	<ul style="list-style-type: none"> • Review of AHAs, H&S Plan, and demolition scope of work • Verify approval of utility clearance • Obtain a hot work permit • Verify qualifications of demolition personal • Review and inspect traffic route and staging area for proper sign and fencing • Verify approval of disposal facility • Verify complete removal of fencing and posts • Maintain waste manifests and waste tracking logs • Document and correct deficiencies

5.3.4 Waste Management

Liquid and solid wastes will be generated from the demolition and removal site work activities. These wastes will be characterized, managed, transported, and disposed of in accordance with the project Waste Management Plan.

Preparatory Phase

Preparatory phase will include following controls: review of the Waste Management Plan (Section 4.0 of this Work Plan), review of disposal facility and transporter qualifications, review of transportation schedule for hauling material offsite, and confirming that manifest is in place to commence the work.

Initial Phase

The Project QC Manager will inspect the waste transport vehicles (roll-off containers, flat bed trucks, etc.) prior to accepting on the job. He or she will verify the information provided in the waste manifests for their accuracy and completeness. Any discrepancies on waste manifests will be corrected.

Follow-up Phase

The Project QC Manager will verify the disposal facility has accepted the waste materials and has sent the required completed manifests to the generator or the generator’s representative. He or she will verify the receipt of the disposal certificate and that the invoice is complete and accurate. A waste disposal log will be maintained and updated daily. Containers, tanks, and roll-off containers will be routinely inspected for integrity and inventoried. Waste storage area will be visually inspected daily for releases or signs of corrosion, deterioration or other conditions that could result in a release. All of the inspections will be documented in QC reports.

Waste management inspections include:

Task	Procedures
Waste Management	<ul style="list-style-type: none"> • Verify qualifications of transporters and disposal facilities • Check manifests • Maintain waste disposal log • Inspect waste transport vehicles routinely • Inspect waste containers and storage areas on a daily basis

5.3.5 Demobilization

Equipment and personnel will be demobilized from the site following the completion of the work activities identified in this Quality Control Plan (QCP). The Project QC Manager will coordinate pre-final and final inspections to verify that the remedial objectives have been completed. 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 walk-through inspection.

Preparatory Phase

The preparatory phase will include a review of site drawings to ensure all data has been captured. Additionally, deliverables will be reviewed and action dates will be established.

Initial Phase

The Construction Manager will perform inspections to confirm that the objectives of the demobilization activities have been met and that the rework items, if any, have been completed to the satisfaction of the Navy and AGVIQ-CH2M HILL.

Follow-up Phase

The Project QC Manager will provide continuous oversight of demobilization to verify that the work is completed in accordance with the requirements of this QCP. Deficiencies will be noted and corrected.

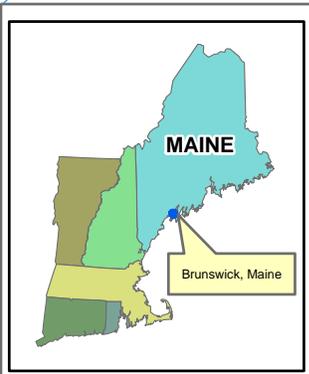
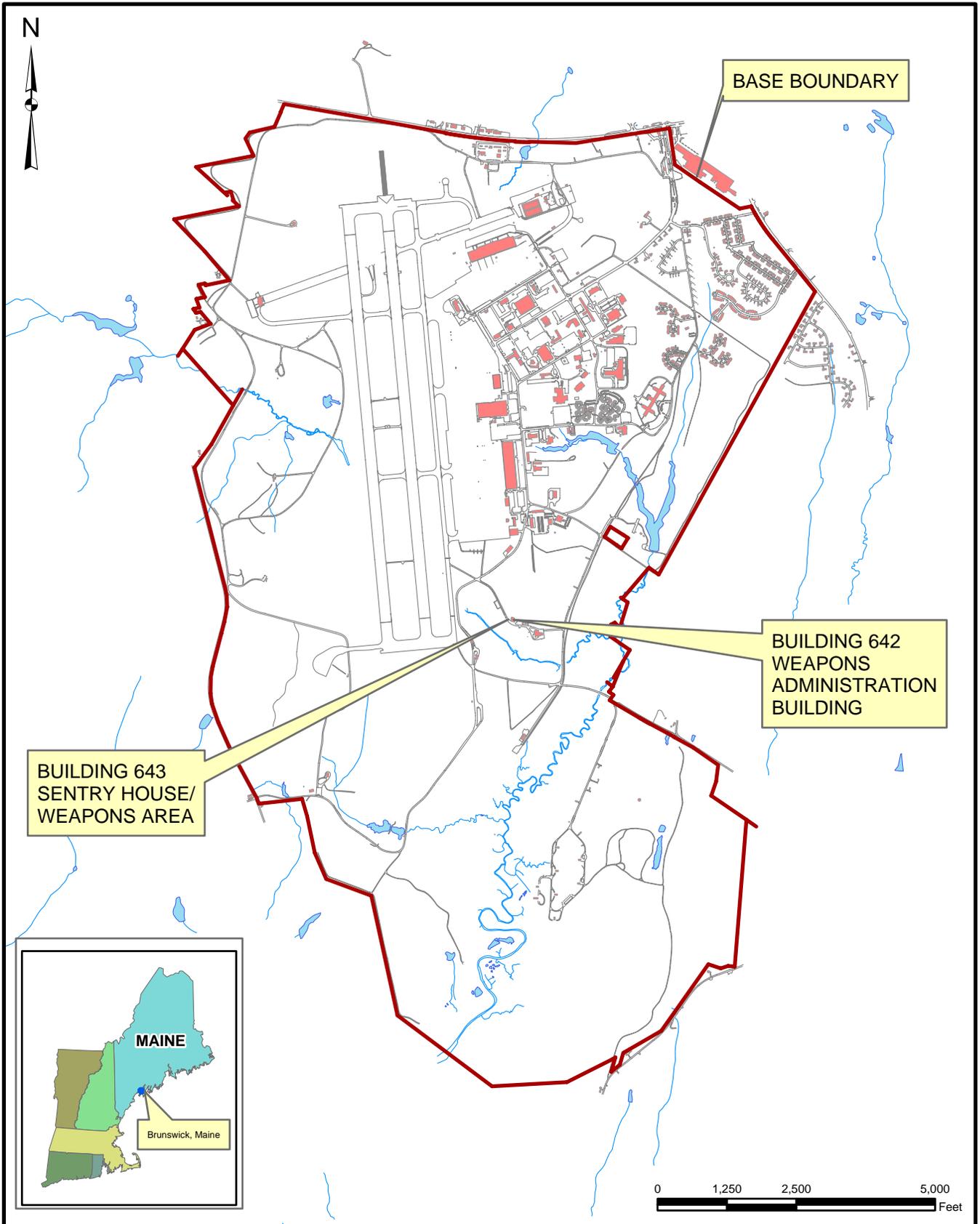
Demobilization inspections will include:

Task	Procedures/Construction Details
Demobilization	<ul style="list-style-type: none">• Pre-final site inspection and develop punch-list items• Inspect work areas to ensure all temporary facilities, equipment and resources are safely removed from the site• Completion inspection when work is substantially complete• Punch lists on outstanding items• Project housekeeping and final project cleaning• Final Site Inspections• Orderly Site Demobilization• Compilation of Site Records & Documents• Complete Resolution of Punch-list items

6.0 References

Tetra Tech NUS, Inc. (TtNUS). 2010. *RCRA Partial Closure Report For Building 642 – Weapons Administration Building 643 – Sentry House, Naval Air Station Brunswick, Maine. USEPA Identification Number ME8170022018.* November.

Figures



Tetra Tech NUS, Inc.

SITE LOCATION MAP

BUILDING 642 - WEAPONS ADMINISTRATION BUILDING
AND BUILDING 643 - SENTRY HOUSE/WEAPONS AREA

RCRA PARTIAL CLOSURE REPORT
NAVAL AIR STATION BRUNSWICK, MAINE

SCALE
AS NOTED

FILE

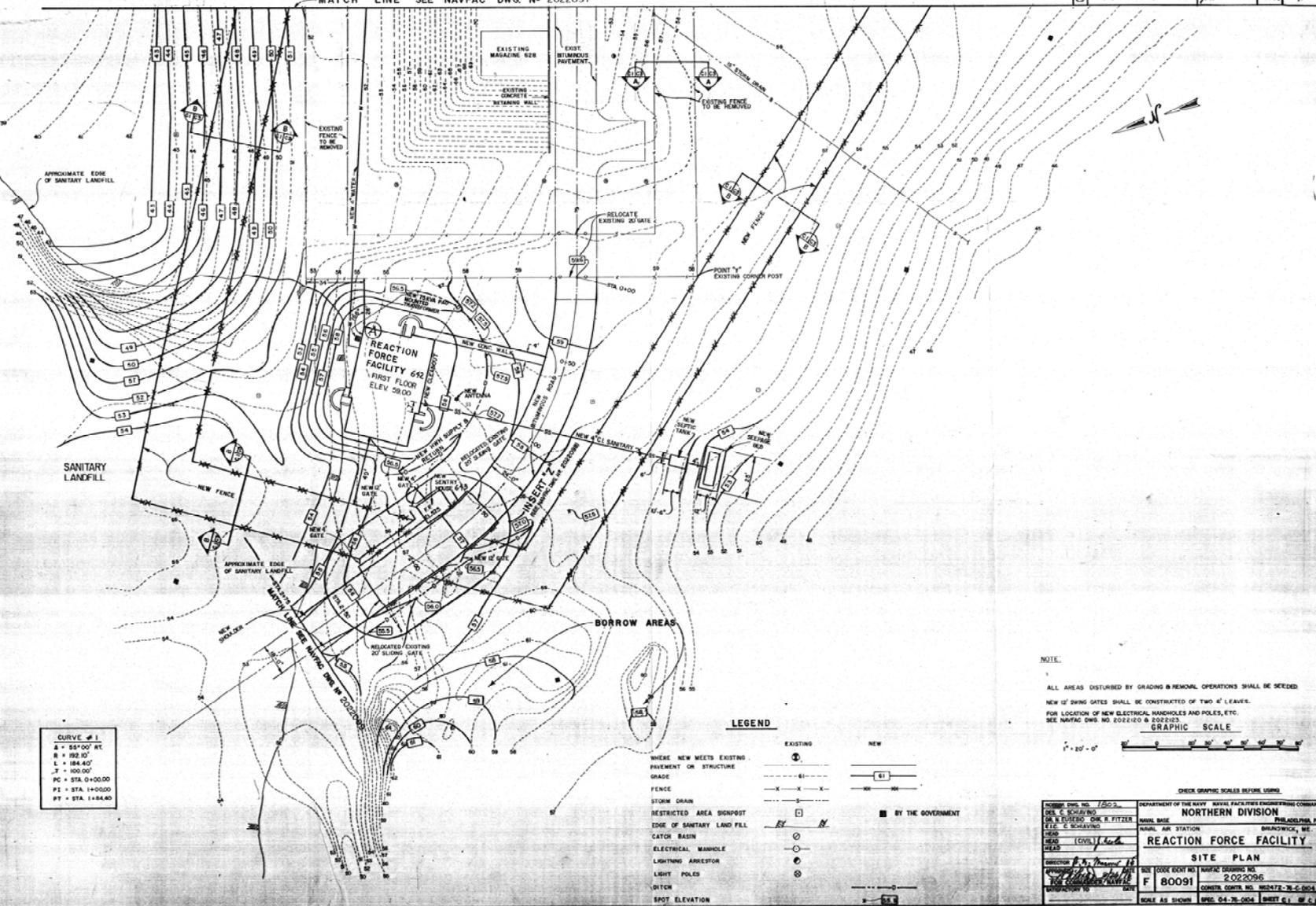
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FIGURE NUMBER

1

REVISIONS				
CHK	DESCRIPTION	PREPARED BY	DATE	APPROVED
2	REVISED AS BUILT	Juan Alvarez	4-20-74	47



CURVE # 1
 R = 150.00' RT.
 L = 192.10'
 E = 184.40'
 F = 100.000'
 PC = STA. 0+00.00
 P1 = STA. 1+00.00
 PF = STA. 1+84.80

LEGEND

- WHERE NEW MEETS EXISTING PAVEMENT OR STRUCTURE GRADE
 - FENCE
 - STORM DRAIN
 - RESTRICTED AREA SIGNPOST
 - EDGE OF SANITARY LAND FILL
 - CATCH BASIN
 - ELECTRICAL MANHOLE
 - LIGHTNING ARRESTOR
 - LIGHT POLES
 - DITCH
 - SPOT ELEVATION
- EXISTING:
- NEW:
- BY THE GOVERNMENT:

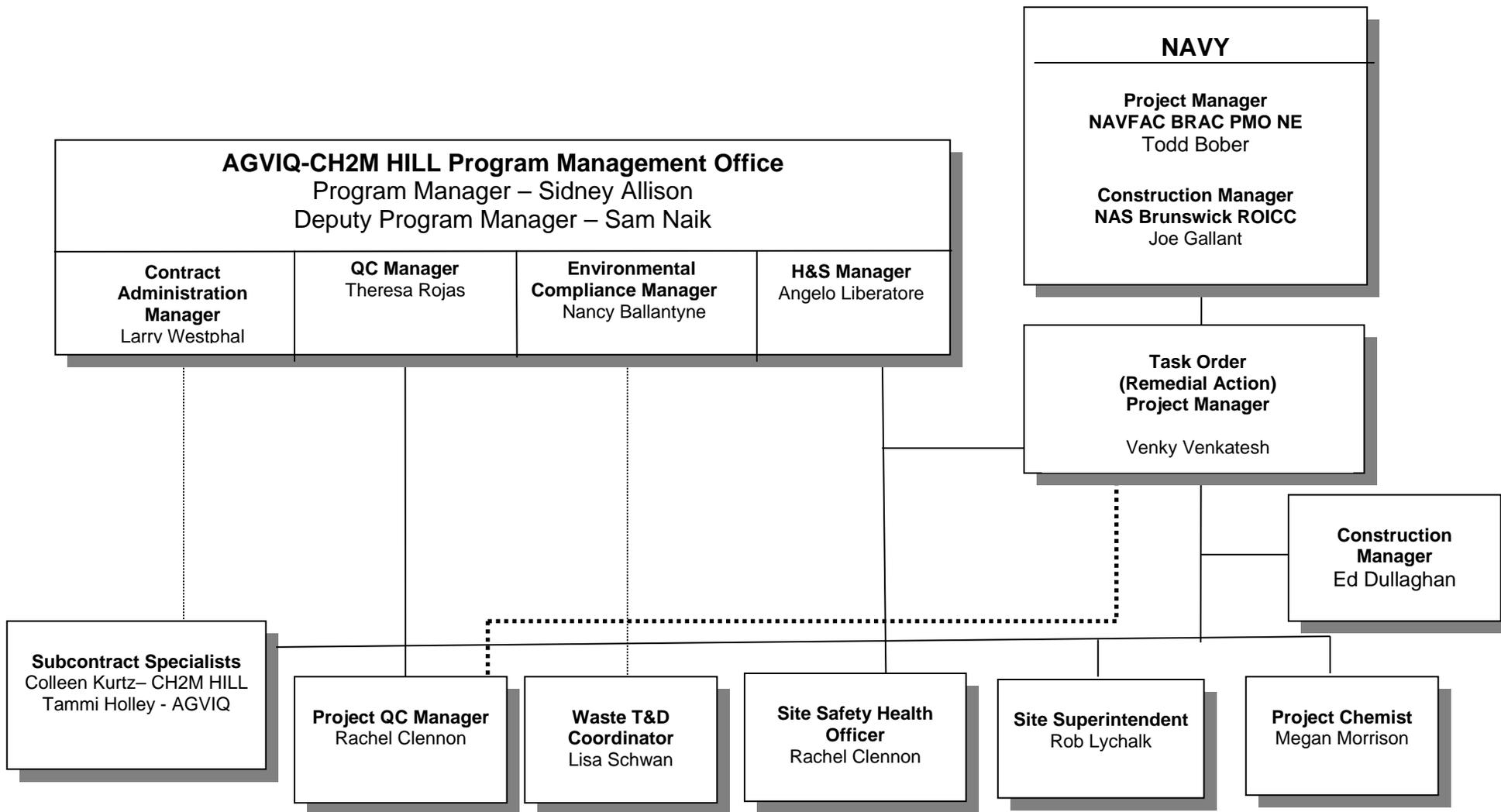
NOTE:

ALL AREAS DISTURBED BY GRADING & REMOVAL OPERATIONS SHALL BE SEEDED.
 NEW 12" SWING GATES SHALL BE CONSTRUCTED OF TWO 6" LEAVES.
 FOR LOCATION OF NEW ELECTRICAL MANHOLES AND POLES, ETC. SEE NAVFAC DWG. NO. 8002100 & 8002105.
GRAPHIC SCALE
 1" = 20' - 0"

CHECK GRAPHIC SCALES BEFORE USING

PROJECT DWG. NO. 1805	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
DR. E. SCHWABING	NAVAL BASE PHILADELPHIA, PA.
DR. R. EBERARD	DR. R. FITZGER
DR. E. SCHWABING	NAVAL AIR STATION BRANSWICK, GE.
REV. 1	REV. 1
REV. 2	REV. 2
REV. 3	REV. 3
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REV. 78	REV. 78
REV. 79	REV. 79
REV. 80	REV. 80
REV. 81	REV. 81
REV. 82	REV. 82
REV. 83	REV. 83
REV. 84	REV. 84
REV. 85	REV. 85
REV. 86	REV. 86
REV. 87	REV. 87
REV. 88	REV. 88
REV. 89	REV. 89
REV. 90	REV. 90
REV. 91	REV. 91
REV. 92	REV. 92
REV. 93	REV. 93
REV. 94	REV. 94
REV. 95	REV. 95
REV. 96	REV. 96
REV. 97	REV. 97
REV. 98	REV. 98
REV. 99	REV. 99
REV. 100	REV. 100

8/20 612



Appendix A
RCRA Partial Closure Report

RCRA PARTIAL CLOSURE REPORT
for
BUILDING 642 – WEAPONS ADMINISTRATION
BUILDING 643 – SENTRY HOUSE
NAVAL AIR STATION BRUNSWICK, MAINE
USEPA IDENTIFICATION NUMBER ME8170022018
NOVEMBER 2010

1. INTRODUCTION

The purpose of this report is to present the findings and conclusions of the investigation conducted to determine if the Maine Department of Environmental Protection (MEDEP) RCRA or hazardous waste closure requirements have been completed for Buildings 642 and 643 at Naval Air Station Brunswick (NAS Brunswick).

2. PROPERTY DESCRIPTION

Buildings 642 and 643 are located in the southern portion of NASB Brunswick, east of the southernmost portion of the runway (Figure 1). Buildings 642 and 643 are located within the Anti-Underwater Warfare [AUW] Facility, which is located in the Weapons Area along an unnamed road running east-west from Merriconeag Road to Orion Street. To the east of Buildings 642 and 643 within the AUW are Building 626 (Inert Ordnance Storage), Building 539 (Explosives Administration/Armory) (Figure 2). Access to the AUW was restricted; the AUW is surrounded by a double security fence. Directly to the north and northwest of Buildings 642 and 643 is Installation Restoration Program (IRP) Site 1 (Orion Street Landfill-North) and Site 3 (Orion Street Landfill-South [Hazardous Waste Burial Area]).

Building 642, constructed in 1978, served as both a weapons administration and a security facility (operated by the Marine Corp). The building consists of a 4,450-square-foot multi-room, single-level building on a concrete slab foundation and was heated by natural gas.

Building 643 was constructed in 1978 and served as a guard shack (sentry house). It consists of a single-level, one-room building on a slab foundation, and has an area of 140 square feet. Photographs of both buildings are provided as an attachment to this report.

Buildings 642 and 643 are located within the Weapons/Magazine Area. The Weapons/Magazine Area RCRA Partial Closure Report will address the land surrounding and the groundwater underlying Buildings 642 and 643.

3. PROPERTY HISTORY AND RECORDS RESEARCH

The Tetra Tech NUS, Inc. (Tetra Tech) project team interviewed NAS Brunswick Environmental Department personnel and reviewed both NAS Brunswick and the Augusta, Maine MEDEP files to collect available information concerning Buildings 642 and 643, including past use and operations at these locations.

Records reviewed include historical aerial photographs, the NAS Brunswick Other Environmental Liabilities (OEL) Database, area-specific reports, facility plans, facility drawings, and hazardous waste records. Aerial photographs dated 1953, 1958, 1978, 1981, 1984, 1989, 1993 and 1997 (Sewall, 1953, 1958, 1978, 1981, 1984, 1989, 1993 and 1997) were reviewed. Public Works Department (PWD) site base maps dated 1943, 1946, 1952, 1956, 1975, 1976, 1989, and 2006 (PWD, 1943, 1946, 1952, 1956, 1975, 1976, 1989, and 2006) and site building lists for 1965, 1976, 2003, 2006, and 2008 (PWD, 1965, 1976, 2003, 2006, and 2008) were also reviewed.

Building 642

The 2006 buildings index is the first available building list to include Building 642, and indicates it to be a 2,419-square-foot structure constructed in 1978. This construction date is consistent with aerial photographs and historical site plans:

- The 1978 aerial photograph is the earliest to show Building 642, and it is shown in its current location; the area is vacant and wooded on aerial photographs prior to 1978.
- An “as-built” Reaction Force Facility Site Plan drawing dated 1978 shows the construction of Building 642 as the Reaction Force Facility. This plan indicates that septic tank, distribution tank, and seepage bed were constructed and a 75-kVa transformer was installed at the northeast corner of Building 642 (approximate location of current transformers). The drawing also indicates other AUW area improvements including extension of the roadway and modification of the security fencing to enclose the new Buildings 642 and 643 (NAVFAC, 1978).
- A “built as per plans” Reaction Force Facility Addition drawing (date estimated 1985) shows additions to Building 642 included a new dorm (150 square feet) and vehicle garage (775 square feet), for a total of 4,450 square feet after renovations. Other renovations were listed on this plan, including minor structural modifications. (NAVFAC, 1985 estimated).
- Review of historical aerial photographs dated 1981 and 1989 shows that a large addition was constructed on the south side of Building 642, likely prior to or during 1989.

A historical site plan (unknown dates) show that the interior of the building includes a storage area for armored vehicles, two mechanical rooms, a ready room, several storage rooms for clean gear and arms, several relief rooms, office space, a shop, restrooms, and a bunk room.

On the Building 642 evacuation plan the vehicle bay and an office were labeled as AWSEP Bay (Armament Weapons Support Equipment Program) Bay. Vehicles and trailers were repaired in the vehicle bays, according to NAS Brunswick personnel, who also stated that a torpedo shop had been located in Building 642 at one time; however, no other historical site information was located regarding that use of the building.

According to historical records and NAS Brunswick Environmental Department personnel, following its construction in 1978, Building 642 was used as a security force facility. Also, according to NAS Brunswick Environmental Department personnel, hazardous waste generation at Building 642 was episodic in nature, with no operations producing hazardous waste on a regular basis. The source of most hazardous waste generated by activities at Building 642 was aerosol paints, used on an “as needed” basis. NAS Brunswick has a program in place that tracks hazardous waste to ensure proper handling and disposal. However, the database tracking system does not distinguish between the various buildings within the Weapons Area.

The NAS Brunswick Transformer Database does not list electrical transformers associated with Building 642; however, the 1978 historical plan discussed above, indicates transformers were installed at the northeast corner of the building.

The NAS Brunswick Master/Historical Aboveground and Underground Storage Tank Inventory lists two underground storage tanks (USTs) for Building 642 (642.0 and 642.1). Tank 642.0 is listed as a 1,000-gallon UST for storage of No. 2 fuel oil. This tank was installed in 1977 and was removed and replaced with a new UST in 1992. Tank 642.1, installed in 1992 and listed as active, and is a 1,000-gallon UST for No. 1 fuel oil; however, NAS Brunswick personnel reported that the tank was removed on August 30, 2010. There are no above ground storage tanks (ASTs) or oil/water separators (OWS) registered to Building 642 (Environmental Department, 2009). No OWS are listed for Building 642 on the NAS Brunswick Revised Oil/Water Separator List (PWD, 2008b).

According to MEDEP and NAS Brunswick spill records, no spills were reported in the vicinity of Building 642 (Environmental Department, 1988; Environmental Department 1999; and MEDEP, 2010).

Building 643

The 2006 buildings index is the first to include Building 643, and indicates it to be a 140-square-foot structure, constructed in 1978. This construction date is consistent with aerial photographs and site plans:

- The 1978 aerial photograph is the earliest to show Building 643, where it is shown in its current location; the area is vacant and wooded on photographs earlier than 1978.
- An “as-built” Reaction Force Facility Site Plan drawing dated 1978 shows the construction of Building 643 as New Sentry House.

The NAS Brunswick Transformer Database lists no electrical transformers for Building 643 (PWD, 2010).

The NAS Brunswick Master/Historical Aboveground and Underground Storage Tank Inventory lists no USTs or ASTs associated with Building 643 (Environmental Department, 2009). No OWS are listed for Building 643 on the NAS Brunswick Revised Oil/Water Separator List (PWD, 2008b).

According to historical records and NAS Brunswick Environmental Department personnel, following its construction in 1978, Building 643 was used only as a guard shack (sentry house). There is no record of hazardous waste generation at Building 643 (Environmental Department, 2010).

According to MEDEP and NAS Brunswick spill records, no spills were reported in the vicinity of Building 643 (Environmental Department, 1988; Environmental Department 1999; and MEDEP, 2010).

4. SITE VISIT AND INVESTIGATION

A site visit was conducted on June 3, 2010 by Mr. James Forrelli, P.E., Mindi Messmer, and Chelsea Fellows of Tetra Tech. The purpose of the visit was to verify information gathered during the records search and to collect additional information as necessary to prepare this closure report. Tetra Tech personnel were accompanied by Mr. D. Bruce Smith, the NAS Brunswick Hazardous Waste Manager. Buildings 642 and 643 were visually inspected for signs of hazardous waste generation or storage. Site visit observations, recorded on the attached Building Inspection Form ⁽¹⁾, are summarized below:

Building 642 Site Visit

- At the time of inspection, Building 642 was vacant and in fair condition. The interior consisted of two vehicle bays, offices, two storage rooms, a bunk room, a ready room, a tool/gear room, two restrooms, and a mechanical room containing a boiler and associated generator.
- Peeling paint was observed at Building 642 in three interiors rooms (storage room, bunk room, and the restroom located on the north side of the building).
- Two openings observed in the flooring of the Vehicle Storage area were used for exhaust ventilation, according to NAS Brunswick personnel.
- Floor tiles and pipe wrap that may possibly contain asbestos were observed.
- No evidence of current or past hazardous waste generation activities was observed.

- No signs of a past release (staining, unusual odors, stressed vegetation, etc.) were observed. No modifications to the structure, which may conceal signs of a past release, were observed.
- Three pole-style transformers were observed, mounted on a concrete pad located at the northeast exterior corner of Building 642.
- UST-fill-pipes were observed at the northeast corner of the building. According to NAS Brunswick personnel, the tank (Tank 642.1) was present, but had been drained closed yet. (NAS Brunswick personnel later reported that the tank was removed on August 30, 2010.) No evidence of a past release from this UST was observed.

Based on the site visit observations and records research findings, samples were collected at Building 642 to investigate the potential presence of hazardous waste residue as a result of peeling paint conditions, the electrical transformer pad, and small arms storage and maintenance (that may have occurred during the building's use as a security facility). The investigation sample results are discussed in the following.

Building 642 Peeling Paint Investigation

If paint peels, flakes, or is otherwise removed, the paint-chip waste material may be a hazardous waste, subject to RCRA requirements. Paint wastes exhibiting the "toxicity characteristic" as measured using the Toxicity Characteristic Leaching Procedure (TCLP) must be handled and disposed of in conformance with hazardous waste laws and regulations. Therefore, the loose paint observed during the site visit was sampled on June 17, 2010. The samples were analyzed for total RCRA metals and PCBs by Tetra Tech's subcontracted analytical laboratory, Analytics Environmental Laboratory (Analytics), of Portsmouth, New Hampshire. The resulting analytical data underwent limited data validation consisting of field duplicate evaluation, blank contamination evaluation, and completeness evaluation.

The paint-chip analytical results are summarized in Table 1. For each total metals analysis, the results were compared to 20 times the TCLP regulatory limit for hazardous waste. Using "the Rule of 20", if a result is less than 20 times its TCLP regulatory limit, then the sample could not possibly leach enough of the compound under TCLP conditions to fail the TCLP limit, even if all the compound dissolved into the extraction fluid. Paint PCB results were compared to the Toxic Substances Control Act (TSCA) PCB limit for building material bulk product waste of 50 ppm (50 mg/kg).

As presented in Table 1, total metals concentrations of chromium and mercury were the only metals concentrations in the Building 642 paint-chip samples that exceeded 20 times the TCLP limit; PCBs were not detected. Based on these results, it was determined that loose paint and paint chip removal is necessary at Building 642 to complete the MEDEP hazardous waste closure requirements (discussed in Section 6).

Building 642 Electrical Transformer Pad Investigation

As of July 1, 1979, the United States Environmental Protection Agency (EPA) prohibited all manufacturing of new PCB electrical equipment (transformers and capacitors). Due to the age of the building (1978), it is possible PCB-containing transformers were used at Building 642. Therefore, soil samples were collected around the transformer pad to assess potential PCB impacts to soil. Eight surface soil samples from four locations around the transformer pad (Figure 3) on June 17, 2010. A hand auger was used to collect samples from 0 to 6 inches below ground surface (bgs) and from 6 to 24 inches bgs at each of the four locations.

All soil samples were submitted for PCB analysis by Analytics. The resulting analytical data underwent limited data validation consisting of field duplicate evaluation, blank contamination evaluation, and completeness evaluation.

As shown in Table 2, soil sample PCB results were compared to the MEDEP standard for total PCBs in soil, 1 part per million (ppm). For informational purposes, results were also compared to EPA Regional Screening Levels (RSLs) for residential soil (EPA, 2010). In one soil sample, B642-SB02-0624 (from the 6- to 24-inch interval bgs), Aroclor-1254 was detected at a concentration of 297 µg/kg, above the RSL of 220 micrograms per kilogram (µg/kg). However, the total PCB levels were below the MEDEP criterion of 1 ppm (1 mg/kg). PCBs were not detected in any of the other soil samples.

Based on the records research findings, site visit observations, and sampling results, it was determined that neither further investigation nor sampling of the transformer area at Building 642 is required to complete the MEDEP hazardous waste closure requirements.

Building 642 Residue Investigation

On June 17, 2010, floor-wipe samples were collected from nine locations in Building 642, as shown on Figure 3. Wipe samples were submitted for RCRA metals and semi-volatile organic compound (SVOC) analysis by Tetra Tech's subcontracted analytical laboratory, Analytix. The resulting analytical data underwent limited data validation consisting of field duplicate evaluation, blank contamination evaluation, and completeness evaluation.

Wipe sample results for the Building 642 investigation is presented in Table 3. For lead, analytical results were compared to the following MEDEP criteria for lead-contaminated settled dust, applicable for RCRA closures:

- Floors: 40 micrograms per square foot (µg/ft²)
- Walls and other flat surfaces up to a height of 8 feet: 250 µg/ ft²
- Surfaces above 8 feet: visibly clean (dust-free)

There are no Maine criteria for the other seven RCRA metals or the SVOCs. For informational purposes, wipe sample results for six of the other seven metals were compared to World Trade Center (WTC) Settled Dust Screening Values (there are no WTC screening values for selenium) (WTC, 2003). The data validation findings indicate that some of the SVOC detections are related to blank contamination or were qualified as "J" (approximate).

As shown in Table 3, lead was detected in each of the nine floor-wipe samples at levels exceeding the MEDEP criterion for floors (40 µg/ft²). Cadmium was also detected in four wipe samples at levels which exceed the WTC criterion. All levels of other detected metals in these samples were below the screening values. Based on the analytical results, cleaning of Building 642 was required to remove lead-contaminated residue exceeding the associated MEDEP criterion for dust on floors (discussed in Section 6).

Building 643 Site Investigation

- At the time of inspection, Building 643 was vacant and in fair condition.
- Extensive areas of peeling paint was observed in the building interior.
- No evidence of current or past hazardous waste generation activities was observed.
- No signs of a past release (staining, unusual odors, stressed vegetation, etc.) were observed. No modifications to the structure, which may conceal signs of a past release, were observed.

For reasons discussed above under Building 642 Peeling Paint Investigation, a loose paint sample were collected at Building 643 to investigate the potential presence of hazardous waste residue as a result of peeling paint conditions. Therefore, a sample of the loose paint observed during the site visit was collected on June 17, 2010. The sample was analyzed for total RCRA 8 metals and PCBs by Tetra Tech's subcontracted analytical laboratory, Analytix. The resulting

analytical data underwent limited data validation consisting of field duplicate evaluation, blank contamination evaluation, and completeness evaluation.

The Building 643 paint-chip analytical results are summarized in Table 1. The total metals results were compared to 20 times the TCLP regulatory limit for hazardous waste as discussed under Building 642 Peeling Paint Investigation.

As presented in Table 1, total metals concentrations of chromium and lead in the Building 643 paint-chip sample exceeded 20 times the TCLP limit; PCBs were not detected. Based on these results, it was determined that loose paint and paint chip removal was required at Building 643 to complete the MEDEP hazardous waste closure requirements (discussed in Section 6).

5. HAZARDOUS WASTE GENERATION AND STORAGE

Based on the records research, NAS Brunswick Environmental Department personnel interviews, operations at Building 642 generated small quantities of paint waste and aerosols on an episodic basis; these wastes were handled and disposed of under the NAS Brunswick hazardous waste department.

Based site visit observations and sampling results, hazardous waste residue was generated at Building 642 in the form of lead-contaminated settled dust from small arms maintenance and vehicle storage and maintenance activities associated with operations conducted at the former security building. The areas impacted by lead-dust were also addressed by the closure actions described in Section 6.0.

In addition, based on sampling results, hazardous waste residue was generated at Building 642 in the form of chromium-, and mercury-contaminated peeling paint, and at Building 643, in chromium- and lead-contaminated peeling paint. These areas were addressed by the closure actions described in Section 6.0.

6. CLOSURE ACTIONS

Based on analytical results discussed in Section 4, closure actions were required at Buildings 642 and 643 to satisfy the MEDEP hazardous waste closure requirements. Closure actions were conducted at Building 642 in September 2010 and at Building 643 in September and October 2010, as discussed below.

Building 642 Closure Actions

Tetra Tech's cleaning subcontractor (Global Remediation Services [Global]) performed floor- and wall-cleaning activities at Building 642, based on criteria exceedances in previous paint-chip and wipe samples, as discussed in Section 4. On September 29, 2010, cleaning activities were conducted in the bunk room, storage rooms (Nos. 1 and 2), ready room, vehicle storage room, and former shop. Prior to cleaning, floor openings were covered and sealed with polyethylene sheeting. The floors were then manually swept and then vacuumed with a high-efficiency particulate air (HEPA) vacuum. After sweeping and vacuuming, floors and walls were sprayed with a 2-percent, lead-specific detergent solution, scrubbed, and pressure-washed, using a 5,000-pounds-per-square-inch (PSI) steam cleaner. All cleaning wastewater was containerized using a wet-vacuum, placed in three 55-gallon drums, and transferred to the NAS Brunswick hazardous waste department for disposal. Upon completion, the Tetra Tech field representative performed a visual inspection of the cleaned areas.

Post-cleaning, confirmatory floor- and wall-wipe samples were collected from each of the cleaned rooms on October 1, 2010 (Figure 4). Samples were submitted to Analytics for RCRA metals analysis. The resulting analytical data underwent limited data validation consisting of field duplicate evaluation, blank contamination evaluation, and completeness evaluation. The October

1, 2010 wipe sample results are included in Table 4. Lead levels in several post-cleaning confirmatory wipe samples were above the associated MEDEP floor criterion. Cadmium levels in three floor-wipe samples and arsenic in one wall-wipe sample exceeded the WTC criteria (used for informational purposes only).

A second decontamination event (Event 2) was conducted at Building 642 on October 21, 2010, based on criteria exceedances in post-cleaning wipe samples discussed above. Floors and walls were cleaned again, using the procedures described above. After the work areas were allowed to dry, post-cleaning confirmatory wipe samples (Event 2) were collected on October 22, 2010. Eight floor-wipe samples (plus one blind duplicate) were collected for lead analysis by Analytics (Figure 5). The resulting analytical data underwent limited data validation consisting of field duplicate evaluation, blank contamination evaluation, and completeness evaluation. The October 22, 2010 wipe sample results are included in Table 5. With one exception, the confirmatory wipe sample results following the Event 2 decontamination indicated that lead was not detected at levels exceeding the associated MEDEP criterion ($40 \mu\text{g}/\text{ft}^2$). The exception was in the wipe sample collected from the former shop floor, where lead was detected at $46 \mu\text{g}/\text{ft}^2$, a slight exceedance of the criterion. However, the average lead level for the eight post-cleaning, confirmatory wipe samples (Event 2) is $22.5 \mu\text{g}/\text{ft}^2$, well below the criterion. Based on this low average lead level, additional closure action is not warranted at Building 642.

Building 643

On September 29 and 30, 2010, Tetra Tech's cleaning subcontractor, Global, performed clean-up activities for loose and flaking paint located in Building 643. Loose paint was removed using scrapers and wire brushes. All cleaning waste was vacuumed using a HEPA vacuum, placed in a 55-gallon drum, and transferred to the NAS Brunswick hazardous waste department for disposal. Upon completion, the Tetra Tech field representative performed a visual inspection of the cleaned area.

It was determined that neither further inspection nor sampling of Building 643 is required to complete the MEDEP hazardous waste closure requirements.

7. OTHER ENVIRONMENTAL CONSIDERATIONS

Any electrical transformers or USTs known to be associated with Buildings 642 or 643 are discussed in Section 3. No additional transformers or USTs were observed in the immediate vicinity of the buildings. No ASTs and no oil/water separators are known to be associated with Buildings 642 or 643, and none were observed in the immediate vicinity of the buildings.

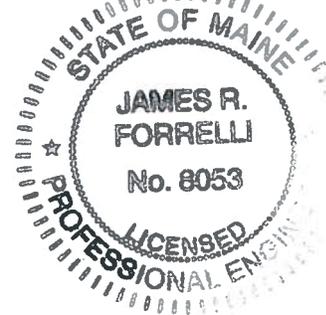
8. LIMITATIONS

This investigation of the hazardous waste closure requirement applies to the building footprints of Buildings 642 and 643 (building footprints shown on Figure 2). It does not apply to the land surrounding or the groundwater underlying Building 642 or Building 643.

9. CERTIFICATION

Historical operations resulted in the generation of hazardous waste residue at Building 642, NAS Brunswick, Maine, based on the findings of the investigation as presented in this Partial Closure Report. The hazardous waste closure of Building 642 and Building 643 was completed in accordance with the provisions of MEDEP Regulations Chapter 851, Standards for Generators of Hazardous Waste, Section 11.


 James Forrelli, P.E.
 Senior Project Engineer
 Tetra Tech NUS, Inc.



(1) The Building Inspection Form provides preliminary information collected during the building inspection, including information from visual observations, Navy personnel interviews, and from documents reviewed during file reviews. It does not reflect any additional information provided at a later date that further clarifies or corrects preliminary information collected during the building inspection and file reviews.

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**TABLE 1
INVESTIGATION PAINT-CHIP SAMPLE RESULTS
RCRA PARTIAL CLOSURE REPORT
BUILDING 642 – WEAPONS ADMINISTRATION
BUILDING 643 – SENTRY HOUSE
NAVAL AIR STATION BRUNSWICK, MAINE**

SAMPLE ID ⁽¹⁾		B642-PC01	B642-PC02	B643-PC01	
LOCATION		Building 642		Building 643	
		bunk room baseboard heater	storage room west wall	interior wall and door	
MATRIX		paint chip	paint chip	paint chip	
SAMPLE DATE		06/17/10	06/17/10	06/17/10	
METALS	CRITERIA		RESULTS		
	TCLP Limit (mg/L)	20x TCLP Limit (mg/kg)	(mg/kg)		
arsenic	5	100	7.5	0.59	0.28 J
barium	100	2000	200	16	130
cadmium	1	20	1.6	0.61	13
chromium	5	100	180	73	110
lead	5	100	67	37	1400
mercury	0.2	4	2.8	37	2.8
selenium	1	20	0.47 U	0.49 U	0.47 U
silver	5	100	0.094 U	0.097 U	0.093 U
PCB	CRITERIA		RESULTS		
			($\mu\text{g}/\text{kg}$)		
Aroclor-1016		--	330 U	300 U	63 U
Aroclor-1221		--	330 U	300 U	63 U
Aroclor-1232		--	330 U	300 U	63 U
Aroclor-1242		--	330 U	300 U	63 U
Aroclor-1248		--	330 U	300 U	63 U
Aroclor-1254		--	330 U	300 U	63 U
Aroclor-1260		--	330 U	300 U	63 U
Total Aroclor ⁽²⁾		50,000	330 U	300 U	63 U

Notes:

(1) Sample prefix "NASB" is not shown.

(2) Toxic Substances Control Act (TSCA) PCB limit for building materials is 50 ppm.

mg/kg milligram per kilogram

mg/L milligram per liter

 $\mu\text{g}/\text{kg}$ microgram per kilogram

J estimated

-- no criteria available

U not detected (with associated detection limit)

Shading indicates criteria exceeded

**TABLE 2
 INVESTIGATION SOIL SAMPLE RESULTS
 RCRA PARTIAL CLOSURE REPORT
 BUILDING 642 – WEAPONS ADMINISTRATION
 BUILDING 643 – SENTRY HOUSE
 NAVAL AIR STATION BRUNSWICK, MAINE**

SAMPLE ID ⁽¹⁾	EPA RSLs ⁽²⁾ (µg/kg)	B642-SB01-0006	B642-SB01-0624	B642-SB02-0006	B642-SB02-0624	B642-SB03-0006	B642-SB03-0624	B642-SB04-0006	B642-SB04-0624
LOCATION		Building 642 transformer pad north side	Building 642 transformer pad north side	Building 642 transformer pad east side	Building 642 transformer pad east side	Building 642 transformer pad south side	Building 642 transformer pad south side	Building 642 transformer pad west side	Building 642 transformer pad west side
MATRIX		soil	soil	soil	soil	soil	soil	Soil	soil
DEPTH		0-6 inches bgs	6-24 inches bgs	0-6 inches bgs	6-24 inches bgs	0-6 inches bgs	6-24 inches bgs	0-6 inches bgs	6-24 inches bgs
SAMPLE DATE		6/17/10	6/17/10	6/17/10	6/17/10	6/17/10	6/17/10	6/17/10	6/17/10
PCB (µg/kg)									
Aroclor-1016	3,900	33 U	36 U	36 U	33 U	36 U	36 U	36 U	33 U
Aroclor-1221	140	33 U	36 U	36 U	33 U	36 U	36 U	36 U	33 U
Aroclor-1232	140	33 U	36 U	36 U	33 U	36 U	36 U	36 U	33 U
Aroclor-1242	220	33 U	36 U	36 U	33 U	36 U	36 U	36 U	33 U
Aroclor-1248	220	33 U	36 U	36 U	33 U	36 U	36 U	36 U	33 U
Aroclor-1254	220	33 U	36 U	36 U	297	36 U	36 U	36 U	33 U
Aroclor-1260	220	33 U	36 U	36 U	33 U	36 U	36 U	36 U	33 U
Total PCBs ⁽³⁾	1,000	33 U	36 U	36 U	297	36 U	36 U	36 U	33 U

Notes:

- (1) Sample prefix "NASB" is not shown.
- (2) EPA Regional Screening Levels [RSLs] for residential soil provided for informational purposes
- (3) MEDEP action limit for PCB spill (1 mg/kg).
- bgs below ground surface
- µg/kg micrograms per kilogram
- U not detected (with associated detection limit)
- PCB polychlorinated biphenyl
- shading indicates criteria exceeded

**TABLE 3
PRE-CLEANING WIPE SAMPLE RESULTS
RCRA PARTIAL CLOSURE REPORT
BUILDING 642 – WEAPONS ADMINISTRATION
BUILDING 643 – SENTRY HOUSE
NAVAL AIR STATION BRUNSWICK, MAINE**

SAMPLE ID ⁽¹⁾	WTC	MEDEP floor	MEDEP wall	B642-WP01	B642-WP02	B642-WP03	B642-WP04	B642-WP04 (duplicate)	B642-WP05	B642-WP06	B642-WP07	B642-WP08	B642-WP08 (duplicate)	B642-WP09
LOCATION				Building 642 bunk room floor	Building 642 storage room No. 1 floor	Building 642 storage room No. 2 floor	Building 642 ready room west floor	Building 642 ready room west floor	Building 642 ready room east floor	Building 642 vehicle storage northwest floor	Building 642 vehicle storage southeast floor	Building 642 shop south floor	Building 642 shop south floor	Building 642 shop north floor
MATRIX				wipe	wipe	wipe	wipe	wipe	wipe	wipe	wipe	wipe	wipe	wipe
EVENT				pre-cleaning	pre-cleaning	pre-cleaning	pre-cleaning	pre-cleaning	pre-cleaning	pre-cleaning	pre-cleaning	pre-cleaning	pre-cleaning	pre-cleaning
SAMPLE DATE				06/17/10	06/17/10	06/17/10	06/17/10	06/17/10	06/17/10	06/17/10	06/17/10	06/17/10	06/17/10	06/17/10
METALS (µg/ft²)														
arsenic	36	--	--	4.6 U	20	4.6 U	4.8	5.3	6.2	7.2	19	10	9.3	11
barium	10000	--	--	48	220	83	130	120	190	210	180	130	140	100
cadmium	140	--	--	34	150	170	170	140	130	110	200	82	84	100
chromium	440	--	--	17	57	36	39	37	48	110	69	48	44	33
lead	NA	40	250	46 J	190 J	160 J	120 J	110 J	150 J	370 J	150 J	310 J	110 J	72 J
mercury	15	--	--	0.18	0.1	0.18	0.1	0.093	0.13	0.093 U	0.093 U	0.49	0.52	0.73
selenium	--	--	--	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U	9.3 U
silver	730	--	--	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
SEMIVOLATILES (µg/ft²)														
acetophenone	--	--	--	10 J	19 U	18 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
benzaldehyde	--	--	--	33	26	47	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
bis(2-ethylhexyl)phthalate	--	--	--	1300 J	820	1700	480	440	430	160 U	80 U	1000	1200	170 U
butyl benzyl phthalate	--	--	--	40000	26000	50000	2700	2600	3100	180	25	190	160	47
di-n-butyl phthalate	--	--	--	NA	390	1200 J	140	130	130	19 U	19 U	19 J	19 U	28
di-n-octyl phthalate	--	--	--	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	32	49 J	19 U
other SVOCs	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
(1) Sample prefix "NASB" is not shown.
Wipe sample surface area: 10 cm by 10 cm
WTC Source: Table A-3 Settled Dust Screening Values and Supporting Toxicity Criteria from World Trade Center Indoor Environment Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks, May 2003
Shading indicates criteria exceeded
µg/ft² micrograms per square foot
J estimated result
U not detected (with associated detection limit)
-- no criteria available
NA not analyzed
ND not detected

**TABLE 4
 POST-CLEANING INVESTIGATION WIPE SAMPLE RESULTS (EVENT 1)
 RCRA PARTIAL CLOSURE REPORT
 BUILDING 642 – WEAPONS ADMINISTRATION
 BUILDING 643 – SENTRY HOUSE
 NAVAL AIR STATION BRUNSWICK, MAINE
 PAGE 1 of 2**

SAMPLE ID ⁽¹⁾	WTC	MEDEP floor	MEDEP wall	B642-WP10	B642-WP11	B642-WP12	B642-WP13	B642-WP14	B642-WP15	B642-WP16	B642-WP17	B642-WP18	B642-WP19	B642-WP20
LOCATION				Building 642 bunk room floor	Building 642 southwest bunk room wall	Building 642 storage room No. 1 floor	Building 642 storage room No. 1 west wall	Building 642 storage room No. 2 floor	Building 642 storage room No. 2 north wall	Building 642 ready room west floor	Building 642 ready room east floor	Building 642 ready room north wall	Building 642 ready room south wall	Building 642 shop north floor
MATRIX				wipe	wipe	wipe	wipe	wipe	wipe	wipe	wipe	wipe	wipe	wipe
EVENT				post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning
SAMPLE DATE				10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
METALS (µg/ft ²)														
arsenic	36	--	--	4.6 UJ	4.6 U	20	53	4.6 U	4.6 U	4.6 UJ	4.6 UJ	4.6 U	4.6 U	14
barium	10000	--	--	37 J	12 J	68 J	15 J	34 J	15 J	170 J	110 J	19 J	16 J	160 J
cadmium	140	--	--	32	1.9 J	110	2.8 UJ	38	6.2 J	92	32	3.5 J	6.6 J	260
chromium	440	--	--	12 J	8 J	23 J	56 J	19 J	6.5 J	40 J	25 J	8 J	7.3 J	47 J
lead	NA	40	250	36	14	87	23	29	9.3	130	81	10	10	120
mercury	15	--	--	0.093 J	0.37	0.093 J	5.3	0.037 J	0.093 J	0.074 J	0.065 J	0.046 J	0.37	2.4
selenium	--	--	--	6.5 U	7.1 J	5.6 J	5.1 J	4.6 J	6.3 J	4 J	6.5 U	6.3 J	4.9 J	3.8 J
silver	730	--	--	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U

**TABLE 4
 POST-CLEANING INVESTIGATION WIPE SAMPLE RESULTS (EVENT 1)
 RCRA PARTIAL CLOSURE REPORT
 BUILDING 642 – WEAPONS ADMINISTRATION
 BUILDING 643 – SENTRY HOUSE
 NAVAL AIR STATION BRUNSWICK, MAINE
 PAGE 2 of 2**

SAMPLE ID ⁽¹⁾	WTC	MEDEP floor	MEDEP wall	B642-WP21	B642-WP22	B642-WP23	B642- WP23 (DUPLICATE)	B642-WP24	B642-WP25	B642-WP26
LOCATION				Building 642 shop south floor	Building 642 shop east wall	Building 642 vehicle storage northwest floor	Building 642 vehicle storage northwest floor	Building 642 vehicle storage southeast floor	Building 642 vehicle storage north wall	Building 642 vehicle storage south wall
MATRIX				wipe	wipe	wipe	wipe	wipe	wipe	wipe
EVENT				post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning	post-cleaning
SAMPLE DATE				10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
METALS (µg/ft ²)										
arsenic	36	--	--	4.6 UJ	4.6 UJ	14	15	6.7 UJ	4.6 U	4.6 U
barium	10000	--	--	120 J	78 J	660 J	320 J	210 J	70 J	32 J
cadmium	140	--	--	87	9.3	170	140	130	21	5 J
chromium	440	--	--	38 J	19 J	190 J	67 J	76 J	36 J	19 J
lead	NA	40	250	130	22	220	160	120	78	56
mercury	15	--	--	0.37	0.46	0.093 J	0.19 J	0.0093 J	0.0093 J	0.037 J
selenium	--	--	--	6.7 J	4.2 J	4.8 J	6.5 U	8.1 J	4.7 J	6.5 U
silver	730	--	--	3.7 U	2.2 J	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U

Notes:

(1) Sample prefix "NASB" is not shown.

Wipe sample surface area: 10 cm by 10 cm

WTC Source: Table A-3 Settled Dust Screening Values and Supporting Toxicity Criteria from World Trade Center Indoor Environment Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks, May 2003

µg/ft² micrograms per square foot

J estimated result

U not detected (with associated detection limit)

-- no criteria available

NA not applicable

Shading indicates criteria exceeded

**TABLE 5
 POST-CLEANING WIPE SAMPLE RESULTS (EVENT 2)
 RCRA PARTIAL CLOSURE REPORT
 BUILDING 642 – WEAPONS ADMINISTRATION
 BUILDING 643 – SENTRY HOUSE
 NAVAL AIR STATION BRUNSWICK, MAINE**

SAMPLE ID ⁽¹⁾	WTC	MEDEP floor	MEDEP wall	B642-WP27	B642-WP27 (duplicate)	B642-WP28	B642-WP29	B642-WP30	B642-WP31	B642-WP32	B642-WP33	B642-WP34
LOCATION				Building 642 bunk room floor	Building 642 bunk room floor	Building 642 storage room No. 1 floor	Building 642 storage room No. 2 floor	Building 642 shop floor	Building 642 ready room west floor	Building 642 ready room east floor	Building 642 vehicle storage northwest floor	Building 642 vehicle storage southeast floor
MATRIX				Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe	Wipe
EVENT				Post-Cleaning	Post-Cleaning	Post-Cleaning	Post-Cleaning	Post-Cleaning	Post-Cleaning	Post-Cleaning	Post-Cleaning	Post-Cleaning
SAMPLE DATE				10/22/10	10/22/10	10/22/10	10/22/10	10/22/10	10/22/10	10/22/10	10/22/10	10/22/10
METALS (µg/ft ²)												
lead	NA	40	250	8.1	9.2	21	23	46	19	22	35	19

Notes:

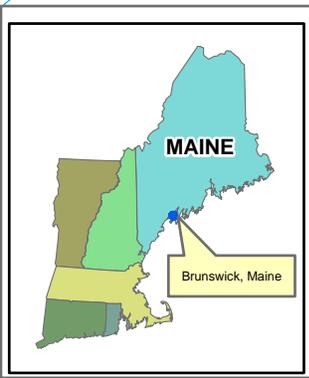
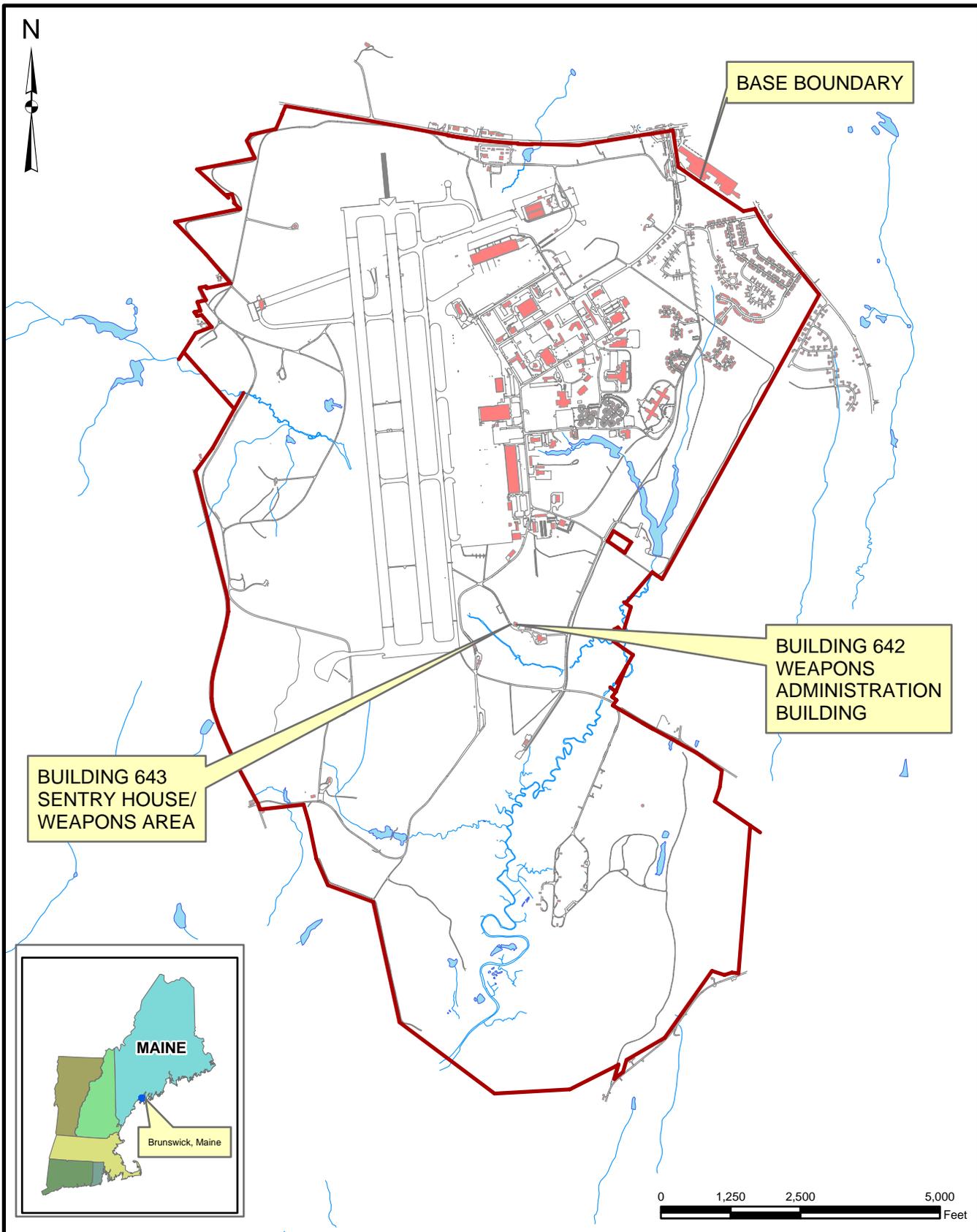
(1) Sample prefix "NASB" is not shown.

Wipe sample surface area: 10 cm by 10 cm

WTC Source: Table A-3 Settled Dust Screening Values and Supporting Toxicity Criteria from World Trade Center Indoor Environment Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks, May 2003

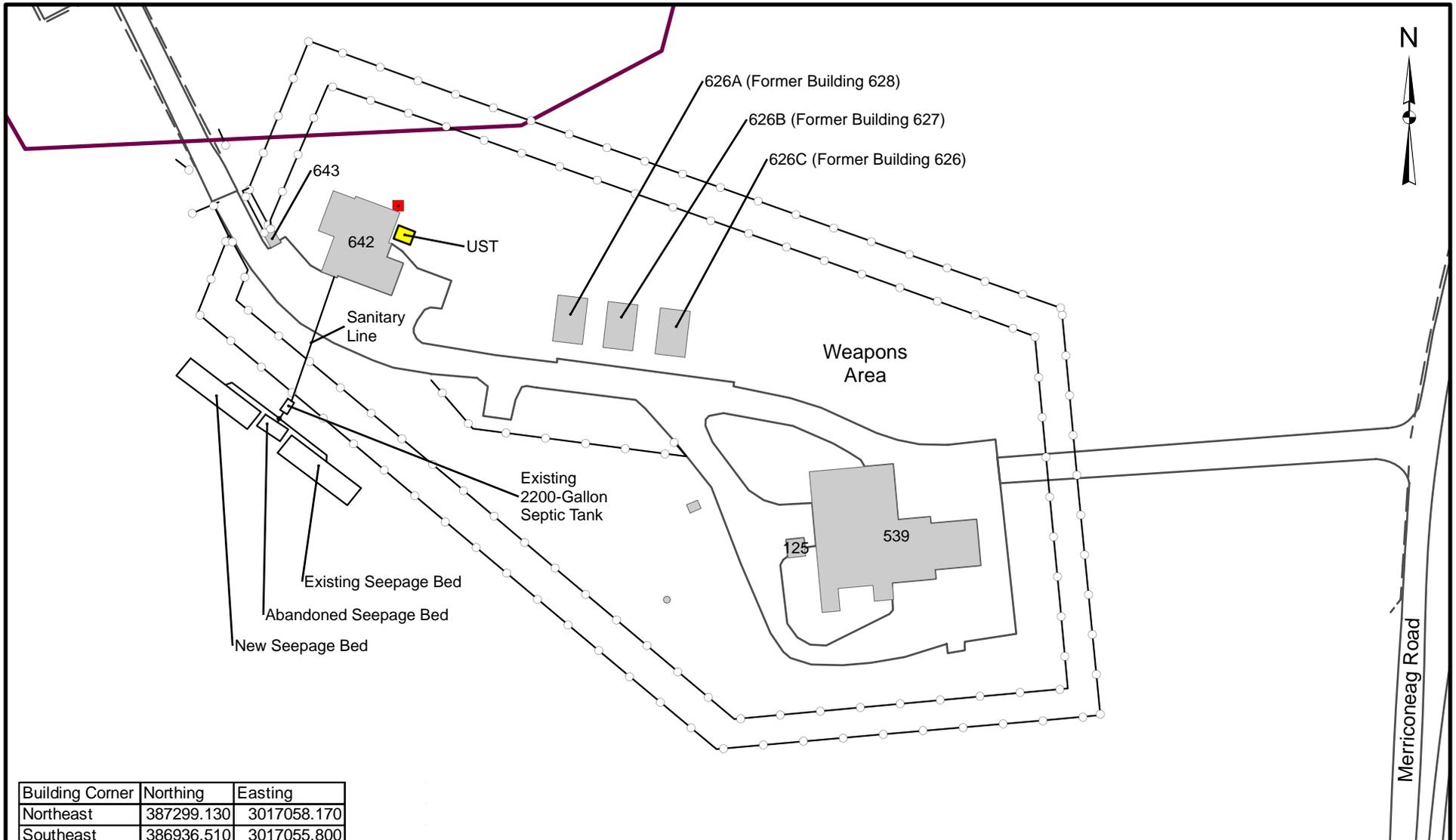
µg/ft² micrograms per square foot

Shading indicates criteria exceeded



SITE LOCATION MAP
BUILDING 642 - WEAPONS ADMINISTRATION BUILDING
AND BUILDING 643 - SENTRY HOUSE/WEAPONS AREA
RCRA PARTIAL CLOSURE REPORT
NAVAL AIR STATION BRUNSWICK, MAINE

SCALE AS NOTED	
FILE	
I:_WASE_BLDG_642&643_LOCUS.MXD	
REV	DATE
0	11/19/10
FIGURE NUMBER	
1	



Building Corner	Northing	Easting
Northeast	387299.130	3017058.170
Southeast	386936.510	3017055.800
Southwest	387010.760	3016730.430
Northwest	387088.750	3016731.300

Coordinates are in NAD 1983, Maine West, Feet



TETRA TECH

SITE PLAN

**BUILDING 642 - WEAPONS ADMINISTRATION BUILDING AND
 BUILDING 643 - SENTRY HOUSE/WEAPONS AREA
 RCRA PARTIAL CLOSURE REPORT
 NAVAL AIR STATION BRUNSWICK, MAINE**

SCALE
AS NOTED

FILE
L:\NASB_BLDG_642&643_SITE_MAP.MXD

REV DATE
0 11/22/10

FIGURE NUMBER
FIGURE NO. 2

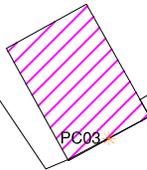
LEGEND

- WP01 ▲ FLOOR WIPE SAMPLE LOCATION
- WP03 ✱ PAINT CHIP SAMPLE LOCATION
- SB01 ● SOIL SAMPLE LOCATION
-  DECONTAMINATION WORK AREA
-  1984 ADDITION

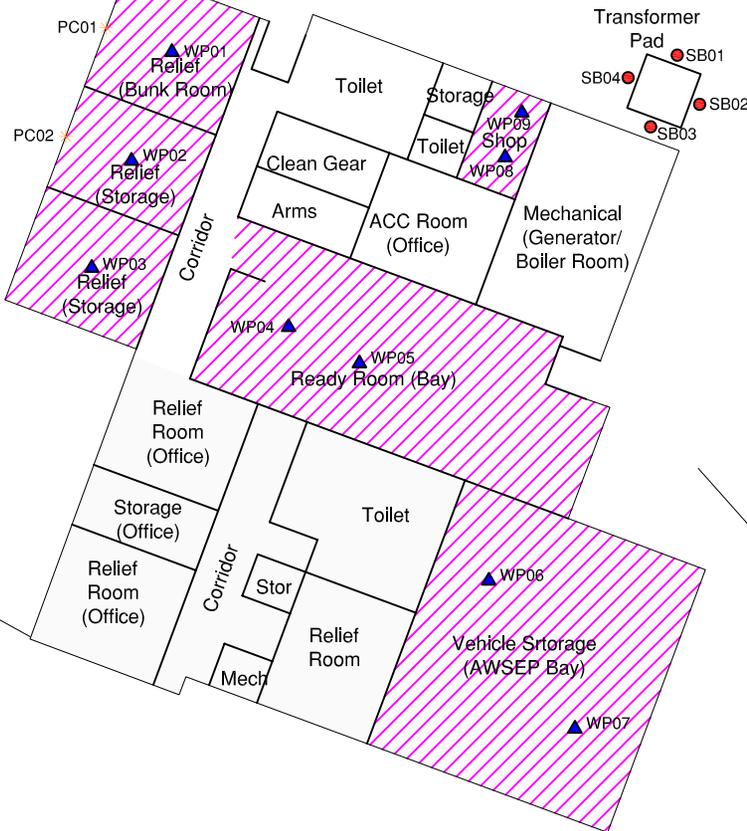
NOTE: INITIAL SAMPLING CONDUCTED ON 6/17/10



BUILDING 643



BUILDING 642



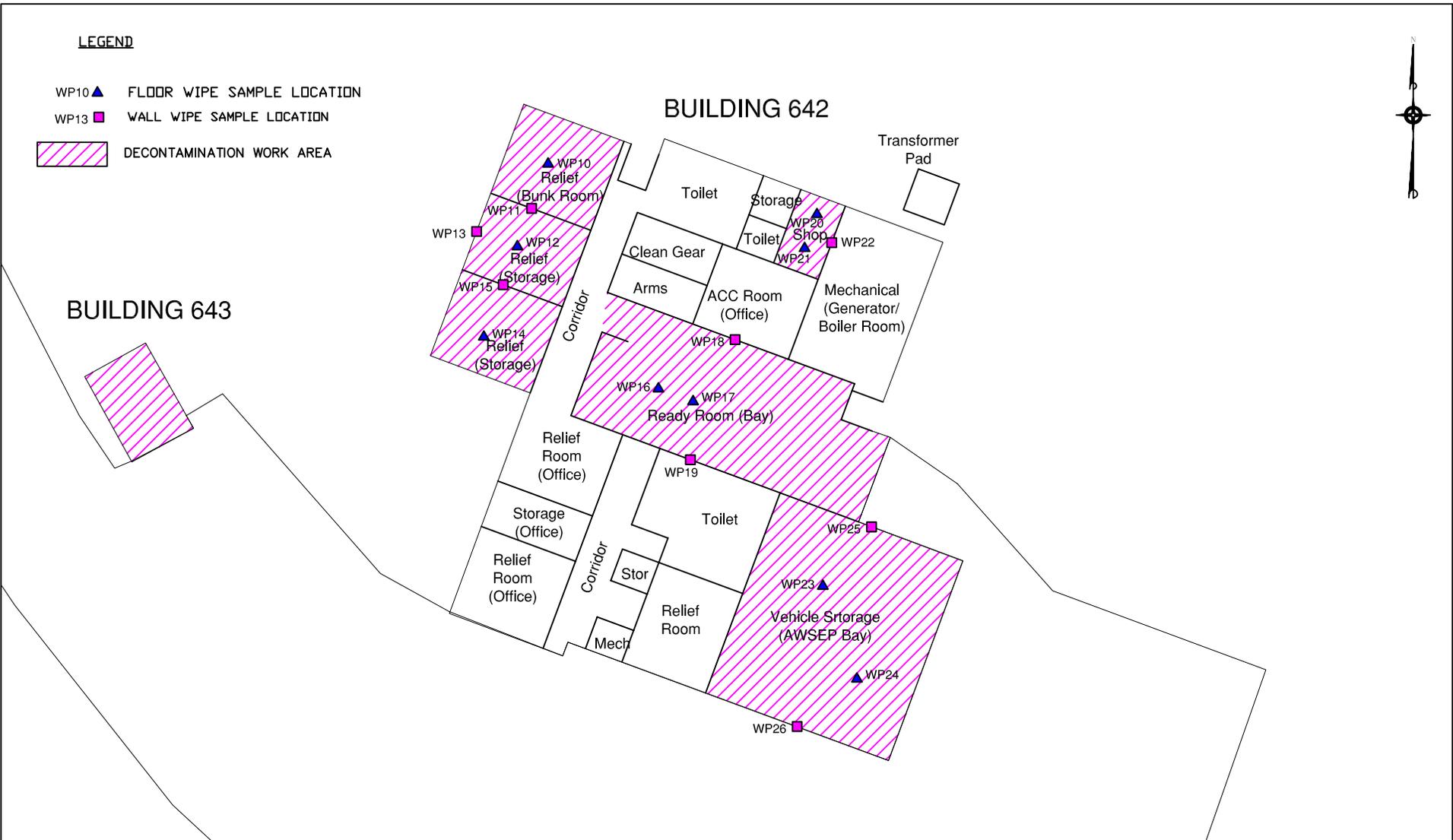
TETRA TECH NUS, INC.

INVESTIGATION SAMPLE LOCATIONS
BUILDING 642 - WEAPONS ADMINISTRATION AND
BUILDING 643 WEAPONS AREA SENTRY HOUSE
RCRA PARTIAL CLOSURE REPORT
NAVAL AIR STATION BRUNSWICK, MAINE

SCALE AS NOTED	
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REV 0	DATE 11/22/10
FIGURE NUMBER 3	

LEGEND

- WP10 ▲ FLOOR WIPE SAMPLE LOCATION
- WP13 ■ WALL WIPE SAMPLE LOCATION
-  DECONTAMINATION WORK AREA



BUILDING 643

BUILDING 642

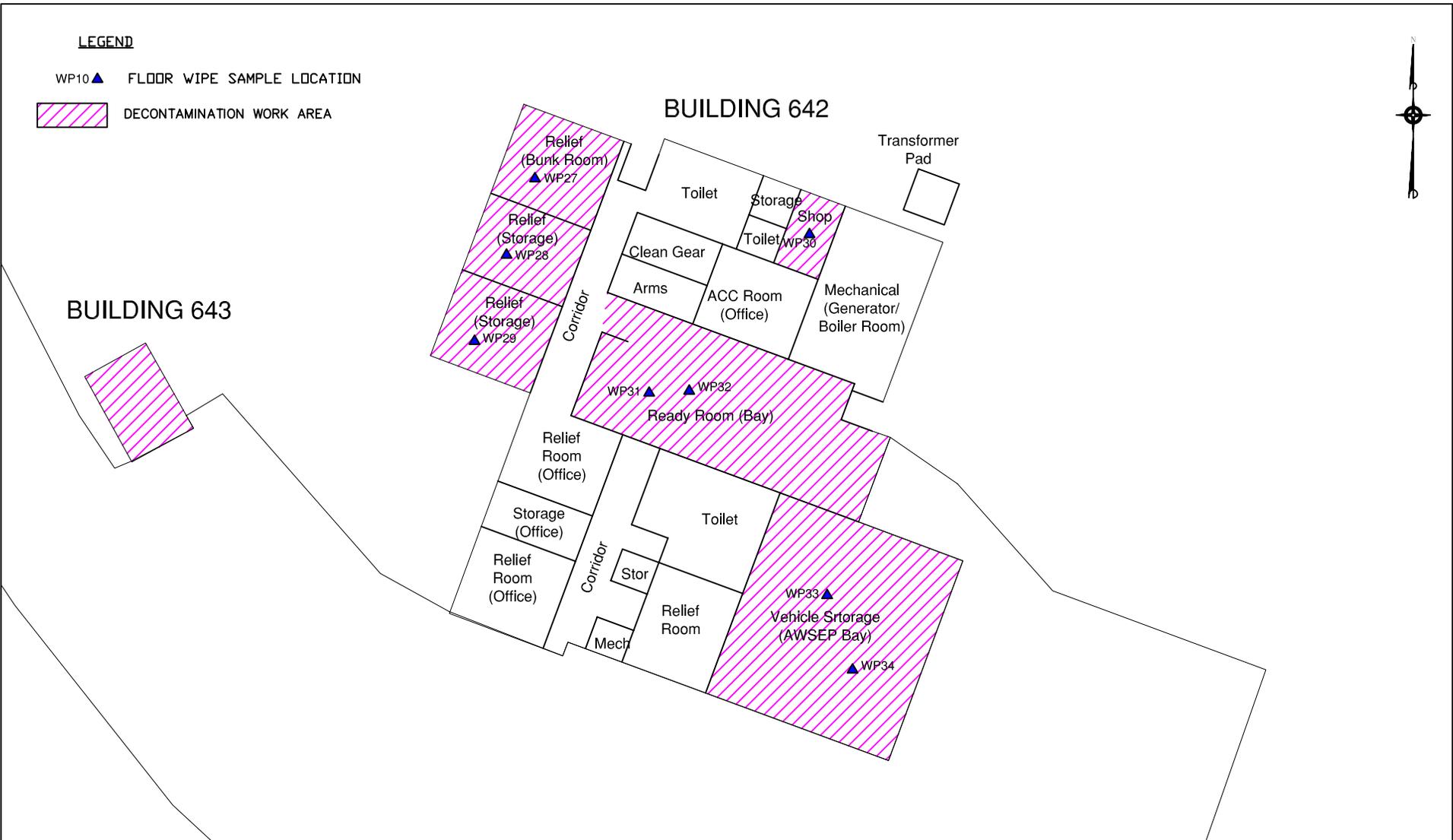


 TETRA TECH NUS, INC.	POST-CLEANING SAMPLES - EVENT 1 BUILDING 642 - WEAPONS ADMINISTRATION AND BUILDING 643 WEAPONS AREA SENTRY HOUSE RCRA PARTIAL CLOSURE REPORT NAVAL AIR STATION BRUNSWICK, MAINE	SCALE AS NOTED				
		FILE V:\NASB_BLDG_642&643_POST1_SAMP.DWG				
		<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>11/22/10</td> </tr> </tbody> </table>	REV	DATE	0	11/22/10
	REV	DATE				
0	11/22/10					
	FIGURE NUMBER 4					

LEGEND

WP10 ▲ FLOOR WIPE SAMPLE LOCATION

 DECONTAMINATION WORK AREA



TETRA TECH NUS, INC.

POST-CLEANING SAMPLES - EVENT 2
 BUILDING 642 - WEAPONS ADMINISTRATION AND
 BUILDING 643 WEAPONS AREA SENTRY HOUSE
 RCRA PARTIAL CLOSURE REPORT
 NAVAL AIR STATION BRUNSWICK, MAINE

SCALE
AS NOTED

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REV	DATE
0	11/22/10

FIGURE NUMBER
5

**HWSA INSPECTION FORM
HAZARDOUS WASTE STORAGE AREAS CLOSURE
NAS BRUNSWICK
BRUNSWICK, MAINE
CTO WE22**

Inspection Date: 6/03/10

Personnel: Chelsea Fellows / James Forrelli, P.E. / Mindi Messmer

Weather: Cloudy, Showers, 60s

GENERAL BUILDING INFORMATION / USES

Building Name: Building 642 – Reaction Force Building / WEPS Administration/AUW Area (Anti-Underwater Warfare)

Function: Offices / Bay Areas / Storage

Size: 4,319 SF

Year of Construction: 1978

Building 642 is located at NASB Brunswick in the Weapons Area west of Buildings 539 (Explosives Administration/Armory) and 626 (Inert Ordnance Storage). It was constructed in 1978 and served as the Reaction Force building / WEPS Administration (operated by the Marine Corp) for its entire history.

Building 642 consists of a multi-room, single level building on a concrete slab foundation. The exact size of the building is questionable – an addition was added to Building 642 in 1989 or 1990 but building lists indicate it is 2640 SF.

Building 642 was heated by a natural gas boiler with an associated generator inside the building. Building 643 (Sentry House in Weapons Area) is located northwest of Building 642.

HWSA INSPECTION / CONDITION

- No record of hazardous waste stored at Building 642.
- At the time of inspection, Building 642 was vacant and in poor condition. The interior consisted of 2 bay areas, 4 offices, 2 storage rooms, a bunk room, and a tool/gear room. Two restrooms and a mechanical room containing a boiler and associated generator were also present.
- Peeling paint was observed in three interiors rooms at Building 642 (storage room, bunk room, and the restroom located on the north side of the building).
- Two openings in the flooring were observed in the vehicle maintenance area and were used for exhaust ventilation according to NAS personnel.
- Floor tiles and pipe installation possibly contain asbestos.
- No evidence of current or past hazardous waste generation activities was observed.
- No signs of a past release (staining, unusual odors, stressed vegetation, etc.) were observed. No modifications to the structure, which may conceal signs of a past release, were observed.
- The contents stored in the storage rooms are unknown.
- UST filler pipes were observed on the east corner of the building. No evidence of a past leak from this UST was observed.
- Three pole-style transformers were observed mounted on a pad located on the southeast side of Building 642.

POTENTIAL PCB-CONTAINING TRANSFORMERS

Three pole-style transformers were observed mounted on a pad located on the north side of Building 642. The transformers are not in the NASB transformer database. New 75 kVa transformer indicated on 1976 plans in approximate location of current transformers. Considering the age of Building 642, the transformers may be a potential source of PCB contamination if a leak has occurred.

APPLICABLE REPORTS / DOCUMENTS

Available historical aerial photos were reviewed for past uses:

1943 map – Building 642 area not shown on map.

1946 map – Same as 1943 map.

1952 map – Same as 1943 map.

1953 aerial – Building 642/643 area appears to be wooded however coverage is not good.

1956 map – Vacant. Merriconeag Road shown to the east and Dump Road shown to the northwest.

1957 map – Buildings 539 and 540 (Sentry House) shown to the east of current Building 642 location. Fenced area shown but other buildings in area not shown. (1957-7.jpg) Dump pit shown to the southwest across Mere Brook. East to west oriented underground cable shown just north of the compound and railroad tracks shown parallel to the east side Merriconeag Road. Underground pipeline shown east of Merriconeag Road. Pit identified to the northwest in approximate location of Sites 1/3.

1958 aerial – Area of Buildings 642/643 vacant/wooded area along edge of old landfill (Current Sites 1 & 3 location). Buildings 539 and 540 visible within fenced area. Houses/barns visible to the southeast of the fenced AUW compound. Building visible across entrance to AUW compound on east side of Merriconeag Road.

1962 map – Building 642 not shown on map.

1975 map – Same as 1962 map.

1978 aerial – Buildings 642 and 643 visible within fenced area along with Bunkers 626, 627 and 628 and Building 539. Several other smaller structures visible to the southeast and northeast of Building 539. Houses/barns to the southeast no longer present. Parking area visible to the west of Building 642 outside of fenced area.

1978 map – Buildings 642 and 643 not shown on map. Buildings 539 and Bunkers 626, 627 and 628 shown to the east. Fenced area shown around AUW compound.

1979 map – Building 642/643 area not shown on map.

1981 aerial – same as 1978 aerial. No building visible across Merriconeag Road.

1983 map – Building 642 shown. Buildings 626, 627, 628 and 539 shown to the east within fenced area. Buildings 540 and 643 not shown. Building 71 shown to the northeast of the compound.

1984 aerial – same as 1978 and 1981 aerials.

1989 map – Same as 1983 map.

1989 aerial – same as 1984 aerial except addition to the southern side of the Building 642 structure is visible.

1993 aerial – same as 1989 aerial.

1997 aerial – same as 1989 aerial.

2006 map – Buildings 642 and 643 shown with Buildings 539, 626, 627 and 628 shown to the east within the fenced area. Building 125 shown adjacent to the west side of Building 539.

NAS historical site lists include Buildings 642 and Building 643 starting in 2006 - construction dates of 1978. Building 642 is listed as 2640 SF and Building 643 140 SF.

Two underground storage tanks (USTs) are listed in the NAS database for Building 642 (642.0 and 642.1). One of the tanks (642.0) is listed as a 1,000 gallon UST for storage of #2 fuel oil that was installed in 1977, removed in 1992 and replaced with a new UST. The other UST (642.1) is listed as a 1,000-gallon #1 fuel oil tank installed in 1992. According to plant personnel at the time of the initial walkthrough the tank was present but had been drained. The tank was removed on 8/30/10. There are no above ground storage tanks (ASTs) or oil-water separators (OWS) registered to Building 642. A sanitary septic system is located on the northwestern side of Building 642. Historical plans indicate that the sanitary system was altered in 1989 or 1990 and likely included installation of a new septic tank, seepage bed and distribution box. A historic plan (date unknown) states that Building 642 has total SF of 4450 after renovations.

HAZARDOUS WASTE STORAGE RECORDS

No hazardous waste was historically stored at Building 642 according to NAS Brunswick Hazardous Waste Manager, D. Bruce Smith. The NAS hazardous waste database lists hazardous waste generated by Weapons department but are not segregated by Building.

MISCELLANEOUS NOTES

Tetra Tech personnel were accompanied on the inspection by D. Bruce Smith Hazardous Waste Manager.

INSPECTOR SIGNATURE: Mindi Messmer

**HWSA INSPECTION FORM
HAZARDOUS WASTE STORAGE AREAS CLOSURE
NAS BRUNSWICK
BRUNSWICK, MAINE
CTO WE22**

Inspection Date: 6/03/10

Personnel: Chelsea Fellows / James Forrelli, P.E. / Mindi Messmer

Weather: Cloudy, Showers, 60s

GENERAL BUILDING INFORMATION / USES

Building Name: Building 643 – Sentry House/Weapons Area
Function: Guard Shack
Size: 140 SF
Year of Construction: 1978

Building 643 is located at NASB Brunswick in the Weapons Area west of Buildings 539 (Explosives Administration/Armory) and 626 (Inert Ordnance Storage). It was constructed in 1978 and served as a guard shack for its entire history.

Building 643 consists of a 140 SF single room, single level building on a slab foundation.

Building 643 is associated with Building 642 – Reaction Force Building.

HWSA INSPECTION / CONDITION

No record of hazardous waste stored at Building 643.

At the time of inspection, Building 643 was vacant and in very poor condition. The interior consisted of one room.

Peeling paint (possibly containing lead) was observed on the exterior and interior of the building.

No evidence of current or past hazardous waste generation activities was observed.

No signs of a past release (staining, unusual odors, stressed vegetation, etc.) were observed. No modifications to the structure, which may conceal signs of a past release, were observed.

POTENTIAL PCB-CONTAINING TRANSFORMERS

No transformer that could be a potential source of polychlorinated biphenyls (PCBs) contamination in the event of a leak was observed. According to the NASB transformer database there are no transformers associated with Building 643.

APPLICABLE REPORTS / DOCUMENTS

Available historical aerial photos were reviewed for past uses:

1943 map – Building 642 area not shown on map.

1946 map – Same as 1943 map.

1952 map – Same as 1943 map.

1953 aerial – Building 642/643 area appears to be wooded however coverage is not good.

1956 map – Vacant. Merriconeag Road shown to the east and Dump Road shown to the northwest.

1957 map – Buildings 539 and 540 (Sentry House) shown to the east of current Building 642 location. Fenced area shown but other buildings in area not shown. (1957-7.jpg) Dump pit shown to the southwest across Mere Brook.

East to west oriented underground cable shown just north of the compound and railroad tracks shown parallel to the east side Merriconeag Road. Underground pipeline shown east of Merriconeag Road. Pit identified to the northwest in approximate location of Sites 1/3.

1958 aerial – Area of Buildings 642/643 vacant/wooded area along edge of old landfill (Current Sites 1 & 3 location). Buildings 539 and 540 visible within fenced area. Houses/barns visible to the southeast of the fenced AUW compound. Building visible across entrance to AUW compound on east side of Merriconeag Road.

1962 map – Building 642 parcel not shown on map.

1975 map – Same as 1962 map.

1978 aerial – Buildings 642 and 643 visible within fenced area along with Bunkers 626, 627 and 628 and Building 539. Several other smaller structures visible to the southeast and northeast of Building 539. Houses/barns to the southeast no longer present. Parking area visible to the west of Building 642 outside of fenced area.

1978 map – Buildings 642 and 643 not shown on map. Buildings 539 and Bunkers 626, 627 and 628 shown to the east. Fenced area shown around AUW compound.

1979 map – Building 642/643 area not shown on map.

1981 aerial – same as 1978 aerial. No building visible across Merriconeag Road.

1983 map – Building 642 shown. Buildings 626, 627, 628 and 539 shown to the east within fenced area. Buildings 540 and 643 not shown. Building 71 shown to the northeast of the compound.

1984 aerial – same as 1978 and 1981 aerials.

1989 map – Same as 1983 map.

1989 aerial – same as 1984 aerial except addition to the southern side of the Building 642 structure is visible.

1993 aerial – same as 1989 aerial.

1997 aerial – same as 1989 aerial.

2006 map – Buildings 642 and 643 shown with Buildings 539, 626, 627 and 628 shown to the east within the fenced area. Building 125 shown adjacent to the west side of Building 539.

NAS historical site lists include Buildings 642 and Building 643 starting in 2006 - construction dates of 1978. Building 642 is listed as 2640 SF and Building 643 140 SF.

There are no above ground storage tanks (ASTs), underground storage tanks (USTs) or oil-water separators (OWS) registered to Building 643.

HAZARDOUS WASTE STORAGE RECORDS

No hazardous waste was historically stored at Building 643 according to NAS Brunswick Hazardous Waste Manager. D. Bruce Smith.

MISCELLANEOUS NOTES

The Tetra Tech personnel were accompanied on the inspection by D. Bruce Smith Hazardous Waste Manager.

INSPECTOR SIGNATURE: Mindi Messmer

PHOTOGRAPHS



No. 1 Building 642 Weapons Administration – NAS Brunswick
Weapons Administration east elevation

June 3, 2010



No. 2 Building 642 Weapons Administration – NAS Brunswick
Weapons Administration transformers mounted on a concrete pad at the northeast corner

June 3, 2010



No. 3 Building 642 Weapons Administration – NAS Brunswick June 3, 2010
Weapons Administration underground storage tank filler pipes located on the east side of the building



No. 4 Building 642 Weapons Administration – NAS Brunswick June 3, 2010
Weapons Administration vehicle storage bay



No. 5 Building 642 Weapons Administration – NAS Brunswick
Weapons Administration mechanical room

June 3, 2010



No. 6 Building 642 Weapons Administration – NAS Brunswick
Building 642 ready room

June 3, 2010



No. 7 Building 642 Weapons Administration – NAS Brunswick October 1, 2010
Weapons Administration storage room #1 showing wipe sample location (B642-WP012)



No. 8 Building 642 Weapons Administration – NAS Brunswick October 1, 2010
Weapons Administration shop showing wipe sampling locations (B642-WP21 and B642-WP20)



No. 1 Building 643 Weapons Area Sentry House – NAS Brunswick June 3, 2010
Sentry House - southwest elevation



No. 2 Building 643 Weapons Area Sentry House – NAS Brunswick June 3, 2010
Sentry House interior view (prior to loose paint removal)

Appendix B
Accident Prevention Plan

Accident Prevention Plan

Buildings 642/643 and Other Items Former Naval Air Station Brunswick Brunswick, Maine

Contract No. N62470-08-D-1006

Task Order No. WE01

Submitted to:



Prepared by:



April 2014
Revision No. 00

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Attachments

1	APP Acknowledge Form
2	Subcontractor H&S Tracking Form
3	Project H&S Forms/Permits
4	Emergency Contact List
5	Material Safety Data Sheets
6	Chemical-Specific Training Form & Project-Specific Chemical Product Hazard Communication Form
7	Pre-Task Safety Plan (PTSP)
8	Loss Prevention Observation (LPO) Form
9	Incident Report Form (IRF) Loss/Near Loss Incident (L/NLI) Report Form Root Cause Analysis (RCA)
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Acronyms and Abbreviations

APP	Accident Prevention Plan
AGVIQ-CH2M HILL	AGVIQ-CH2M HILL Joint Venture III (Small Business Remedial Action Contract)
AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
BBLPS	Behavior Based Loss Prevention System
BLS	United States Bureau of Labor Statistics
CBRNE	Chemical, Biological, Nuclear, Radiological, Explosive
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
COC	Chemicals of Concern
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
CSIR	Contractor Significant Incident Report
TO	Contract Task Order
DART	Days Away, Restriction, or Transfer
DEET	N, N-diethyl-meta-polyamide
DFOW	Definable Feature of Work
DFWP	Drug Free Workplace Program
DOT	U.S. Department of Transportation
EMS	Emergency Medical Services
EPP	Environmental Protection Plan
ER	Emergency Response
ESC	Erosion and Sediment Control
EZ	Exclusion Zone
FA	first aid
ft	feet
FTL	Field Team Leader
GFCI	Ground Fault Circuit Interrupter
GDA	Government Designated Authority
GPR	Ground Penetrating Radar
H&S	Health and Safety
HS&E	Health, Safety, and Environment

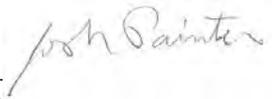
HITS	Hours and Incident Tracking System
HPP	Hurricane Preparedness Plan
HR	heart rate
HSP	Health and Safety Program
HSPA	Health and Safety Program Administrator
IR	Incident Rate
IRF	Incident Report Form
kV	kilovolt
LLC	Limited Liability Company
LPO	Loss Prevention Observation
mg/m ³	milligrams per cubic meter
MEC	Munitions and Explosives of Concern
MPPEH	Materials Potentially Presenting an Explosive Hazard
MSDS	Material Safety Data Sheet
NAICS	North American Industry Classification System
NAVFAC	Naval Facilities Engineering Command
NAS	Naval Air Station (Brunswick)
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PACM	Presumed Asbestos Containing Material
PEL	Permissible Exposure Limit (OSHA)
POC	Point of Contact
PPE	Personal Protective Equipment
ppm	Parts per million
PTSP	Pre-Task Safety Plan
QAP	Quality Control Plan
RMP	Risk Management Process
RPM	Remedial Project Manager
SAP	Sampling and Analysis Plan
SBRAC	Small Business Remedial Action Contract
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure (CH2M HILL)
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
TSCA	Toxic Substances Control Act
WMP	Waste Management Plan

1.0 Signature Sheets

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Senior Project Manager
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1.1 Revisions

Revisions Made By:

Date:

Revisions to Plan:

Revisions Approved By:

Date:

1.2 Introduction

The AGVIQ-CH2M HILL Joint Venture (AGVIQ-CH2M HILL) has been contracted by the United States Navy, Naval Facilities Engineering Command (NAVFAC), to perform demolition of Buildings 642/643 and other items located within Landfill Site 1/3 at the former Naval Air Station (NAS), Brunswick, Maine. This work will be performed under the terms and conditions Contract Number N62470-08-D-1006, Task Order (TO) No. WE 01.

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 (SBRAC) 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 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 are detailed in the project Demolition Work Plan (DWP) and 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: Demolition Buildings 642/643 and Other Items
Naval Air Station Brunswick
Brunswick, ME

CONTRACTOR: AGVIQ-CH2M HILL Joint Venture III
Small Business Remedial Action Contract (SBRAC)
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CONTRACT#: Number N62470-08-D-1006
(PRIME) Task Order No. WE 01

2.1 Facility and Site Background

Former NAS Brunswick is located on 3,094 acres of land along the mid-coastal area of Maine in Brunswick, Cumberland County, about 27 miles northeast of Portland. The installation is situated just south of the Androscoggin River and is located north of several coves (Harpwell, Buttermilk, and Woodward), which connect with Casco Bay. It was formerly home to long-range maritime patrol aircraft squadrons.

2.1.1 Buildings 642/643 History

Buildings 642 and 643 are located in the southern portion of former NAS Brunswick, east of the southernmost portion of the runway. Buildings 642 and 643 are located within the Anti-Underwater Warfare (AUW) Facility, which is located in the Weapons Area along an unnamed road running east-west from Merriconeag Road to Orion Street. To the east of Buildings 642 and 643 within the AUW are Building 626 (Inert Ordnance Storage) and Building 539 (Explosives Administration/ Armory). Access to the AUW was restricted; the AUW is surrounded by a double security fence. Directly to the north and northwest of Buildings 642 and 643 is Installation Restoration Program (IRP) Site 1 (Orion Street Landfill-North) and Site 3 (Orion Street Landfill-South [Hazardous Waste Burial Area]).

Constructed in 1978, Building 642 served as both a weapons administration and a security facility (operated by the Marine Corps). The building consists of a 4,450-square-foot (ft²) multi-room, single level building on a concrete slab foundation and was heated by natural gas. A septic tank and seepage bed, and a 75-kilovolt- amp (kVA) transformer are located at the northeast corner of Building 642.

Building 643 was constructed in 1978 and served as a guard shack (sentry house). It consists of a single-level, one-room building on a slab foundation, and has an area of 140 ft².

Tetra Tech NUS, Inc. (TtNUS) completed the Maine Department of Environmental Protection (DEP) RCRA or hazardous waste closure requirements for these two buildings and it has been determined that neither further inspection nor sampling are required to complete the Maine DEP hazardous waste closure requirements (TtNUS, 2010).

2.2 General Task Order Scope of Work

The scope of work for this project is as follows: 1) asbestos abatement of floor tiles and pipe wraps (if required) in Building 642; 2) universal waste abatement (including removal and disposal of the 75-kVA transformer and three pole transformers); 3) complete the demolition of Buildings 642/643; 4) transport and dispose of all generated wastes.

The major Definable Features of Work associated with this TO are as follows:

- Utility and Land Surveys
- Demolition Engineering Survey
- Mobilization and Site Preparation
 - Electrical/gas services disconnection
 - Temporary facilities installation
 - Decontamination pad installation
- Asbestos and Universal Waste Abatement
- Demolition and Removal Actions
 - Installation of work zones including temporary fencing and signage
 - Building inspection and material removal
 - Building demolition, segregation, and transport/disposal
 - Grout any floor openings
 - Remove and dispose of approximately 550 linear feet of concertina razor wire
 - Remove and dispose of lighting posts and perimeter security fence
 - Clean out (using a vac truck) and abandon in-place of the septic tank
- Waste Management
- Demobilization

2.3 Health and Safety Plan Assumption Set

The assumption set for the development of this APP is that AGVIQ-CH2M HILL site personnel and subcontractors controlled by AGVIQ-CH2M HILL who may be covered by this APP are based on the following:

- No Chemical, Biological, Nuclear or Radioactive (CBNR) weapon/agent, material potentially presenting an explosive hazard (MPPEH) or munitions and explosives of concern (MEC) will be encountered during the execution of this task order. All site work must cease if it is suspected that these items are onsite.
- No presumed asbestos containing material (PACM) or asbestos containing material (ACM) will be encountered during the execution of this task order. If PACM is

encountered in disturbed soil or debris, work shall stop and the asbestos containing material will be secured to the best extent possible and not further disturbed until appropriate response measures are put in-place to manage such material.

- Site personnel shall execute good personal hygiene practices to facilitate a negative exposure to site dust, soil, water or sediment via incidental dermal or ingestion exposure vectors.
- It is assumed that the performance of Non-Hazwoper regulated tasks in Section 2.5 below, that workers will not be exposed to residual/released site constituents of concern (COC) during the execution of these tasks. If this is not the case, then these functions will be considered Hazwoper-Regulated under Section 2.4 of this APP.
- Where use of personal protective equipment (PPE) equipment is specified, it will be used in accordance with Section 9.33 of this APP.
- 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.
- Work is being performed in an open air, well ventilated environment.
- Where content in this APP is marked as (Reserved) or otherwise defined as not applicable, then activities associated with these areas, activities or hazards 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 shall be re-evaluated and amended as necessary to address applicable hazards that maybe associated with newly encountered project conditions or newly defined project tasks. In the event that it is determined that site soil, ground water sediment may be impacted by COCs concentrations in excess of established Occupational Exposure Limits (OELs) or CBRN, MEC/MPPEH or PACM/ACM exposure at any level could occur, 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 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 29 CFR 1910.120/29 CFR 1926.65. For this task order, following activities will be considered Hazardous Waste Operations (HAZWOPER)-regulated tasks because of the potential worker exposure to identified site contaminants.

- Asbestos and Universal Waste Abatement
- Demolition and Removal Actions
- Removal of any identified hazardous materials prior to demolition
- Waste Management

2.5 Non-HAZWOPER-Regulated Tasks

HAZWOPER regulations under 29 CFR 1910.120/29CFR1926.65 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 in order 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 29 CFR 1910.120/29 CFR 1926.65 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.

- Utility and Land Surveys
- Demolition Engineering Survey
- Mobilization and Site Preparation
- Demolition and Removal Actions
 - Installation of work zones including temporary fencing and signage
 - Building inspection and clean material removal
 - Building demolition, segregation, and transport/disposal (all hazardous materials will be removed during the Asbestos and Universal Waste Abatement phase)
 - Grout any floor openings
 - Remove and dispose of approximately 550 linear feet of concertina razor wire
 - Remove and dispose of lighting posts and perimeter security fence
 - Clean out (using a Vac Truck) and abandon in-place of the septic tank
- Demobilization

3.0 Statement of Safety and Health Policy

The measurement of a successful program includes our ability to execute profitably, on time, without violations and safely. 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 the AGVIQ-CH2M HILL Joint Venture (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 Joint Venture 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 the AGVIQ-CH2M HILL Joint Venture Program is to provide a place of employment free of all recognized hazards that are causing or will likely to 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 Joint Venture 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 Joint Venture Program.

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 Joint Venture SBRAC 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: (770) 604-9182 x54248/ (678) 860-9626 (cell)

AGVIQ-CH2M HILL Project Manager (overall)

Venky Venkatesh: (216) 623-0326, ext 41218/ (216) 235-8613 (cell)

AGVIQ-CH2M HILL Joint Venture Program CIH

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

AGVIQ-CH2M HILL Joint Venture Project Superintendent

Rob Lychalk: (757) 544 - 0524 (cell)

AGVIQ-CH2M HILL Joint Venture Program SSHO

Kyle Block: (610) 389-0899 (cell)

AGVIQ-CH2M HILL Joint Venture H&S Program Administrator(s)

Josh Painter, CSP: (303) 993-9274 (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.
- Confirm contractor safety performance records have been verified prior to contract award and monitor contractor performance during 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:

- Shall review and approve the project specific APP for field implementation.
- Also 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.
- Coordinates 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 are made, where required.

- Provide review and comment subcontractor training records and site-specific safety procedures prior to start of subcontractor's field operations and request corrective actions are made, where required.
- Support the SSHO's oversight of subcontractor (and lower-tier subcontractors) Health, Safety, and Environment (HS&E) practices and interfaces 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.
- Support the amendment of approved APPs as may be necessary to be new work assigned contract functions or unanticipated site conditions. However, Adjustments to this APP to address or mitigate potential exposure to site constituents of concern (COCs) 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).

4.1.5 Site Supervisors

Site supervisors are critical links to the success injury and illness prevention program and are key comments to achieve 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), host facility conditions or other applicably health and safety requirements relayed to project personnel as part of the execution of 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 which 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;
- Stopping or correcting questionable acts or identified conditions that are under a supervisor's responsibility and which are inconsistent with established safety standards, AGVIQ-CH2M HILL policies and procedures and requirements established by this APP.
- 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 and interface with third parties in a manner consistent with our contract/ subcontract agreements and the applicable standard of reasonable care.

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 includes the following specific obligations:

- Verify this APP remains current and amended when project activities or conditions change.
- Coordinates with the Site Supervisor and the Project Manager (overall) on all site matters and reports 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 of this APP.
- Verify adherence with the requirements of this APP and where applicable the subcontractor's health and safety plan(s).
- Act as the project "Hazard Communication Coordinator". Deliver or provide hazard communication information to AGVIQ-CH2M HILL site personnel as may be necessary.

- 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.
- 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 in order to achieve a safe and healthy workplace:

- Program participants must familiarize themselves with the contents this APP and the general safety rules herein.
- Program participants must implement all health and safety requirements delivered or provided to them.
- Program participants shall wear the necessary PPE required for the job or task as specified by the APP or other applicable program requirements.
- Program participants must notify their immediate supervisor of any potential workplace hazard, condition, work practice or act that is not consistent with the AGVIQ-CH2M HILL health and safety policies and procedures.

- Program participants must report all accidents, injury, illness or property damage to an immediate supervisor regardless of the severity or cost. This includes all near misses (accidents without injury or damage).
- Program participants shall adhere to the requirements of their employer Drug Free Work Place Program. In addition, each program participant 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 or other site personnel (i.e. via heavy equipment operations) shall notify their supervisor of the condition prior to beginning any assigned work.
- Program participants shall be subject to the requirements of their employer's policies and procedures for disciplinary action where it is determined that health and safety requirements are not followed or disregarded.

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 representatives 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 Pretask Safety and Health Analysis

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

4.4 Primary Lines of Authority

Safety responsibilities, accountability, and lines of authority for this project are as identified in sections 4.1 through 4.2 of this APP and is as graphically represented in Figure 4-1, below.

Figure 4-1

1 Bold lines represent AGVIQ-CH2M HILL Primary Lines of Authority for this project.

2 Where the Program CIH is not immediately available for incident reporting contact a designated AGVIQ-CH2M HILL HSPA.

4.5 Non Compliance with Requirements

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 program participants, both AGVIQ, LLC and CH2M HILL, Inc. in its business partnership (AGVIQ-CH2M HILL Joint Venture), expects its employees to follow rules of conduct that 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 is 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.

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 Joint Venture Program.

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 the AGVIQ-CH2M HILL Joint Venture.

4.6 Managers and Supervisors Safety Accountability

It is the duty of first managers and supervisors to motivate employees and promote the adherence of AGVIQ-CH2M HILL's established health and safety policy and procedures and established hazard control measures identified for each work environment under their supervision.

When in doubt, they should seek the assistance of the Program CIH or designated HSPA, or other authorized program level representative, prior to initiating a task. If the task cannot be accomplished in a manner that is consistent with established AGVIQ-CH2M HILL program, regulatory or contract health and safety requirements, it will not be attempted.

Managers and supervisors must:

- Confirm subcontractor safety performance records/information and pre-mobilization contractual obligations (insurance, bonding, work plans, training documentation etc.) have been met prior to initiating onsite work.
- Allocate sufficient time for the training/orientation of AGVIQ-CH2M HILL personnel to ensure that everyone knows the appropriate requirements (health, safety procedural) for completing assigned tasks.
- Ensure that the AGVIQ-CH2M HILL program participants 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.
- Prevent new site personnel from performing any tasks until required training/orientation is completed.
- Verify program participants and subcontract personnel are completing assigned tasks in a manner that is consistent with established health and safety policies and as instructed.
- Immediately correct acts or conditions that are not consistent with AGVIQ-CH2M HILL Joint Venture policies and procedures, or OSHA and EM 385 1-1 requirements.
- Lead by setting a “good example”.
- Promote the creation of a healthy and safe work environment for site personnel in which program participants and subcontractors support the achievement of our safety goals.
- Monitor subcontractor performance during operations to ensure contractual requirements are met.
- Report all accidents, near misses, and property damage in accordance with the Incident Management and Reporting Procedure.

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 requirement 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 support the execution of this TO are either not identified or have not been issued a subcontract award at time this APP has been prepared for submission, and therefore cannot be included, herein at this time. 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 support this TO is available. To this end, continuously updating and amending this APP with potentially identified or newly selected subcontractors would not be practical or cost effective for all parties concerned. If, prior to the start of this TO, the Government Designated Authority (GDA) requires a list of awarded subcontractor entity information, then such information shall be prepared and provided by the AGVIQ-CH2M HILL project manager (overall) identified in this APP.

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

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

AGVIQ-CH2M HILL subcontractors may be required to acknowledge and adhere to the requirements of the AGVIQ-CH2M HILL APP. Where subcontractor personnel are covered by this APP, they must be provided a copy of it to read or be provided a detailed briefing of its contents, and acknowledge the conditions of this APP to initiating work by application of subcontractor employee signatures on the APP Acknowledgement Form (**Attachment 1**). 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 must be required to develop or implement their own APP which is equally or more stringent than AGVIQ-CH2M HILL APP or prime contract documents.

All subcontractor personnel shall be subject to the same training (or medical surveillance requirement, where applicable) as AGVIQ-CH2M HILL personnel, depending on job activity and OSHA requirements.

All subcontractor personnel actively engaged in onsite operations should be required to sign in daily at AGVIQ-CH2M HILL controlled project sites (**Attachment 3**) and either attend an AGVIQ-CH2M HILL sponsored daily safety meeting and work phase meeting (or be required to conduct their own) which addresses daily operations, site specific hazard awareness, or other pertinent issues associated with the scheduled work or complete their own meeting of similar intent. The requirements for implementing and documenting daily or periodic work phase meetings are detailed in Section 10.0, Risk Management Process (RMP), of this APP and will not be further elaborated upon in this section.

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.

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 (29 CFR 1910, 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. However, observance of subcontractor operations by AGVIQ-CH2M HILL 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.

When apparent conditions or actions are observed that are not consistent with this APP, AGVIQ-CH2M HILL Health and Safety Program protocols or project/regulatory requirements, the designated subcontractor onsite supervisor or safety representative shall be notified of the condition so that the subcontractor can determine and implement the appropriate corrective action(s). When these identified conditions or practices/actions are repeated or persist, notify the designated subcontractor onsite supervisor or safety representative and require the condition be immediately corrected. Contact the Project Manager and evaluate the need to issue a stop work order (SWO) (**Attachment 3**) affected work until adequate corrective measures are implemented.

- When an apparent imminent danger exists, immediately remove all affected AGVIQ-CH2M HILL and subcontractor personnel, notify onsite supervisor or safety representative and stop affected work until adequate corrective measures are implemented and also issue the SWO. Notify the Project Manager (overall) and Program CIH (or HSPA if necessary), as appropriate. Document all standard and imminent danger SWO related communications in project field logbook, daily reports, or other records.

6.0 Training

6.1 New Hire SOH Orientation Training

The overall Safety and Occupational Health (SOH) orientation provided by AGVIQ, LLC and CH2M HILL, Inc. for their employees, incorporates the information necessary for the employee to perform as expected but also considers assigned job function, experience of the employee, personnel certifications and education level/degrees achieved by the employee completed as related to the employees assigned job function.

Because the AGVIQ-CH2M HILL Joint Venture 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

In order to promote the seamless operation of the AGVIQ-CH2M HILL Joint Venture program as a single entity, orientation to management and supervisory personnel who have not previously participated in the AGVIQ-CH2M HILL programs 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 Joint Venture 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 employee supervisors, with support by the respective employer Senior Management and Health and Safety professionals, are responsible for determining the overall and project specific training requirements to ensure that personnel assigned to AGVIQ-CH2M HILL operations have the necessary requisite.

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 29 CFR 1910.120/29CFR1926.65 or 29 CFR 1910.134. The medical surveillance and training requirements associated with this project are summarized below.

TABLE 6-1
Medical Surveillance and Training Requirements

Training or Medical Surveillance Requirement	Applicability
Initial HAZWOPER 29 CFR1910.120(e)(3)/29 CFR1926.65(e)(3) Note: 40 hr or 24 training as applicable to employee assigned duties. No periodic refresher performance so long as the requirements of 29 CFR1910.120(e)(8)/ 29 CFR1926.65(e)(8) are maintained.	All site personnel performing HAZWOPER regulated activities identified in Section 2.3 of this APP.
8 hour HAZWOPER refresher 29 CFR1910.120(e)(8)/29 CFR1926.65(e)(8) on an annual basis	All site personnel performing HAZWOPER regulated activities identified in Section 2.3 of this APP.
HAZWOPER Supervisor 29 CFR1910.120(e)(4)/29 CFR1926.65(e)(4) with no specific recertification requirements.	All site manager, supervisory or SSHO personnel performing HAZWOPER regulated activities identified in Section 2.3 of this APP.
First Aid/CPR/AED/Blood Borne Pathogens 1st Aid – typically 3 yr renewal CPR – 1 or 2 yr renewal (depending on sponsor)	All designated manager, supervisory or SSHO site personnel (2 at all times).
HAZWOPER Medical Clearance 29 CFR1910.120(f)/29 CFR1926.65(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 2.3 of this APP.
OSHA 10 hour Construction Safety Training (or equivalent)	SSHO
Demolition Engineering Survey Competent person meeting the definition in 1926.32(f) and 1926.850	Professional Registered Engineer performing task
1926.1101(k)(9)(iv)(A), 8 hrs 8 hours of retraining on an annual basis	Personnel performing excavation of soil containing ACM
1926.1101(k)(9)(iii) course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and 32 hours for worker level training and 40 hours for supervisor/competent person level training 8 hours of retraining on an annual basis	Personnel performing the management and loading and "packaging" of soil/debris containing ACM
29 CFR1926.1101(m) Prior to assignment of the employee to an area where negative- pressure respirators are worn employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure limit for 30 or more days per year, or engage in Class I, II, or III work for a combined total of 30 or more days per year at least annually thereafter	Personnel performing the removal of ACM
Hazardous Waste Transport 49CFR172.700 renewal, every 3 years	Each person who offers for transportation in commerce or transports in commerce hazardous materials

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/AED/Blood Borne Pathogens) 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 including AED. These individuals have also been provided training in exercising

universal precautions against exposure to bloodborne pathogens as a component to FA/CPR training which meets the intent of 29 CFR1910.1030. This employee training is also regularly complemented by other regularly scheduled employer training curriculums that are typically executed for the HAZWOPER industry, regulated under 29 CFR1910.120/29 CFR1926.26.

Site orientation training shall be described and carried out, to include at a minimum the elements below. This site-specific training will be documented in writing by date, name, content, and trainer and kept on file at the job site.

- The content of the APP/ SSHP and SAP
- Potential site hazards (chemical, physical, and biological) and the means to control or eliminate them, including applicable AHAs
- Selection, use, and limitations of required PPE
- Emergency response procedures including emergency medical protocols
- Bloodborne pathogen (BBP) briefing
- Employee and supervisor responsibilities for reporting all accidents
- Requirements and responsibilities for accident prevention and the maintenance of a safe and healthful work environment
- Procedures for reporting and correcting unsafe conditions and practices
- General safety and health policies and procedures

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

Supervisor and employee training is routinely provided by the employee's employer (AGVIQ, LLC. or CH2M HILL, Inc.) as method of adhering to OSHA, DOT or other requirements. 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.

Supervisor and employee training is regularly supplemented through the regular implementation of AHA and daily safety meeting processes, which are detailed in Section 10.0 Risk Management Process of this APP. Implementation of AHAs and daily safety meetings as a regular component to our RMP provides a routine procedure for conducting additional 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

Note: Confined Space Entry (CSE) rescue training under 29 CFR1910.146(k)(2(iii-iv) for CSE operations is not applicable to this project.

7.0 Safety and Health Inspections

The AGVIQ-CH2M HILL site supervisor or SSHO are required to perform site inspections using the checklists/forms included herein **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 represent 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, 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 employee. 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 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 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
Pre-demolition Engineering Survey	Registered Engineer (Competent Person)	Prior to demo
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
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

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 Asbestos Abatement Permit
- Issuance of NAVFAC Demolition Permit
- Issuance of NAVFAC Excavation Permit

8.0 Accident Reporting and Investigation

8.1 Exposure Data (man-hours worked)

Because the AGVIQ-CH2M HILL Joint Venture 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 Joint Venture 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 Joint Venture program contracts and issued contract 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 one OSHA recordable case, 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 (2008):	4.7
USBLS DART Construction Benchmark (2008):	2.51*
USBLS IR Remediation Services Benchmark (2008):	3.1
USBLS DART Remediation Services (NAICS Code 56291) Benchmark (2008):	1.91*

* DART total "all sizes"

8.2 Accident Investigations, Reports and Logs

Completion of incident and near-miss incident investigation reports for the AGVIQ-CH2M HILL Joint Venture 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 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, 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 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, the Program Management team, and the NTR and RPM 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.

In addition to the above, the Project Manager (or Site Supervisor when designated by the Project Manager or Program Management team) must also be responsible for reporting all injuries to the Navy as soon as reasonably possible but no later than 2 hours.

Where an incident has, or appears to have, any of the consequences listed below, these incidents shall be immediately reported to Navy NTR & RPM.

- An injury or illness that:
 - Involves an exposure to a hazardous substance above the PEL
 - Meets the OSHA recordable criteria
 - Results in permanent total or partial disability
 - Results in one or more worker hospitalizations
 - Results in a worker fatality
- An injury or unexpected chemical exposure to a client or a member of the public

- Any material or weight-handling incident or near miss including overturned crane, collapsed boom, dropped load, or damage to crane or adjacent property
- Any property damage greater than \$20,000
- A fire, explosion or flash
- Safety-related events reported by an enforcing authority or client
- External regulatory inspections that result in findings or citations
- A spill or release resulting from contractor activities
- A permit exceedance
- Any event that could result in adverse public media interest

Except for rescue and emergency measures, the accident scene shall not be disturbed until it has been released by the investigating official. The Contractor is responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law enforcement, and regulatory agencies. The Contractor shall assist and cooperate with personnel conducting investigations on behalf of the Navy.

In addition to the incident and near-miss incident investigation report forms contained in **Attachment 10** for all OSHA recordable accidents, property damage in excess of \$20,000 a Contractor Significant Incident Report (CSIR) must also be completed. 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.

Process for Immediate Reporting to Navy

1. The scene of any fatality, injury involving hospitalization, weight-handling incident, fire/explosion/flash or property damage exceeding \$20,000 will be secured from disturbance pending investigation and further instructions from the Navy and contractor's HSPA.
2. Contractor will make a verbal report to the NTR as soon as possible, or within 2 hours, with as much information as is available at that time.
3. NTR will complete the Heads-Up Initial Mishap Notification for internal Navy notification.
4. NTR will enter contractor data into the Contractor Information Reporting System (CIRS) module in Enterprise Safety Applications Management System (ESAMS) within 8 hours.
5. A hyperlink and password will be sent to the identified contractor point of contact (POC) with instructions for completing the Contractor Safety Incident Report (CSIR) via ESAMS.
6. Contractor POC will enter ESAMS using the hyperlink and password provided by the system automatic email. Contractor will then complete the CSIR within 5 days. The CSIR will be sent via email to the NTR for review of minimum requirements. Contractor will provide updates to CSIR as information becomes available.

7. NTR will review the CSIR for minimum notification content and resolve any issues or concerns.

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 SAP.

9.2 Emergency Response Plans

9.2.1 Emergency Planning

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

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

- Review any host facility emergency and contingency plans, where applicable, or determine how host facility emergency and contingency plans effect, or are implemented at the project site location.
- Determine what onsite communication equipment is necessary and available (e.g., two-way radio, air horn, nearest telephone, cell phones etc.).
- Verifying sufficient resources are available so that the “Buddy System” can be used for all assigned work.
- Confirm and post emergency telephone numbers, evacuation routes, assembly areas, and route to hospital; communicate the information to onsite personnel. Posting of emergency contact information shall be posted in a commonly accessed area in clear view of the onsite workers.
- Review changed site conditions, onsite operations, and host facility/outside agency responders accessibility/availability in relation to emergency response conditions.
- 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 (first aid kits/eye wash etc., equipment, supplies, and potable water).
- 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 procedures.
- Communicate emergency procedures for personnel injury, exposures, fires, explosions, and releases.

- Where appropriate and acceptable to the client, inform emergency room and ambulance and emergency response teams of anticipated types of site emergencies.

In the event of MPPEH/MEC-related emergency occurs onsite, dispatched local Navy EOD personnel will respond and take control of the site, until is determined that no MPPEH/MEC hazard exists, the threat is properly assessed and removed and authority to continue work is given by the Navy. In the event a MEC/MPPEH item is discovered, AGVIQ-CH2M HILL site personnel shall implement the Incident Notification Process and Chain of Command contained in Section 4.4 of this APP and notify the designated NAVFAC POC in the emergency contact list, contained in **Attachment 4** of this APP must be immediately notified by the project manager.

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	Construction Support Area
First aid kit/CPR Shield	Construction Support Area or Field Vehicle
Eye wash	Construction Support Area or Field Vehicle
Potable water	Construction Support Area
Blood borne-pathogen kit	Construction Support Area or Field Vehicle
Additional equipment (specify): Mobile phone and contact information	Construction Support Area or Field Vehicle for site supervisor/site management and SSHO at a minimum
Spill Control/Cleanup Materials/Proper Spill Response PPE	Construction Support Area

9.2.3 Evacuation

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

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

- d) 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.
- e) Assessment of the situation and condition of any victims.
- f) Determination of the resources needed for victim stabilization and transport and additional emergency support.
- g) Enforcement of the Buddy System. No one will be permitted to perform a response to an emergency condition alone.
- h) Removal of injured personnel from the area and/or control of the emergency condition.
- i) 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.

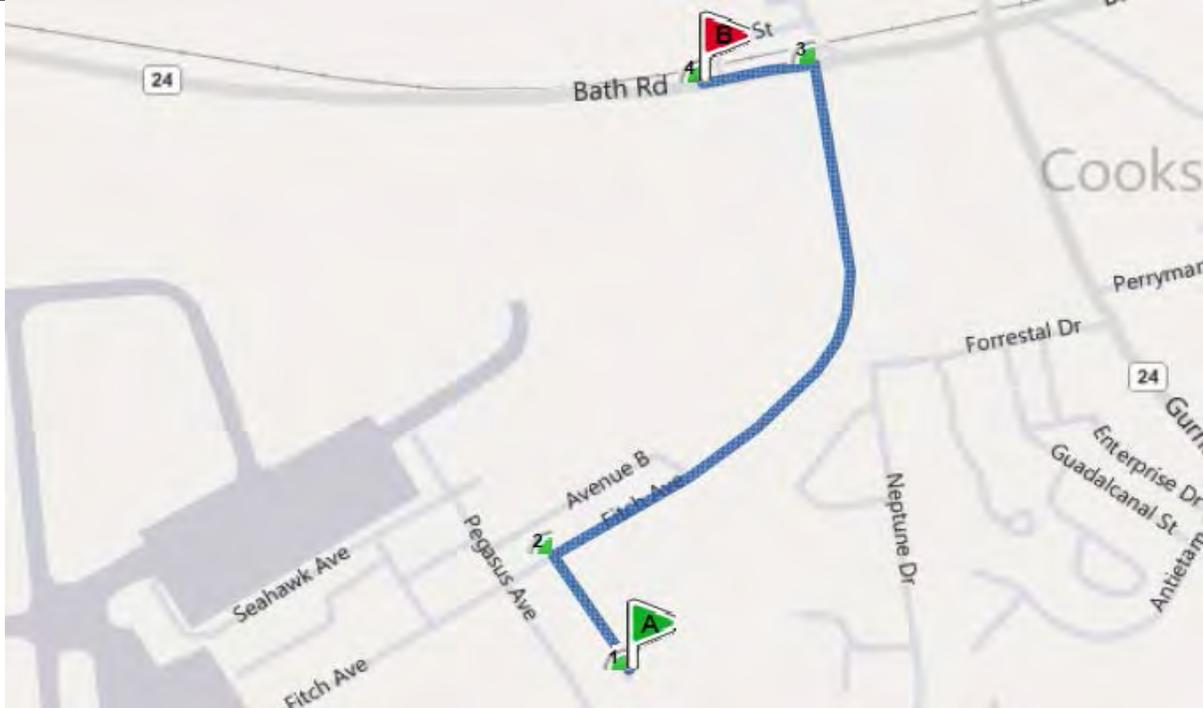
Evacuation signals for the project site are listed below.

Signal	Meaning
Grasping throat with hand	Emergency-help me.
Thumbs up	OK; understood.
Grasping buddy's wrist	Leave area now.
Continuous sounding of horn	Emergency; leave site now.
(Verify signal does not coincide with evacuation signals for government personnel in close proximity to the site)	
Severe Weather Warnings (radio, TV, internet)	Leave the region in accordance with the facility evacuation orders or directives from program/project management team

Figure 9-1, below, is depicts an Evacuation Route Map – NAS Brunswick. This evacuation route map could be used for evacuation due to pending severe weather conditions, site emergency or in the event that was being evacuated and secured due to a to a national emergency.

FIGURE 9-1

Evacuation Route Map



Procedure

When an NAS Brunswick emergency evacuation signal is given or required, all site personnel shall shut down operations and equipment, complete any personnel decontamination procedures, secure the work areas to the extent possible and proceed to **initial rally point** (approximately **Point A** of the Map) at the site which will be the at the primary access point. All site personnel shall be accounted for before leaving the site location. From the initial rally point, utilize the directions below to the Final Site Evacuation Rally Point (approximately **Point B** of the Map) at the parking lot of the Dunkin Donuts located at 172 Bath Road, Brunswick, ME just west of the entrance to the NAS Brunswick facility (approximately **Point B** of the Map). Notify the AGVIQ-CH2MHILL management team in accordance with Figure 10-3 "Incident Reporting Process and Chain of Command" and Attachment 10 "Emergency Contact List" of this APP and secure further instructions. If just a site emergency occurs the Evacuation Point shall be the site 5 construction trailer.

AGVIQ-CH2MHILL Project - Emergency Contacts

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

Sam Naik - Deputy Program Manager: Phone (678) 530-4248/ (678) 860-9626 (cell)

Venky Venkatesh - Project Manager (overall): (216) 235-8613 (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 secure nature of the facility, response to medical or fire emergencies will most likely be by installation personnel or even possibly 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 29 CFR 1910.120 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 this site, it is the AGVIQ-CH2M HILL’s understanding that such chemicals or materials that could create a threat to the health or safety to the surrounding community in the event of a spill or release will not be brought onsite as part of our scheduled work.

Reporting of spills or releases of oil or hazardous materials to appropriate agencies and stakeholders (NAVFAC, EPA, U.S. Coast Guard, State DEP, 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 29 CFR 1910.120, are enrolled in a medical surveillance program meeting the criteria of 29 CFR 1910.120(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 offsite disposal or 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.

- Soil removed and consolidated as part of the implemented removal action
- Gasoline (small metal safety containers for fueling small engine equipment)
- Diesel fuel in heavy equipment and potentially in a 550 gallon aboveground storage tank (AST)
- Marking Paint
- Minor quantities of grease, motor oil and hydraulic fluid
- Insect repellent(s)

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) 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.

9.2.6 Firefighting Plan

AGVIQ-CH2M HILL personnel ARE NOT considered Firefighting Organizations or Fire Brigades. Only “small/containable”, incipient stage fires that are containable by the use of first response fire protection equipment (i.e., 2.5 to 20 lb ABC fire extinguishers) may be controlled by AGVIQ-CH2M HILL personnel. All other response shall be considered firefighting measures and shall be conducted by facility provided or public agency firefighting teams.

All fire prevention measures and portable first response fire protection equipment shall be 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”. Because of the short duration of this project, it is not anticipated that a temporary project construction support trailer will be mobilized to the project site. In this case, the project emergency contact list shall be available for quick reference by the AGVIQ-CH2M HILL personnel via this APP or project binder system and location shall also be made known to designated site personnel. This action shall be considered as meeting the intent of EM 385 1-1, 01.A.06 and 01.E.05.

9.2.8 Man Overboard / Abandon Ship

(Reserved)

There are no conditions were executed work will be performed aboard ships, floating vessels/plants or skiffs.

9.2.9 Medical Support

Location and direction to the local emergency medical support facility shall be posted in a commonly accessed area of the temporary construction trailer and in clear view of the onsite workers.

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 5 minutes of an injury to a group of two or more employees for the treatment of injuries, at least two employees on each shift shall be qualified to administer first-aid and CPR.

Injuries and illnesses experienced by AGVIQ-CH2M HILL personnel must also be reported to the Project and Program Management team identified in Section 4.0 this APP and Human Resources contacts on the Emergency Contact List in **Attachment 4** of the APP. If there is doubt about whether medical treatment is necessary, or if the injured person is reluctant to accept medical treatment, contact the designated employer medical consultant or seek the evaluation form any Emergency Medical Services (EMS) Support personnel, as applicable, who may respond to onsite emergencies.

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

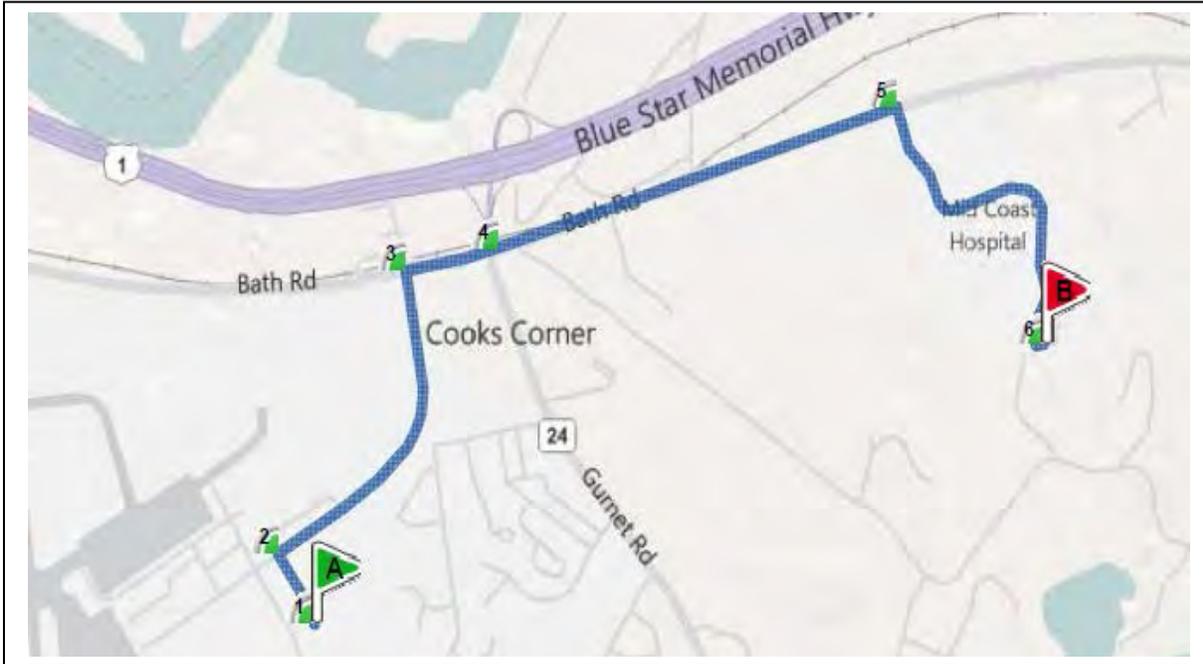
During non-emergencies, follow these procedures as appropriate.

- 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 is shown on Figure 9-2.

FIGURE 9-2

Hospital Route Map

(Total distance about 14.7 miles @ ~ 26 minutes)



Directions	Distance
1. Depart Sewall Road toward Fitch Avenue	~ 0.2 miles
2. Turn RIGHT onto Fitch Avenue	~ 0.7 miles
3. Turn RIGHT onto SR-24/Bath Road	~ 0.2 miles
4. Road changes name to Bath Road	~ 0.9 miles
5. Turn RIGHT onto Medical Center Drive	~ 0.8 miles
6. Arrive at Mid Coast Hospital, 123 Medical Center Drive, Brunswick, ME -	~ 6.2 miles

Mid Coast Hospital

123 Medical Center Drive

Brunswick ME 04011

(207) 729-0181

911 for local EMS/Fire

NAS Brunswick Security# (207) 921-3333

AGVIQ-CH2MHILL Project - Emergency Contacts

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

Sam Naik - Deputy Program Manager: Phone (678) 530-4248/ (678) 860-9626 (cell)

Venky Venkatesh- Project Manager (overall): (216) 623-0326, ext 41218/ (216) 235 - 8613 (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 shall be lighted via natural lighting.

Provisions for routinely servicing and cleaning all toilets and disposing of the sewage 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°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.

9.5 Access and Haul Road Plan

The site access and haul road for the project site will be the same as the route identified in Figure 9-1, Evacuation Route Map.

9.6 Respiratory Protection Plan

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

For this TO it is anticipated that Level C respiratory protection will be required during the Asbestos Abatement task. It would be impractical to include each employer Respiratory Protection Program applicable to each site worker within the body of this APP. However, the following are critical components to the viability of our employer Respiratory Protection Programs.

- 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 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.
- The selected respiratory protection equipment maintained in a clean condition and in good working order;
- 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;
- Responsibilities for both the employee (respirator user) and the employer shall be established and delivered to the employee;

To accomplish these requirements, our respective Respiratory Protection Programs (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.

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. An additional fit test must be performed whenever any of the conditions identified above for testing are met. The two methods of measuring or determining if a user has a proper respirator fit to be used are Quantitative Fit Test QNFT or Qualitative Fit test QLFT.

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.

Prior to wearing a respirator, the employee should be at a minimum trained or otherwise demonstrate knowledge in the following:

1. The nature of the respiratory hazard. For example, what specific chemical substances are present; what areas, operations, or conditions may result if the respirators are not used. A Material Safety Data Sheet (MSDS) may be useful for the latter.
2. An explanation of why engineering controls are not immediately possible and a discussion of what efforts are being made to eliminate the need for respirators.

3. An explanation of why the respirator type is the proper one and what factors effect selection.
4. A discussion and demonstration on how to use the respirator; for example, how to put it on, tighten the straps, test for proper fit, etc.
5. Instruction on the proper techniques and importance of cleaning, disinfecting, inspection, maintenance, and storage of the respirator.
6. A discussion of the capabilities and limitations of respirator; for example, in what environment or under what circumstances (such as oxygen deficiency) the respirator does not offer adequate protection. (These limitations are generally listed on the container in which the respirator is shipped, or in the user's manual.)

Each time before wearing a respirator, a user must perform a positive or negative pressure test for tightness of fit. It is a regulatory requirement that you perform a "positive and negative fit check" each time you don your respirator and includes periodic breaks. If your respirator fails one of these checks, and you cannot correct it by adjusting the straps, inform your immediate supervisor and/or designated company Health & Safety Representative at once, to evaluate the situation and develop and corrective action approach. In addition, a respirator wearer shall perform and inspection of their respirator before each use and during routine cleaning operations.

Prior to using any respiratory protective equipment, affected personnel shall review and implement all applicable components of CH2M HILL SOP # HSE&Q-121, Respiratory Protection or implement other company 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 (fall) that this project is being executed and its geographical region (Coastal Maine) 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, etc.) that may be expected. In severe weather conditions, (i.e., high wind, rain 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. Even though much of the field operations may be performed within sheltered environments, 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 onsite to monitoring local weather or marine forecasts. If onsite internet or radio monitoring are not available, check with the with home office support personnel who may be able to determine the severity of developing storm systems through internet access or other methods.

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.

When excessively hot or cold ambient temperatures exist heat and cold stress monitoring must be implemented, as necessary, defined in Section 9.14 of this APP.

9.7.2 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 supervisor or SSHO shall monitor weather forecasts for predictions of electrical storms in the area. Lightning within 6 miles of the work site, all operations shall be stopped and only resumed when conditions permit. The site supervisor 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 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.
- **Although severe weather conditions can be experienced in coastal Maine, Hurricanes and similar severe tropical storm events are generally not experienced in the area the TO is being executed in and therefore a Hurricane Preparedness Plan (HPP) will not be prepared as part of this work.**

9.7.3 Aerial Lifts

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

(Reserved)

Aerial lifts will not be used on this project.

9.7.4 Air Compressor Operations

(Reserved)

Compressed air sources will not be used on this project.

9.7.5 Asbestos

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

Asbestos Abatement is anticipated for this project. An Asbestos Abatement Plan can be found in Section 9.11 of this APP.

9.7.6 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).

9.7.6.1 Venomous Snakes

(Reserved)

There are no reported venomous snakes in the State of Maine.

9.7.6.2 Poisonous Plants

Poison ivy, poison oak, and poison sumac typically are found in brush or wooded areas. They are more commonly found in moist areas or along the edges of wooded areas. Shrubs are usually 12 to 30 inches high, or can also be a tree-climbing vine, with triple leaflets and short, smooth hair underneath. Plants are red and dark green in spring and summer, with yellowing leaves anytime especially in dry areas. Leaves may achieve bright reds in fall, but plants loses its (yellowed, then brown) leaves in winter, leaving toxic stems. All parts of the plant remain toxic throughout the seasons.

Become familiar with the identity of these plants (see below). Wear protective clothing that covers exposed skin and clothes. Avoid contact with plants and the outside of protective clothing. If skin contacts a plant, wash the area with soap and water immediately. If the reaction is severe or worsens, seek medical attention.

Poison Ivy



Poison Sumac



Poison Oak



Exposure:

Contamination with poison oak, ivy or sumac can happen through several pathways. These include:

- Direct skin contact with any part of the plant.
- Contact with clothing that has been contaminated
- Contact from removing shoes that have been contaminated, as your shoes may be coated with oil)
- Sitting in a vehicle that has become contaminated
- Contact with any objects or tools that have become contaminated.

Exposure to poison oak, ivy or sumac often becomes an OSHA recordable illness. Take proper action if you are potential contaminated. The dermatitis is so severe that many people seek medical care and get prescription cortisone creams or steroid shots to reduce the suffering caused by the itch.

For CH2M HILL employees exposed on the job, contact WorkCare at 866-893-2514 for assistance with the management of the exposure. For work-related injuries or illnesses to CH2M HILL personnel, inform the AGVIQ-CH2M HILL Project Manager (overall) and the AGVIQ-CH2M HILL Program CIH and help Human Resources administrator complete a HITS (Hours & Incident Tracking System) Form. HITS must be completed within 24 hours of incident. See **Attachment 4** of this APP for additional information.

For AGVIQ employees who are injured at work, see the closest qualified medical facility for medical attention notify your supervisor and the Human Resource office for injury management assistance. See **Attachment 4** of this APP for additional information.

Best Work Practices:

If you must work on a Site that has been identified to potentially contain poison oak, ivy or sumac, the following precautions are necessary:

- Identify plants containing urushiol – The best way to prevent exposure is to recognize the plant and avoid working in areas where poison oak, ivy or sumac is present.
- If you must work in areas with urushiol containing plants, contact you project manager and health and safety manager to determine the best procedures to prevent contamination.
- Do not drive vehicles onto the Site where it will come into contact with poison oak, ivy or sumac. Vehicles which need to work in the area, such as drill rigs or heavy equipment must be washed and decontaminated as soon as possible after leaving the Site.
- All tools used in the area, including those used to cut back the plants, surveying instruments used in the area, air monitoring equipment or other test apparatus must be decontaminated before they are placed back into the Site vehicle. If on-Site decontamination is not possible, use plastic to wrap any tools or equipment until they can be decontaminated. If working on or near the ground surface, place plastic on the ground to cover the grass and foliage.
- Personal protective equipment (PPE), including Tyvek coveralls, gloves, and boot covers must be worn. PPE and plastic used to cover the ground must be placed into separate plastic bags and sealed if they are not disposed immediately into a trash receptacle.
- Shower as soon as possible to remove any potential contamination. Any body part with suspected or actual exposure should be washed with “Tecnu” or other product designed for removing urushiol. If you do not have Tecnu wash with cold water. Do not take a bath, as the oils can form an invisible film on top of the water and contaminate your entire body upon exiting the bath.
- Zanafel™ may also be used to treat exposed areas that are experiencing signs and symptoms of poison oak, ivy or sumac contamination. Refer to the Zanafel™ information guide below for specific product and contact information.
- Use products such as IvyBlock™ to prevent poison oak, ivy and sumac contamination. IvyBlock™ is approved by the FDA to prevent the rash caused by poison oak, ivy and sumac.

If there is exposure use the following first aid suggestions, or others you may find to alleviate the pain and itching.

Poison Oak, Ivy, and Sumac First Aid :

<p>Are there any of these problems?</p> <ul style="list-style-type: none"> • Swelling in the throat, tongue and/or lips • A hard time breathing or swallowing • Weakness, dizziness • Bluish lips and mouth • Unconsciousness 	<p>YES</p> <p>Give First Aid</p> <p>Seek Emergency Care</p> <p>Use emergency kit with adrenalin, if available, and Get Emergency Care.</p>
<p>NO</p> <p>Do you have any of these problems?</p> <ul style="list-style-type: none"> • Skin that is very bright red. • Pus. • Rash that has spread to the mouth, eyes or genitals. • Rash on large areas of the body or the face. 	<p>YES</p> <p>Give First Aid</p> <p>See Doctor</p> <p>Give first aid before seeing doctor:</p> <ul style="list-style-type: none"> • Take a hot shower (only after rash develops), put the rash area in hot water or pour hot water over it. Make sure the water is not too hot to burn the skin. The hot water causes itching at first, but brings relief later. Do not use soap. • Take an over-the-counter antihistamine, such as Benadryl, as stated on the label. • For weeping blisters: • Mix 2 teaspoons of baking soda in 1 quarter (4 cups) of water. • Dip squares of gauze in this mixture. • Cover the blisters with the wet gauze for 10 minutes, four times a day. (Do not apply this to the eyes.)
<p>NO</p> <p>Provide Self-Care</p>	

Self-Care/First Aid

1. Wash (decontaminate) all affected areas with warm water and a strong soap.
2. Keep your hands away from your eyes, mouth and face.
3. Do not scratch or rub the rash.
4. Apply any of these to the skin rash:
 - Calamine (not Caladryl) lotion
 - Zanafel™ lotion
 - Zinc oxide ointment
 - Paste made with baking soda - mix 3 teaspoons of baking soda with 1 teaspoon of water
 - Over-the-counter antihistamine such as Benadryl, as stated on the label (consult your physician first, if you have any medical conditions that require you to do so).
 - If self-care/first aid measures don't bring relief, call your designated occupational physician, human resource manager and designated health and safety professional for injury management assistance.

Urushiol Plant Facts:

Urushiol Oil is Potent

- Only 1 nanogram (billionth of a gram) needed to cause rash
- Average is 100 nanograms for most people
- 1/4 ounce of urushiol is all that is needed to cause a rash in every person on earth
- 500 people could itch from the amount covering the head of a pin
- Specimens of urushiol several centuries old have found to cause dermatitis in sensitive people.
- 1 to 5 years is normal for urushiol oil to stay active on any surface including dead plants
- Derived from **urushi**, Japanese name for lacquer

Myth	Fact
Poison oak, ivy, and sumac are contagious	Rubbing the rashes won't spread poison ivy to other parts of your body (or to another person). You spread the rash only if urushiol oil -- the sticky, resin-like substance that causes the rash -- has been left on your hands.
You can catch poison ivy simply by being near the plants	Direct contact is needed to release urushiol oil . Stay away from forest fires, direct burning, or anything else that can cause the oil to become airborne such as a lawnmower, trimmer, etc.
Leaves of three, let them be	Poison sumac has 7 to 13 leaves on a branch, although poison ivy and oak have 3 leaves per cluster
Do not worry about dead plants	Urushiol oil stays active on any surface, including dead plants, for up to 5 years.
Breaking the blisters releases urushiol oil that can spread	Not true. But your wounds can become infected and you may make the scarring worse. In very extreme cases, excessive fluid may need to be withdrawn by a doctor.

New Cream to Treat Exposure to Poison Plants:

Exposure to poison oak, ivy and sumac can be uncomfortable, and in some cases the rash can become so severe that medical care is required. A relatively new product is available Zanfel™ (www.zanfel.com) that helps prevent blistering and itching from becoming severe. If you are working in an area with poison oak, ivy or sumac, you can obtain this cream by contacting and notifying your supervisor of the need to purchase this material.

Please remember, the cream does not replace preventative measures, including:

- Avoiding contact with poison oak, ivy and sumac.
- Wearing Tyvek coveralls and gloves to prevent contact.
- Washing with Tecnu® (or a similar product) after potential exposure.
- Washing clothing and decontaminating equipment with an oil-cutting detergent.

More information about Zanfel (from Zanfel):

Zanfel™ is an effective wash for urushiol-induced contact dermatitis. Urushiol is the toxin known to cause the itching and rash associated with poison oak, ivy, sumac, poisonwood, and related plants. Zanfel works by surrounding urushiol and bonding

with it, thereby enabling it to be rinsed away. Unlike some products that require use within 10 to 20 minutes of contact or that required continued use until the rash is gone

(which can take up to 5 weeks), Zanafel offers relief at any stages of the reaction and often with only one wash. Individuals with particularly severe reactions may require additional washes. Most individuals experience relief from the itching within 30 seconds of application. The rash will begin to subside within hours if the reaction is mild to moderate. Severe and systemic cases will still require medical attention. Severe cases are defined as breakouts that are present on more than 15-percent of the body, and new breakouts continue to develop after day 4.

9.7.6.3 Ticks

Ticks typically are in wooded areas, bushes, tall grass, and brush. Ticks are black, black and red, or brown and can be up to one-quarter inch in size. Wear tightly woven light-colored clothing with long sleeves and pant legs tucked into/taped to boots; spray **only outside** of clothing with permethrin or permethrin and spray skin with only N, N-diethyl-metapolyamide (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 degrees) heat stress preventive measures and monitoring protocols must be implemented. See the Heat Stress section in this APP for additional information.

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 acaricide
- Personal protection through use of repellants and protective clothing
- Frequent tick inspections and proper hygiene

Vaccinations are not available and preventive antibiotic treatment after a bite is generally not recommended.

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

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 (RMSF) (bacteria)
3. Ehrlichiosis (bacteria)
4. Southern Tick-Associated Rash Illness (STARI) (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.

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 immune-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.

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.

Tick Analysis Procedure for Lyme disease:

For tick removal, follow the instructions in your tick removal kit using a fine pointed pair of tweezers. If the tick is alive, place it in two layered zip-lock bags. It is highly recommended that you wear gloves when removing the tick from the skin to avoid infection.

- It is important to remove the entire tick and place it in a zip-lock bag. Place the zip-lock bag in an envelope and contact your applicable health care representative, project manager and health and safety representative (see **Attachment 4** of this APP) for instructions on where to send the tick for analysis of certain tick-borne pathogens.

9.7.6.4 Fire Ants

(Reserved)

There are no significant hazards associated with exposure to fire ants on this project.

9.7.6.5 Spiders - Brown Recluse

It is regarded by many as the most dangerous spider in the United States. Although Maine 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.

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 ¼ 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.

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.

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

9.7.6.6 Spiders - Widow

Generally only the Northern Black Widow would potentially be encountered in Maine. 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.

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 to 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 to 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.

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

9.7.6.7 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 29 CFR 1910.1030. 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 29 CFR 1910.120/29CFR1926.26. 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.

9.7.6.8 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 our line supervisor, project health and safety representative and/or designated corporate occupational physician, as per your employers policy, for support with suspect exposures to West Nile Virus. .

9.7.6.9 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 Maryland. The adult mites are variously call harvest mites, red bugs, or scrub-itch mites. They are related to ticks and spiders and, like these 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 clumps of the tiny orange-red larvae can be seen with the naked eye. 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.

There are several common misconceptions about chiggers. The orange-red color of the chigger leads some to believe that they suck the host's blood, but as already noted they do not. Another misconception is that they burrow into the skin of the host. This is also incorrect. The tiny chigger sometimes appears to have burrowed, but actually the damaged tissues are so inflamed that they surrounded it.

The treatment for chigger bites is focused on alleviating the discomfort and intense itching. If you develop welts at the bite sites, the itching can be reduced by covering them with vaseline, lotions or creams, or oils. These work by limiting the bite site's exposure to air which aggravates the itching. The treatment is even more effective if the substance used contains an antihistamine or local anesthetic to further reduce the itching. Calamine lotion, caladryl, and hydrocortisone ointments or creams may all offer some relief. If you know that

you were in an area infested with chiggers, take a hot bath or shower and soap yourself several times to dislodge any unwelcome guests. By removing them quickly, you can minimize the effect of their bites. Your clothes should also be laundered in hot water. Cold water will not kill them and you can be reinfected the next time you wear the clothing.

Although the chigger does not transmit disease (except as previously noted), the bite site can develop a secondary infection- usually because of heavy scratching. For this reason, the use of a topical antibiotic may be a useful preventative measure. Be sure to see a medical professional if the bite becomes infected. Rarely, someone may have severe allergic reaction to a chigger bite. Immediate medical attention is recommended.

The best way to handle chigger bites is to avoid them. When outdoors, avoid likely chigger habitats. Stay on roads and paths when possible. If you must walk through high grasses, weeds, etc., wear long pants and sleeves. Tuck the pant legs inside your boots and keep sleeve cuffs buttoned. Repellents are effective but only for a few hours before they must be reapplied. Look for products containing either DEET or Permethrin. Be sure to follow the product instructions carefully to avoid adverse reactions. Never wear pet flea collars on your ankles. This can result in serious chemical burns and the active ingredients in the collars are toxic.

9.7.6.10 Rabid Animals

Encounters with a rabid animal can lead to rabies transmission when virus from the animal's saliva, brain tissue, or spinal fluid enters open cuts or wounds in skin or mucous membranes. Therefore, not every encounter with a rabid animal is a true exposure requiring intervention. Treatment is often provided unnecessarily to people who have encountered but had no true exposure to a potentially rabid animal.

Any penetration of the skin by an animal's teeth is considered a "bite exposure." Local wound care should be performed immediately on anyone bitten by an animal. Local treatment of wounds involving immediate and extensive washing of all bite wounds, scratches, or other Sites of potential exposure for 10 minutes with soap and water is arguably the most important measure for preventing rabies following an exposure to a rabid animal.

Experiments done in animals suggest that thorough and vigorous cleansing to the depth of the wound with a 20% soap solution can reduce the risk of developing rabies. Tetanus booster vaccine (Td) should be given if indicated. A health care provider should be consulted to determine whether other measures are necessary. When a bite exposure has been determined, laboratory testing of the animal, if available, may be indicated depending upon the circumstances of the exposure (such as whether it was provoked or not) and the species involved. The risks associated with bites from different animals vary from place to place. For work on this particular contract, contact with rabid dogs, cats, raccoons, and rats could be possible.

"Non-bite exposures" include any scratches, abrasions, or contamination of mucous membranes by an infected animal's saliva, brain tissue, or spinal fluid. Other types of contacts (such as with the blood, urine, feces, or fur of an animal) would not by themselves be considered exposures capable of transmitting rabies even if the animal were known to be rabid. The virus is not hardy; once dry, saliva containing rabies virus is considered non-infectious.

9.7.7 Buried Objects/Utilities (locating)

Do not begin excavation or other ground disturbing activities until a check for underground utilities and similar obstructions has been conducted. Contact the local utility mark-out or locating service identified for the area of operations.

Local Utility Mark-Out Service

- **Name:** Digsafe System, Inc.
- **Phone:** 888-DIG-SAFE (344-7233) or Dial 811
- **Website:** www.digsafe.com

At a minimum, review of host facility current/historic engineering or as-built drawings must supplemented the request to utilities owners to provide the location or mark-out of underground utilities that may be present in the area to be disturbed. As a best management practice, or in areas where sufficient mark-out of utilities by the utility owner's representative is not definitely achieved or where available facility engineer drawings appear incorrect or erroneous data seems likely, then the services of an independent "third party" utility location surveyor must be secured to identify additional and potentially undiscovered/unconfirmed buried utilities in the proposed area of disturbance. The independent utility locator may need to use some or all of the following survey technologies to verify the location of potential buried utilities in the proposed disturbance area:

- **Ground Penetrating Radar (GPR)**, which can detect pipes, including both metallic and non-metallic gas pipes, tanks, conduits, and cables, 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** is 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-mm iron disk to a depth of about one meter or a 25-mm steel paper clip to a depth of about 20 cm.
- **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** is not applicable to this TO.

9.7.7.1 Procedure

The following procedures shall be used to identify and mark underground utilities during subsurface construction activities on the project.

- Contact the local utility companies or the state/regional utility protection service (i.e. Miss Utility, Call Before You Dig, Dig Safe etc.) at least three (3) working days prior to executing the proposed work, and request that the location of underground installations be identified prior to the start of proposed ground disturbing activities. Keep copies of any written documentation (faxes, email printouts) regarding utility location verification provided by utilities owners in the office project file and in a working field file onsite.
- Request and review current/historic host facility as-built or engineering drawings, documents or records to support the location of potential underground utilities within the area to be disturbed.
- 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.** Written access approval/authorization may be necessary to perform these operations on private property.
- Secure an independent third party utility locate survey subcontractor as an additional means of locating underground utilities when necessary. The independent third party utility locate 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 utility locate survey contractor shall to survey the proposed path of subsurface construction work to confirm no buried utilities are present. Schedule the independent survey, as may be necessary.
- Identify host facility/customer specific permit and/or procedural requirements for conducting ground disturbing activities. Contact and coordinate with the host facility/Customer/ Client POC to obtain the appropriate authorization to engage in ground disturbing activities.
- 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 identified utilities until the markings for ground disturbing operations. If the markings of utility locations are destroyed or removed before ground disturbing operations are completed, the Project Manager or the site supervisor must notify the utility company or utility protection service to inform them that the markings have been destroyed and that a remark is required.
- Photo documentation of defined utility mark-out locations as related to proposed limits of ground disturbing activities should be conducted prior to the start of work.
- 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).
- Update local utility companies or the state/regional utility protection service (i.e. Miss Utility, Call Before You Dig, Dig Safe etc.) utility verification request numbers as required. Include written responses to updated request verifications in the project file as verification the update was completed.
- In addition to the information contained in this section, where personnel are required to perform hand augering operations for sample confirmation sampling activities, a fiberglass ground probe should be used to search ahead to the next sample interval prior to advancing the hand auger when there is a potential for encountering buried underground utilities. When performing environmental sampling decontamination of the fiberglass ground probe shall apply between sample intervals to prevent cross contamination.

9.7.8 Chemical Injections

(Reserved)

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

9.7.9 Concrete Work

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

(Reserved)

Concrete work will not be performed as part of this TO.

9.7.10 Confined Space Entry

(Reference CH2M HILL SOP # HSE&Q-203, Confined Space)

(Reserved)

Confined space entry operations will not be performed as part of this TO.

9.7.11 Cranes

(Reference CH2M HILL SOP # HSE&Q-303, Cranes)

(Reserved)

Crane operations/activities will not be performed as part of this TO.

9.7.12 Demolition/Dismantling

(Reference CH2M HILL SOP # HSE&Q-305, Demolition)

As part of the execution of the contract task order the demolition/removal of Buildings 642/643 and ancillary features will be performed. As such, the full and complete implementation of CH2M HILL SOP # HSE&Q 305, Demolition is warranted. A Demolition Plan can be found in the Project Work Plan and in Section 9.24 of this APP.

9.7.13 Drilling/Direct Push Technology

(Reserved)

Drilling/ direct push technology activities will not be performed as part of this TO.

9.7.14 Electrical Safety

(Reference CH2MHILL SOP # HSE&Q-206, Electric Safety)

Several types of electrical hazards may be encountered during the execution of the project. These hazards might include, but not be limited to, hazards associated with the establishment of temporary construction site facilities, operation of equipment or vehicles adjacent to overhead utilities, use of generators, power cords and electric hand tools used during mobilization/demobilization or from in advertent damage to unidentified underground electric or communication utilities.

Where the 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.
- Maintain safe clearance distances between overhead power lines and operating heavy equipment (heavy earth moving equipment, on/off-haul trucks) unless the power lines have been verified as being de-energized and grounded or unless insulating barriers have been installed to prevent physical contact. To determine proper clearance from energized overhead electric lines, consult the reference table below.

Nominal System Voltage (kV)	Minimum Rated Clearance (feet)
Up to 50	10
51 - 200	15
201 - 350	20
351 – 500	25
501 – 650	30
651 – 800	35
801 - 950	40
951 - 1100	45

Clearance values calculated using:

$(\text{Initial kV} - 50\text{kV}) \times (4 \text{ in}/10 \text{ kV}) \times (1 \text{ ft}/12 \text{ in}) = \text{increased distance (ft) over 10 ft. Add this value to 10 ft to yield minimum rated clearance (All dimensions are distances from live part to employee)}$

Reference: US Army Corps of Engineers, EM 385 1-1, 15 Sept 08, Table 11-1.

- Do not swing or position booms/masts of earthmoving equipment toward overhead utilities. Do not allow haul trucks operators to raise dump bed bodies underneath or in close proximity to overhead utilities or pull toward overhead utilities with dump bodies raised. Be cognizant of utility pole guy wires in relation to operating heavy equipment, on/offsite haul trucks.

- Only qualified personnel (by training, experience, and/or licensure) are permitted to work on electrical systems.
- 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, and extension cords for damage prior to use. Do not use electrical equipment that is identified as needed repair, improperly grounded or insulated or not operating in accordance with the manufacturers intended requirements. Remove these items from service, label the equipment or device as "Damaged - Do Not Use". Ensure that all tools/equipment/power cords that are deemed damaged, dangerous or not operating in accordance with the manufacture's requirements are removed from service and repaired by an authorized manufacturer repair technician or rendered inoperable and properly dispose of.
- Extension cords must be:
 - Inspected before use and events that may have caused damage to the cord before being put back into service.
 - Equipped with third-wire grounding.
 - Covered, elevated, or protected from damage when passing through work areas.
 - Protected from pinching if routed through doorways.
 - Not fastened with staples, hung from nails, or suspended with wire.
- Ground Fault Circuit Interrupters (GFCIs) as the standard method for protecting employees from the hazards associated with electric shock;
 - GFCIs shall be used on all 120-volt, single phase 15 and 20-ampere receptacle outlets which are not part of the permanent wiring of the building or structure.
 - Most generators come with Ground Fault Circuit Interrupters (GFCI). Test the GFCIs daily to determine whether they are working. If a generator is not equipped with GFCI protected circuits plug a portable GFCI into the generator and plug appliances, tools and lights into the portable GFCI.
- 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.

9.7.15 Excavation Activities

(Reference CH2MHILL SOP # HSE&Q-307, Excavation & Trenching Safety)

(Reserved)

9.7.16 Fall Protection

(Reference CH2MHILL SOP # HSE&Q-310, Fall Protection)

(Reserved)

There are no anticipated fall protection hazards associated with the execution of this TO under the requirements of EM 385 1-1, Section 21.A that must be addressed in this APP.

9.7.17 Fire Prevention

9.7.17.1 Major Workplace Fire Hazards

The major workplace fire hazards are as follows:

- Storage or spillage of gasoline in approved portable containers (< up to 4 -5 gallon metal safety containers).
- Storage or spillage of diesel fuel in approved above ground storage tank with appropriate dispensing equipment (1-550 gallons metal safety containers) or vehicle mounted saddle tank (typically 60- 95 gallons).
- Electrical fires on operating site generators, heavy earth moving equipment or haul trucks.
- Smoking in unauthorized/non-designated areas of the site.

Potential ignition sources of the above:

- Improper grounding or fuel pump equipment or generators
- Electrical malfunction of operating equipment
- Improper extinguishment of smoking materials
- Unauthorized hot work and improper hot work control procedures

9.7.17.2 Fire Prevention Measures

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

- Personnel shall ONLY be allowed to smoke in designated areas, where allowed at all. Designated area must be free of combustible, flammable or potentially explosive materials.
- The project supervisor or SSHO (when designated) shall be responsible for securing, inspecting and maintaining appropriate first response, portable type fire extinguisher equipment and ensure that such equipment is kept in a state of readiness and easily accessible.

- Flammable/combustible liquids must be kept in approved containers, and must be stored in an approved storage cabinet. Use only metal safety cans for storage and transfer of fuel and use funnels and nozzles during fueling operations. Flammable liquids shall be kept in closed containers or tanks when not in use.
- Personnel performing fuel dispensing operations to heavy equipment or small engine equipment shall be responsible for the fuel sources its delivery to the intended equipment. In the event of a spill or release, the person conducting the dispensing operation shall immediately notify the site supervisor so that appropriate corrective measures can be initiated.
- AGVIQ-CH2M HILL personnel incipient are only authorized to fight incipient stage fires to their level of training, and only when it is determined it is “safe”/appropriate to do so. Personnel responding to incipient stage fires shall consider their own personal safety when engaging such fires. Fires resulting from residual product in lines, tanks storage areas containing flammable/combustible waste should be handled by host facility or local agency Fire and Emergency Services. AGVIQ-CH2M HILL personnel ARE NOT considered Firefighting Organizations or Fire Brigades. Only “small/containable”, incipient stage fires that are containable by the use of first response fire protection equipment (i.e., 2.5 to 20 lb ABC fire extinguishers) may be controlled by AGVIQ-CH2M HILL personnel. All other response shall be considered firefighting measures and shall be conducted by facility provided or public agency firefighting teams. However, site personnel who may be required to use portable first response type fire extinguishers shall receive training meeting the requirements of 29 CFR 1910.157(g) prior to or upon mobilization to the site.
- All flammable or combustible wastes must be kept in a fire-resistant, properly labeled covered container until removed from the site.
- Sources of open flames, sparks and heat shall not be left unattended.
- A good housekeeping program that provides for the prompt removal and disposal of accumulations of combustible scrap and debris shall be implemented on the site. Self-closing containers shall be used to collect waste saturated with flammable or combustible liquids. Only non-combustible or UL labeled nonmetallic containers may be used to dispose of waste and rubbish.
- All sources of ignition shall be prohibited within 50’ of operations with a potential fire hazard.
- All sources of ignition shall be prohibited in areas where flammable and combustible liquids are stored, handled, and processed. Where it is necessary to identify such potential hazard suitable NO SMOKING, MATCHES, OR OPEN **FLAME** signs shall be posted in all such areas.
- Fire extinguishers will be provided so that the travel distance from any work area to the nearest extinguisher is less than 50 feet when 5 gallons or more of a flammable or combustible liquid is being used. 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.
- Combustible materials stored outside should be at least 10 feet from any building.
- Mechanized equipment shall be shut down before and during fueling operations.
- Before conducting any hot work operations, a Hot Work Permit must be secured from the host facility designated fire department inspector/fire prevention officer or Government Designated Authority (GDA) when welding, cutting, heating operations or other spark producing operations are performed unless otherwise indicated by the GDA.
- Before performing any hot work operations, the work area shall be surveyed to ensure it is free of the following hazards:
 - Proximate combustible materials,
 - The presence or possible generation of potentially explosive atmospheres (flammable gases, vapors, liquids, or dusts); and
 - The presence or nature of an oxygen-enriched atmosphere.
- All flammable or combustible materials from where welding, cutting or other hot work operations are to occur shall be removed to the extent possible.
- Institute the “Hierarchy of Fire Control” before initiating any hot work operations. Objects to be welded, cut, or heated shall be:
 - Moved to a location free of dangerous combustibles;
 - If the work cannot be moved, all moveable fire hazards in the vicinity shall be taken to a safe place (moved at least 35 ft (10.6 m) horizontally from the welding or cutting area) or the combustible material and construction shall be protected from the heat, sparks, and slag of welding;
 - When welding or cutting must be done in a location where combustible or flammable materials are located, inspection and authorization by the GDA shall be required before such operations are begun (the location shall be checked for latent fires by qualified fire watch personnel after the work is completed).

9.7.18 Flight Line Safety

(Reserved)

No TO activities will occur on, within, or adjacent to or require the crossing of flight lines.

9.7.19 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 29 CFR 1926.25(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, construction, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures.
- Combustible scrap and debris shall be removed at regular intervals during the course of construction. Safe means shall be provided to facilitate such removal.
- 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. Garbage and other waste shall be disposed of at frequent and regular intervals.
- Establish common paths of travel and keep them free from the accumulation of materials.
- Keep access to aisles, exits, ladders, stairways, scaffolding, and emergency equipment free from obstructions.
- Provide slip-resistant surfaces, ropes, and/or other devices to be used.
- Designate specific areas for the proper storage of materials.
- Store tools, equipment, materials, and supplies in an orderly manner.
- As work progresses, neatly store scrap and unessential materials or remove them from the work area.
- Provide containers for collecting trash and other debris and remove them at regular intervals.
- Clean up all spills quickly. Clean oil and grease from walking and working surfaces.

9.7.20 Hand and Power Tools

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

Hand and power tools may be during the support of mobilization operations, the installation of ESC measures. When the use of hand and power tools is necessary to properly complete assigned tasks, the following work practices must be implemented, where applicable.

- Review and implement all applicable components of CH2M HILL SOP # HSE&Q 210, Hand and Power Tools except where other requirements may be more stringent.
- **Where it is determined that chainsaws or gas powered brush cutters must be used to complete the TO a task specific AHA for this function before chainsaws and gas powered brush cutters must be used.**
- Disconnect power (electric, pneumatic) tools from energy sources when they are not in use, before inspecting them, performing cleaning/maintenance or when changing accessories (such as blades, bits, and cutters) so that an unexpected or accidental start-up of tool cannot occur.
- If an inspection of a power or hand tool indicates an item is in need repair, is improperly grounded or insulated or not operating in accordance with the manufacturers intended requirements, immediately remove the tool from service, label (or “tag”) the equipment or device as “Damaged – Do Not Use”. Ensure that all tools/equipment/power cords that are deemed damaged, dangerous or not operating in accordance with the manufacture’s requirements are removed from service and repaired by an authorized manufacturer repair technician or rendered inoperable and properly dispose of.
- 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.
- Portable electric power tools will be plugged into GFCI-protected outlets.
- Portable power tools will be UL listed and have a three-wire grounded plug or be double insulated.
- Safety guards on tools must remain installed while the tool is in use and must be promptly replaced after 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.

- If a cordless tool is connected to its recharge unit, both pieces of equipment must conform strictly 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).
- When using a tool with a blade, stroke or cut away from the body with a smooth motion, where ever feasibly possible. Be careful not to use excessive force that could damage the tool, the material being cut or unprotected hands.

Note: In the event a worker must use manual and pistol-grip hand tools which may result in highly repetitive movement, extended use, 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/positions, the selection of appropriate materials, changing work organization, and sequencing to prevent muscular, skeletal, repetitive motion, and cumulative trauma stressors.

9.7.20.1 Machine Guarding

Machine guarding for this task order is primarily associated with land clearing operations, but can also be applicable were power tools are used. The following measures must be considered to eliminate potential accidents and injuries with regard to machine guarding requirements.

- Ensure that all machine guards are in place to prevent contact with drive lines, belts, chains, pinch points 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 lockout of that equipment prior to work and this APP would have to be updated to include requirements for implementing a hazardous energy control program.

9.7.20.2 Knife Use

Knives (fixed/utility) shall not be used. If it is demonstrated that a knife is the right tool for the job, this plan will be amended and the activity that knife use will be used for shall be reviewed.

9.7.21 Haul Trucks

It is anticipated that haul trucks will be used for the delivery of products or materials to be incorporated into the project (i.e., aggregate, common fill), for the delivery and pick-up of heavy equipment, and for the transportation and disposal of generated waste streams. 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.**
- 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.
- 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 be well lit, sufficiently wide (at least 50% of the width of the equipment on both sides of road) and equipped with reflectors to indicate access points.

Haul roads should have adequate right-of-way signs indicating haul directions, where appropriate.

9.7.22 Heavy Equipment

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

It is anticipated that heavy 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.
- An Earthmoving Equipment Operator Evaluation Form will be completed and maintained in the project files by the SSHO for all persons who operate 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 5** 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 HSP 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.

9.7.23 Land Clearing Operations - General

(Reserved)

9.7.24 Lock-Out/Tag-Out

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

In general, Lock-out/Tag-out (LOTO) activities for this task order are anticipated to be primarily focused on the isolation of the site utilities that enter the demolition area. These isolations must be executed by AGVIQ-CH2M HILL or their designated subcontractors to reduce the potential for accidental discharge hazardous energy.

Where Lock-out/Tag-out activities must be enacted for proper execution of the work, the following general Lock-out/Tag-out processes must be engaged.

- **Review and implement all applicable components of CH2M HILL SOP # HSE&Q 310, Lockout/Tag-out.**

Only qualified personnel may work on energized equipment that has not been de-energized by Lock-out/Tag-out procedures. Where applicable, **review and implement all applicable**

components of CH2M HILL SOP # HSE&Q-206, Electrical Safety and Electric Safety information contained in this HSP.

AGVIQ-CH2M HILL must verify if any NAS Brunswick Lock-out/Tag-out requirements are specific to the proposed demolition operations. This may include coordinating with the facility owner or representatives (as applicable) who have knowledge with structures and ancillary features scheduled for demolition. This coordination should occur to verify that a clear understanding of exactly what structure components or utility services must be deactivated to provide complete de-energization and isolation of the system or item that must be accessed or worked on.

All equipment or systems which may potentially release stored energy must be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel or adverse environmental impact. Personnel shall not attempt to operate any switch, valve, or other energy-isolating device bearing a lock.

Standard Lock-out/Tag-out procedures include the following general steps:

1. Notify all personnel in the affected area of the Lock-out/Tag-out.
2. Shut down the equipment using normal operating controls.
3. Isolate all energy sources.
4. Apply individual lock and tag to each energy isolating device.
5. Relieve or restrain all potentially hazardous stored or residual energy.
6. Verify that isolation of the item (equipment, line, valve etc.) has been accomplished.

If more than one individual is required to lock out equipment, each person will place his "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.

To execute the Lock-out/Tag-out process, use the procedures outlined below as a general guide, but refer to CH2M HILL HSE&Q SOP # 310 **Lock-out/Tag-out** for additional information. If for any reason the any procedure is in question, contact your immediate supervisor and/or individual responsible for site operations before moving forward.

- All utility outages will follow the contract requirements. Where required, utility outages will be coordinated with utility owners and facility owners, as necessary.
- Notify all affected employees that a Lock-out/Tag-out process is required.
- If the equipment/process is operating, shut it down by the normal stopping procedures.
- Operate the switch, valve, or other energy isolating devices so that the energy source(s) is disconnected or isolated from 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 individual responsible for site operations and designated equipment/facility owner/operator personnel.

- Stored energy, such as capacitors, springs, elevated machine members, rotating flywheels, pumps, hydraulic systems, and air, gas, steam, or water pressure, etc., must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
- 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 or other normal operating controls to make certain the equipment will not operate. CAUTION: Return operating controls to the neutral position after the test.
- Attach a notification/sign on the controls of the end equipment, process system. The identification tag and/or sign will be coordinated with the electrical contractor and the prime contractor. An AGVIQ-CH2M HILL representative will then make known to the facility personnel affected by this operation to familiarize them with the identification of these tags or signs and the procedures in which the contractors will be working by, and the point of contact of the electrical supervisor.
- The equipment is now locked out. Once verified that the equipment is at a zero energy state, work may begin.
- 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 will 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, a representative from AGVIQ-CH2M HILL will be present while the electrical supervisor begins the lock out/tag out process.

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.

- 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 contractor and the prime contractor 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.

9.7.25 Manual Lifting

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

Manual lifting is likely to occur during many phases of the project, but especially during mobilization and demobilization and sampling events and during the installation of Erosion and Sediment Control (ESC) measures. 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.
- Perform a muscle stretching routine or work warming regiment before engaging in manual lifting operations.
- Use proper lifting techniques (use of knees and not back) when lifting any object:
- Plan storage and staging to minimize lifting or carrying distances.
- Split heavy loads into smaller loads.
- Use mechanical lifting aids whenever possible.
- Have someone assist with the lift – especially for heavy (>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.
- Make sure the path of travel is clear prior to the lift.

9.7.26 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 is particularly important for the following site conditions/operations;

- Working around heavy earthmoving equipment or operation of heavy earthmoving equipment with open cabs or with the cab doors open.

- Operation of trenching equipment during the installation of Erosion & Sediment Control (ESC) measures.
- Working around haul trucks delivering fill or aggregate materials
- Working with or around gas powered hand tools such as partner or chain saws.
- Working with or in close proximity to a wood chipper

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).

9.7.27 Pressure Washing Operations

(Reserved)

9.7.28 Sample Handling

Sample handling, packaging, and preservation will primarily be conducted to confirm the disposal status of waste materials generated during the execution of the contract task order and during post soil excavation sample confirmation to verify that project remedial objectives have been achieved. Proper work practices and procedures to be followed during sampling activities include:

- Avoiding all skin contact with water, soil, sediment or debris of undetermined chemical characterization or material that is known to be impacted by site COCs.
- PPE and Air Monitoring requirements shall be executed in accordance with in accordance with Section 9.33.7, respectively, 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).
- Caution should be exercised when filling bottles containing acid or base preservatives. Both liquid and vapor phases of acid can cause severe burns.
- 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.

9.7.29 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 be 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 points of contact when entering or exiting heavy equipment or 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 (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.

9.7.30 Stairways and Ladders

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

(Reserved)

There are no stairway or ladders systems that are anticipated to be used during the execution of this TO.

9.7.31 Vacuum Truck Operations

A vacuum truck will be required to dispose of water/waste during final cleaning of the septic tank. Where vacuum trucks are used on the project site, the following must be implemented.

- **Operate vacuum truck in accordance with API Recommended Practice 2219, "Safe Operations of Vacuum Trucks in Petroleum Service".**
- Locate vacuum truck upwind of tank with discharge hose downwind of truck and tank
- Keep vacuum truck ignition source operations area free from flammable vapors.
- Bond and ground vacuum truck hoses to truck and well head when conveying free product to prevent static electricity discharges/sparks.

- Keep hands from vacuum hose inlet.
- Wear protective gloves and hearing protection in the immediate vicinity.

Do not place vacuum hose inlet in a position that may inadvertently contact other workers in the area.

9.7.32 Vehicular Traffic (Exposure to)

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

The site is relatively removed from vehicular traffic. The only significant anticipated employee exposure to vehicular traffic will be that traffic associated with the onsite traffic associated with haul truck operations or where haul trucks enter the site. The information provided below is intended to provide standard work practices must be exercised when personnel are working in or around traffic, haul truck routes or near an area where traffic controls have been established.

- 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 traveled way or within work area must wear reflective/high-visibility safety vests.
- Eye protection should be worn to protect from flying debris.
- Remain aware of factors that influence traffic-related hazards and required controls— sun glare, rain, wind, 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.

9.7.33 Visible Lighting

Site work should be performed during daylight hours whenever possible. Work conducted during hours of darkness (including dusk and dawn) requires the set-up of supplemental lighting equipment. (Note: A general “rule of thumb” is that the illumination intensity must be sufficient to read a newspaper without difficulty).

At this time, it is that no work executed under this TO will be performed at night. If work is to be performed at night, a night operations lighting plan shall be developed to ensure that all activities. Although it is not anticipated that work executed under this TO will be performed during dusk, dawn or night time periods, 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.

9.7.34 Welding or Cutting Operations

(Reference SOP # HSE&Q 314, Welding & Cutting)

(Reserved)

Welding or cutting operations are not anticipated for this project.

9.7.35 Working Alone

(Reserved)

No site personnel will be allowed to work alone on this project.

9.7.36 Working Around Material Handling Equipment

(Reserved)

9.7.37 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 and verify that emergency contact numbers contained in this APP are accurate/operational work. 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 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 this TO.

9.10 Lead Abatement Plan

(Reserved)

The requirements of EM 385 1-1, section 06.B.05 are not applicable to this TO.

9.11 Asbestos Abatement Plan

"Asbestos" is the name of a class of magnesium-silicate minerals that occur in fibrous form. Minerals that are included in this group are chrysotile, crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos. Asbestos is and was used in the manufacture of heat-resistant clothing, automotive brake and clutch linings, and a variety of building materials including floor tiles, roofing felts, ceiling tiles, asbestos-cement pipe and sheet, and fire-resistant drywall. Asbestos is also present in pipe and boiler insulation materials and in sprayed-on materials located on beams, in crawlspaces, and between walls.

Asbestos can cause disabling respiratory disease and various types of cancers if the fibers are inhaled. Inhaling or ingesting fibers from contaminated clothing or skin can also result in these diseases. The symptoms of these diseases generally do not appear for 20 or more years after initial exposure. Exposure to asbestos has been shown to cause lung cancer, mesothelioma, and cancer of the stomach and colon. Mesothelioma is a rare cancer of the thin membrane lining of the chest and abdomen. Symptoms of mesothelioma include shortness of breath, pain in the walls of the chest, and/or abdominal pain.

Exposure to airborne asbestos fibers may not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) averaged over the 8-hour workday, which is established as the Occupational Health and Safety Administration (OSHA), Permissible Exposure Limit (PEL), and 1 fiber per cubic centimeter of air (1.0 f/cc) averaged over a 30-minute work period, which is established as the OSHA Excursion Limit (EL).

9.11.1 Site Background Information Regarding the Presence of ACM

During the performance of the Engineering Surveys and Asbestos Abatement activities, asbestos containing material will be sampled and removed. All Asbestos Containing Material (ACM) work will be performed by licensed contractors in accordance with federal, state, and local regulations. The exact type and quantities of ACM are not known at this point. The pre-demolition engineering survey will identify the types and quantities to be abated.

9.11.2 Asbestos/ National Emission Standards for Hazardous Air Pollutants Applicability

The material suspected at the site is anticipated to be designated as both Friable ACM and “Category I & II, non-friable” material in its current state. The non-friable materials could potentially be reduced to a friable condition by use of track vehicles driving over the material and during machine - handling. During the excavation and handling of removed overburden and debris care must be engaged to minimize this condition to the extent feasibly possible.

It is understood that the designation of this material as has been made in accordance with 40 CFR 61, Subpart M definitions as follows:

9.11.2.1 Friable ACM

Friable asbestos material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

9.11.2.2 CATEGORY I non-friable ACM

Category I non-friable ACM is any asbestos-containing packing, gasket, resilient floor covering or asphalt roofing product which contains more than one percent (1%) asbestos as determined using polarized light microscopy (PLM) according to the method specified in Appendix A, Subpart F, 40 CFR Part 763 (Sec. 61.141).

Category I non-friable ACM must be inspected and tested for friability if it is in poor condition before demolition to determine whether or not it is subject to the Asbestos NESHAP. If the ACM is friable, it must be handled in accordance with the NESHAP. Asbestos-containing packings, gaskets, resilient floor coverings and asphalt roofing materials must be removed before demolition only if they are in poor condition and are friable.

9.11.2.3 Resilient Floor Covering

There is a wide variety of resilient floor covering applications that contain asbestos. The most common are linoleum flooring and vinyl asbestos tile (VAT). VAT is most commonly found in either a 9-inch × 9-inch or a 12-inch × 12-inch square size. The 9-inch × 9-inch VAT's are normally found in older buildings because they were manufactured earlier than the 12-inch ×

12-inch VAT's; however, floor tile sizes and resilient floor covering applications vary greatly since many buildings have been re-tiled several times.

In order to determine if a resilient floor covering is in poor condition look for sections or tiles which are cracked or peeling to the extent that they are crumbled. Floor coverings in poor condition can often be found near doorways or loading/staging areas where the floor has sustained a lot of stress and traffic. If the floor covering is in poor condition, collect a small representative sample and seal it in a transparent, sample bag. Hand pressure should be applied to determine if the material can be crumbled, pulverized, or reduced to powder. If it can, the material is considered friable. Resilient floor covering that will be or has been sanded, ground or abraded is subject to the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP).

9.11.2.4 CATEGORY II non-friable ACM

Category II non-friable ACM is any material, excluding Category I non-friable ACM, containing more than one percent (1%) asbestos as determined using polarized light microscopy according to the methods specified in Appendix A, Subpart F, 40 CFR Part 763 that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. (Sec. 61.141).

Category II non-friable ACMs (cement siding, transite board shingles, etc.) subjected to intense weather conditions such as thunderstorms, high winds or prolonged exposure to high heat and humidity may become "weathered" to a point where they become friable.

Category II non-friable ACM must be inspected and tested for friability if it is in poor condition. If these materials are crumbled, pulverized or reduced to a powder, they are friable and thus covered by the Asbestos NESHAP. Broken edges of these materials typically are friable. The fractured surface should be rubbed to see if it produces powder.

If Category II non-friable ACM has not crumbled, been pulverized or reduced to powder and will not become so during the course of removal operations, it is considered non-friable and therefore is not subject to Asbestos NESHAP. However, if during the removal activity it becomes crumbled, pulverized or reduced to powder, it is covered by the Asbestos NESHAP.

Additionally, if Category I or Category II non-friable ACM is to be sanded, ground, cut, or abraded, the material is considered RACM and the owner or operator must abide by the following (Sec. 61.145(c)(1)):

- (i) Adequately wet the material during the sanding, grinding, cutting or abrading operations.
- (ii) Comply with the requirements of 61.145(c)(3)(i) if wetting would unavoidably damage equipment or present a safety hazard.
- (iii) Handle asbestos material produced by the sanding, grinding, cutting, or abrading, as asbestos-containing waste material subject to the waste handling and collection provisions of Section 61.150.

9.11.3 State Regulations

At this time, it is the current understanding of AGVIQ-CH2M HILL that the abatement of ACM will be executed under the oversight of Maine Department of Environmental

Protection (DEP), and therefore a 10-day notification to the Maine DEP is not required. AGVIQ-CH2M HILL further understands that the State of Maine does not regulate Non-Friable ACM work and only regulates Friable Asbestos Projects. State Rules and Regulations of Asbestos Control will not govern the excavation of ACM debris and that this removal does not constitute an "asbestos project" activity. However best management practice (BMP) for the execution the work will be adhered to as a method of ensuring a negative worker exposure to asbestos and eliminating the potential for the generation of airborne asbestos fibers.

Because of the nature of the environmental conditions of the site, training, medical surveillance this project will follow requirements of 29 CFR 19126.1101, 40 CFR 61 as well as 29 CFR 1910.120. The control of the release of fugitive air borne fibers will be completed by best management practices (BMP) relative to the excavation and handling of ACM. In addition, federal Department of Transportation (DOT), State of Maine and other applicable state requirements for the transportation of Regulated Asbestos Material (RACM) will be adhered to with regard to the packaging, transportation and labeling of this material will be adhered to.

9.11.4 OSHA Applicability

The type of controls instituted during a project of this type that disturbs asbestos is dependent upon the class of job to be performed classified under 29 CFR 1926.1101 as follows:

Class I asbestos work means activities involving the removal of TSI and surfacing Asbestos Containing Material (ACM) and Presumed Asbestos Containing Material (PACM).

Class II asbestos work means activities involving the removal of **ACM which is not thermal system insulation or surfacing material**. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III asbestos work means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

Class IV asbestos work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

Based on these definitions contained in 29 CFR 1926.1101, the abatement of material from the site which contains Friable ACM material shall be performed as Class I Asbestos Work. Category I and II non-friable material shall be performed as Class II Asbestos Work. All site personnel who are supporting the abatement, waste management, loading and packaging of debris containing ACM will meet training and licensing requirements established by the State of Maine. For the purposes of clarification, licensing shall be required for the asbestos supervisor/competent person and asbestos "workers" performing the abatement of ACM, as well as the designated asbestos project monitor.

9.11.5 Description of Each Activity Where ACM will be Disturbed

At this time, the type and quantity of ACM is not known. This information will be identified during the Engineering Survey and reported in the abatement contractors Abatement Plan.

9.11.6 Approximate Amount of Material to be Removed

At this time, the type and quantity of ACM is not known. This information will be identified during the Engineering Survey and reported in the abatement contractors Abatement Plan.

9.11.7 Method of Notification of Other Employers at the Worksite

All designated AGVIQ-CH2M HILL personnel or Subcontract personnel who may be covered by this HSP and APP, regardless of assignment responsibilities, who are engaged in site operations must review or be provided a detailed briefing on the contents of this APP or be required to review and implement their own site specific HSP or APP, and must be equally or more stringent than the requirements contained herein or attached.

Site personnel shall also be made aware of site conditions via the implementation of daily safety briefings, implementation of applicable AHAs and implemented site inspection processes as part of an established Behavior Based Loss Prevention System (BBLPS), similar to the components detailed in Section 4.0 of this HSP.

Further notification and demarcation of the worksite, prohibitions and requirements shall also be provided by required access control points and signage at the entrance to the regulated asbestos work area required by 29 CFR 1926.1101(e) and 29 CFR 19126(k)(7). Regulated asbestos areas shall be demarcated in any manner to minimize the number of persons within the area and protect personnel positioned outside the asbestos regulated area from exposure to airborne asbestos. Warning signs shall be posted at such a distance from regulated areas that personnel may read the signs and take protective steps before entering the area. Demarcation of the regulated asbestos area and notification of site conditions shall be with signage along the perimeter of the site/regulated area in with signage indicating the following:

DANGER
ASBESTOS
CANCER LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY

and

RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

9.11.8 Description of Regulated Areas

Regulated areas are areas where airborne concentrations of asbestos are or may be above, the permissible exposure limit (PEL), without regard to the use of respirators. Personnel shall not enter an asbestos regulated area unless training, medical monitoring, and PPE, including respirator protection, engineering and/or administrative controls requirements established by the competent person have been met.

When personnel work adjacent to asbestos regulated areas, the integrity and security of the regulated area boundaries and the effectiveness of the control methods are relied upon to ensure that emission of fugitive asbestos fibers potentially generated by the work operations do not migrate to such adjacent areas. The security and control of the regulated area must be achieved by continually assessing the work area, conducting visual inspections, verifying security of the regulated area, completing area air monitoring and reviewing the results and implementing proper engineering practices (wetting, negative pressure, proper containment/housekeeping etc.) during the execution of assigned work.

Personnel shall not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas.

In asbestos regulated areas where employees are exposed to asbestos above the PEL, warning signs shall be posted as in accordance with by 29 CFR 1926.1101(e) and 29 CFR 19126(k)(7), as identified in Section 3.4.5 of this HSP.

The anticipated asbestos regulated area associated with the Transite removal site is anticipated to be restricted to the area surrounding the ACM. Final placement of zones and site features may be subject to change based on project requirements and actual field logistics.

9.11.9 Types of Containment

The description of the type of containment will be identified in the abatement contractors Abatement Plan.

9.11.10 Decontamination Plan

A specific Decontamination Plan will be identified in the abatement contractors Abatement Plan. The following are general guidelines that will be implemented. An equipment decontamination/clean-up area will be established and located with the asbestos regulated area to allow for the decontamination prior to leaving the site. The location of this feature will be dependent upon site logistics and available lay-down space.

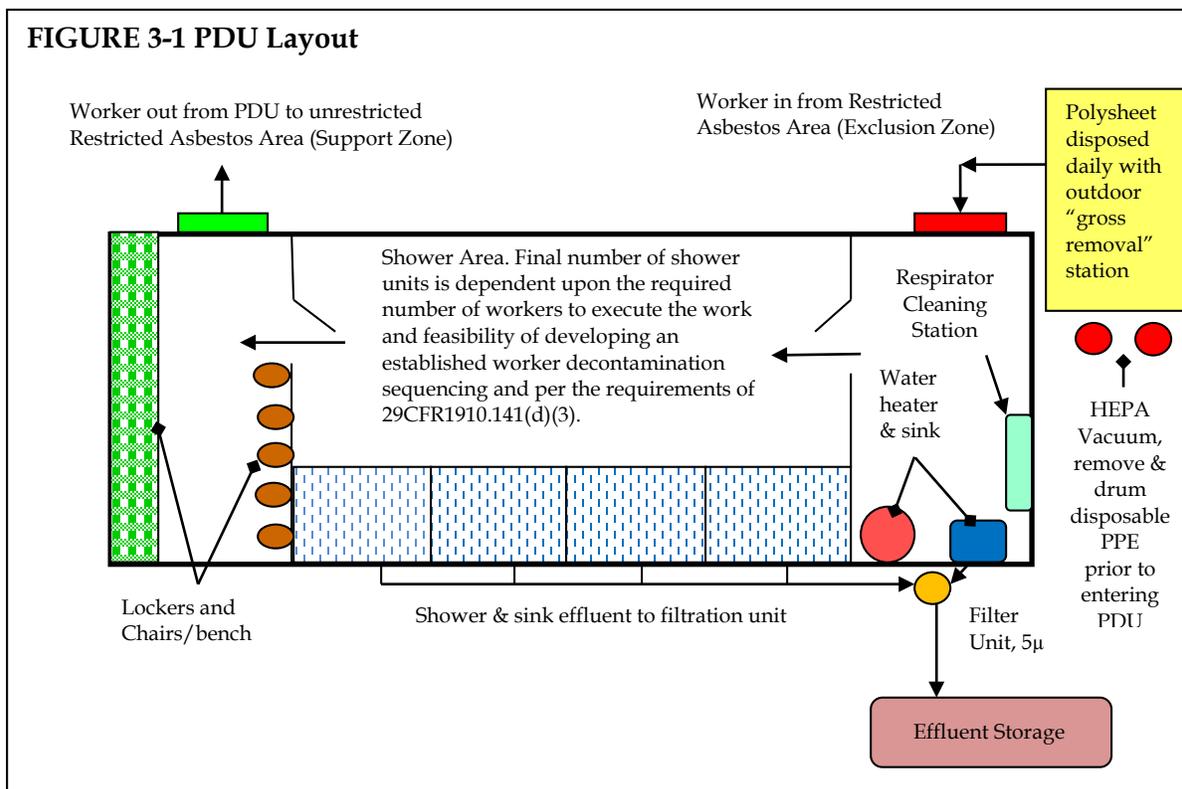
Water used for decontamination will be contained, and remaining mud and sludge shall be shoveled up by hand methods and placed within the soil staging area for drying.

In addition, a three-stage personnel decontamination unit (PDU), with a shower facility, will be located outside the Contamination Reduction Zone (CRZ) at the edge of the asbestos regulated area. At this time, it is anticipated that this PDU will be procured as a prefabricated trailer from an area mobile modular trailer vendor with the final configuration and layout of the PDU dependent upon vendor availability and manufacturer design. However, as an alternate to a pre-manufactured trailer unit, the PDU, could also be an onsite fabricated PDU meeting the criteria set-forth by 29CFR1926.1101.

In general, the first chamber shall be a "dirty room" to allow personnel to remove disposable coveralls and place into a disposal bag. If the PDU is pre-manufactured trailer unit, the "dirty room" make be positioned as an outdoor gross decontamination area where primary outer PPE garments are vacuumed, removed and properly containerized to minimize potential contamination of the PDU itself. For this gross decontamination area, a section of secured polyethylene sheeting shall be provided and placed in the area where site personnel working

the asbestos regulated area remove and containerize spent PPE, but must meet the requirements of 29CFR 1926.1101 for such station. The second chamber shall consist of a respirator cleaning station, hand wash and shower unit(s). The shower unit(s) will be provided as required by regulation or as an implementation of a BMP for anticipated operations. Where required, showers shall have hot and cold running water and a 5.0-micron water filtration unit inline to the PDU shower effluent streams and be provided in accordance with 29 CFR 1910.141(d)(3). Filtered wash water will be containerized, sampled for characterization and disposed in accordance with procedures provided in the Work Plan. The third and final chamber shall be clean room area, where personnel can dry off and dress into clean street clothes.

Personnel directly handling ACM impacted material will be required to follow the 3-stage decontamination procedure. Personnel within the work area who are not involved in handling or disturbing ACM will be required to wear full disposable coveralls which will be removed and discarded in properly labeled waste containers upon leaving the work area. Equipment operators will be required to wear full disposable coveralls and exit equipment and work area in a manner that avoids contact with visible ACM, but may choose to utilize the shower station. Figure 3-1 approximates the anticipated layout as an implemented BMP for worker decontamination.



The individual decontamination sequences for personnel (or equipment) shall be in accordance with this section and that also identified in Section 9.33 of this APP. Decontamination area entry and exit procedures shall be established that minimize or eliminate cross-contamination of street clothing and adjacent areas.

9.11.11 Engineering Controls

The method for controlling the release of asbestos fibers to the environment / workers will be identified in the abatement contractors Abatement Plan. Below are general guidelines implemented on the project.

The primary method to minimize ACM releases or exposure is to keep all ACM in a wet state whenever handling and loading of the material is being conducted. This requirement will be facilitated by the fact that the soil surrounding the material is primarily in a moist state. The following procedures shall be implemented during removal and handling processes.

- Pre-wetting of the debris will take place prior to any disturbance of dry contaminated soil
- Wetting of excavated material during excavation, handling, and loading of the ACM for transportation and disposal, as necessary
- Suspension of surface disturbance work when wind speeds are high enough to generate visible dust from the surrounding area or when visible dust crosses the site boundary (asbestos regulated area)

9.11.12 Administrative Controls

The only anticipated administrative controls that may be associated with this work will be any required work break regiments necessary to minimize the potential for heat stress related illnesses for workers wearing full Level C PPE. Heat stress monitoring and proper work break regiments shall be in accordance with Section 9.14 of this APP. However, it is anticipated that work will be performed during periods where there are typically low ambient temperatures and work heat stress monitoring will not like be necessary.

9.11.13 Air Monitoring

9.11.13.1 Personal

Personal air sampling for any AGVIQ-CH2M HILL workers performing work in the asbestos regulated area shall be in accordance with OSHA 29 CFR 1926.1101. At this time AGVIQ-CH2M HILL anticipates that exposure monitoring for AGVIQ-CH2M HILL personnel working in the regulated asbestos area will be performed by a licensed/qualified project asbestos monitor as a subcontracted entity. For AGVIQ-CH2M HILL personnel involved in the removal of ACM, performed in a manner that complies with 29 CFR 1926.1101(f). For the purpose of the implementation of this APP, this shall mean it will be conducted for the first 7 days of operation for each worker category involved in each site process until air monitoring results reveal that employee exposures to asbestos, as indicated by statistically reliable measurements, are BELOW the permissible exposure limit of 0.1 ff/cc (TWA) and the excursion limit of 1 ff/cc (30 minutes). In this instance personal asbestos sampling for each worker category involved in each site process may be reduced to once weekly thereafter so long as additional results are < 0.1 f/cc and conditions, processes and work practices do not change.

Any laboratory selected for analyzing air samples shall possess current certification verifying their participation in the National Institute of Standards and Technology (NIST), National Voluntary Laboratory Accreditation Program (NVLAP) and the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) program. The laboratory shall also have demonstrated ability in analyzing clearance air samples using Phase Contract

Microscopy (PCM) and transmission electron microscopy (TEM). All analysts for the laboratory shall have successfully completed the National Institute for Occupational Safety and Health (NIOSH) 582 course (or equivalent) and show proficiency in the NIOSH 7400 analytical method for fiber counting as published in the NIOSH Manual of Analytical Methods.

At this time, AGVIQ-CH2M HILL anticipates that we will use our own licensed and trained asbestos worker, supervisor, and competent person personnel for all loading and the packaging of excavated soil and debris containing ACM. Regardless of any established asbestos personal sampling results generated for similar previous work, subcontracted monitoring personnel shall perform personal asbestos exposure monitoring for work at the site in accordance with initial negative exposure requirements established by OSHA 29 CFR 1926.1101(f)(2), in a manner that determines employee exposures to asbestos, by statistically reliable measurements, and verifies employee exposure as relative to the permissible exposure limit of 0.1 ff/cc (TWA) and the excursion limit of 1 ff/cc (30 minutes), as applicable.

Employee personal exposure monitoring is further discussed in Section 9.33 of this APP.

As always, additional asbestos personal exposure monitoring shall be performed whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit.

9.11.13.2 Environmental

There will be no environmental sampling performed for this work other than that necessary to properly characterize the waste to verify disposal status and approval. It is understood that environmental monitoring, other than perimeter air monitoring, outside asbestos regulated area shall not be required to demonstrate the absence of asbestos fiber migration outside the regulated area.

9.11.13.3 Clearance

Asbestos clearance samples will not be required for this work as it will be completed in an outdoor, well ventilated environment. Once the transite is removed the excavated area will then pose no significant exposure threat to workers.

9.11.14 Employee Exposure Assessment Procedures and Documentation

Initial exposure monitoring is conducted to document employees' breathing-zone exposures over the course of a full shift. A representative 8-hour TWA and/or 30-minute excursion limit samples, as applicable, shall be collected for each job classification in each work area before or at the beginning of fieldwork.

The assessment shall be used to confirm the appropriate controls are in place to reduce exposures below the established OSHA PEL and the Excursion Limit (EL).

Due to the short duration of the ACM work, negative exposure assessments based on previously obtained data will not be used for this project.

During the ACM work air monitoring shall be conducted that represents employee exposure in accordance with 29 CFR 1926.1101(f). Air samples shall be collected for comparison against both the PEL and the EL (as applicable).

Employees shall be informed in writing of exposure monitoring results within 5 working days after receipt of the results. In cases when the PEL has been exceeded, the notification to the affected employee shall include the control measures utilized to reduce the exposure to below the PEL.

9.11.15 Initial Exposure Determination

The material has not been completely characterized as of yet and will be identified in the abatement contractors Abatement Plan. Because of this recognized potential, even though the definition of friability is not necessarily prevalent in its current condition, the potential for exposure to asbestos fibers to become air borne and an occupational exposure may exist.

The OSHA standards require that worker exposure to asbestos be limited to 1 fibers/cubic cc for and eight (8) hour period and 1 f/cc, 30 min excursion.

9.11.16 Worker Exposure Monitoring – Asbestos

The greatest hazard of exposure to asbestos is from inhalation of asbestos fibers that become readily dispersed into air (airborne) upon disturbance. To protect workers against potential against inhalation or dermal exposure to asbestos, personnel will wear Level C protection while excavating, handling, or loading of ACM from the site.

Representative 8-hour time weighted average (TWA) employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Personal air samples will be collected and analyzed for fibrous glass to confirm that level C protection was appropriate and that applied engineering controls are appropriate. When performing worker exposure monitoring to airborne asbestos fibers, it will be determined via the following methodology.

Unless a negative exposure assessment has been made pursuant to paragraph 29 CFR 1926.1101(f)(2)(iii) an initial exposure assessment must be provided. Because AGVIQ, LLC and CH2M HILL, Inc. have not monitored a prior asbestos job for the PEL and the excursion limit within the last 12 months for work operations conducted under workplace conditions "closely resembling", type of material, control methods, work practices, and environmental conditions used anticipated for this project, an initial worker exposure assessment must be conducted.

The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

The AGVIQ-CH2M HILL shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless a negative exposure assessment for the entire operation pursuant to 29 CFR 1926.1101(f)(2)(iii) has been made.

9.11.17 Assumptions

One four to six person site work crew may be utilized to execute the anticipated site work for a period of approximately 10 hours per day, but use of Level C PPE, with proper work-break regiments, lunch periods and daily work set-up time is not expected to exceed 8 hours per day.

For assumption purposes, the greatest exposure to a site worker would be as an ACM handling worker positioned within the limits of the regulated area performing removal operations or during the subsequent packaging of ACM for transportation and disposal. However, because AGVIQ-CH2M HILL does not anticipate that our employees will be performing this function, heavy equipment operators working in the asbestos regulated area will be monitored. Exposures to heavy equipment operators who operate the equipment with the doors or windows to the equipment cab open or where completely open cab chassis piece of heavy equipment is required could occur. For this reason, **managers and supervisors should procure closed cab heavy equipment with air conditioning systems, to eliminate/minimize this exposure vector** and the site supervisor and/or SSHO shall ensure that heavy equipment operators keep heavy equipment cab doors closed during operation. In the event AGVIQ-CH2M HILL ground person (i.e., laborers and supervisors) are also required to perform in the asbestos regulated area, then these personnel shall also be monitored in the same manner described for heavy equipment operators.

9.11.18 Initial Monitoring Assessment

The specifics of the initial monitoring assessment will be identified in the abatement contractors Abatement Plan. In general, one to three personnel will be fitted with a personal air sampling pump device affixed with a conductive filter holder consisting of a 25-mm diameter, 3-piece cassette having a 50-mm long electrically conductive extension cowl backup pad, 25-mm, cellulose and a membrane filter, mixed-cellulose ester (MCE), 25-mm, 0.4 to 1.2-um pore size. The workers designated to wear the sampling device(s) will selected based on the potential to be at greatest risk to exposure from asbestos based on assigned function.

Personal sampling pumps shall be battery powered and capable of being attached to the worker without impeding worker. Personnel sampling pumps shall be set for a flow rate of Sampling is done at 0.5 to 1.0 L/ min with the sampling flow rate, Q (L/ min), and time, t (min), adjusted to produce a fiber density, E , of 100 to 1,300 fibers/mm² for optimum accuracy. Sampling shall be calibrated by the pump supplier and subsequently by the pump operator, prior to arriving at the project location and before and after sampling events, as may be required. Information regarding pump flow calibration procedures shall be provided with the personal sample pump for use by a designated field team member (i.e., SSHO). Personal sampling pumps shall be affixed with an applicable sample collection cartridge capable of collecting ambient air samples for a period of at least seven continuous hours. The personal sampling pump shall be turned on at the point where scheduled work activities could agitate potential ACM bearing material that would become airborne into the worker breathing zone.

Personal air samples shall be collected for a full shift period at a frequency of one sample for each shift. The full shift personal samples shall be representative of the monitored employee(s) regular, daily exposure to asbestos. Retrieved samples shall be collected at the

end of the monitored work shift. The individual pump flow rate, monitoring period (total flow period), and employee name shall be affixed to the sample cartridge. The sample cartridge shall be secured to ensure that sample loss and additional air intake does not occur. A sample number shall be identified on the sample cartridge if required by the receiving laboratory.

A laboratory chain of custody shall be completed with applicable information. The samples shall be placed in a sealed container and forward to an accredited laboratory that is capable and qualified to analyze the samples using the NIOSH 7400 method, via "A" counting rules. It is anticipated that reporting results will have a minimum detection limit of 1 f/cc. Much lower detection limits will be requested where available. It should be noted that whenever a set of collected samples are shipped to the designated laboratory for analysis, one blank sample cassette must be transported and analyzed with the spent filters as a required laboratory quality control measure.

A written record to include the following information: record shall identify date of determination, location of worksite, name and social security number of employee monitored, results and other applicable relevant considerations.

9.11.19 Continued Exposure Monitoring – Asbestos

If the periodic monitoring required by 29 CFR 1926.1101 (f)(3) reveals that employee exposures, as indicated by statistically reliable measurements, are below the permissible exposure limit and excursion limit, exposure monitoring may discontinue monitoring for those employees whose exposures are represented by such monitoring. However, additional exposure monitoring will be required whenever

1. There has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit.
2. The employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit.

Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

9.11.20 Perimeter Air Monitoring

At this time AGVIQ-CH2M HILL anticipates that asbestos perimeter air monitoring for the project site at or adjacent to the limits of the site asbestos regulated area will be performed by a licensed/qualified project asbestos monitor as a subcontracted entity. The anticipated locations of perimeter area monitoring as well as the duration and number of such samples shall be determined by the licensed/qualified project asbestos monitor.

9.11.21 Personal Protective Equipment

While performing the abatement, handling, and loading of ACM personnel will be required to wear a respirator. Air-purifying respirators equipped with a high-efficiency particulate air (HEPA) filter will be used where airborne asbestos fiber concentrations do not exceed 1.0 f/cc; otherwise, more protective respirators such as full face piece powered air purifying respirators (PAPR) or air-supplied, positive-pressure, full face piece respirators must be

used. **Disposable respirators or dust masks are not permitted to be used for asbestos work.** Each employee who wears a respirator must be fit tested and medically evaluated in accordance with the requirements of 29CFR 1910.134 and in accordance with the employers respiratory protection program as stated in Section 9.6.

Employees shall be provided, at no cost, protective work clothing and equipment including coveralls or similar full-body clothing, gloves, head coverings, and foot coverings when exposures exceed the PEL or excursion limit.

PPE shall be inspected periodically during the work shift for rips or tears. Damage shall be repaired immediately or the work clothing shall be immediately replaced. Respirators shall be inspected prior to each use for proper functionality.

All chemically protective suits and inner gloves shall be disposable in nature. Outer chemically protective gloves or boots may be reusable so long as the integrity of decontamination procedures is maintained. Respirators shall be reusable but P100 HEPA respirator cartridges shall be disposed of at the end of each regular work shift (8 hours). The PPE required to be utilized for this work is detailed in Table 9-1 of this HSP.

9.11.22 Housekeeping Procedures to Prevention Spread of Contamination

The following housekeeping procedures must be employed to ensure that the potential for cross contamination of areas that are not impacted by asbestos do not occur.

- Personnel shall not remove fibers or ACM debris from PPE fibers by blowing or shaking clothing.
- Employees shall not leave the workplace wearing protective clothing or equipment that is worn during the work shift.
- PPE shall be disposable to the extent feasibly possible. Spent PPE shall be immediately containerized when removed.
- Wheels from onsite or off site haul trucks shall not be driven into excavation areas during loading activities.
- Compressed air shall not be used to remove asbestos, or materials containing asbestos, from any surface unless used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.
- Care shall be used by heavy equipment operators to ensure proper loading of haul trucks such that material loaded is not spilling on the ground, side of the truck body or wheels. If this situation, spilled material shall cleaned up and containerized immediately.
- Excavated ACM shall be covered, and covers shall be secured when material is not being added to from excavation operations or loaded from during transportation and disposal operations.
- Personnel working in the asbestos regulated area handling ACM shall shower prior to leaving the work area.

9.11.23 Description of Work Practices to be Observed

It is imperative that any person working in a regulated asbestos area NOT BE ALLOWED to eat, drink, smoke, or chew tobacco or gum.

Engineering and work practice controls, including administrative controls where applicable, in combination with the proper use of personal protective equipment shall be implemented to reduce and maintain employee exposure to asbestos below the PEL or EL to the extent that such controls are feasible. Use only HEPA-filtered vacuums to collect debris and dust that might have ACM and PACM, where applicable, such as during the cleaning of the PDU or other similar work areas (i.e. heavy equipment cabs) during the vacuuming of spent PPE prior to removal. Dry sweeping, shoveling, use of compressed air or other dry cleanup procedures for the removal and containerization of dust and debris containing ACM and Potential Asbestos Containing Material (PACM) shall not be used.

Use wet methods (application of water) to control employee exposures to and offsite migration of ACM during the excavation, stockpiling or loading of soil that contains or may contain ACM, except where it can be demonstrated that wet methods would create other hazards (e.g., electrical hazards). Prohibit employees from smoking in work areas where they may be exposed to asbestos.

Employee rotation to reduce employee exposure to asbestos can be considered but not implemented as the primary means for controlling worker exposure. Where all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to or below the PEL or EL, such controls shall be used nonetheless to reduce employee exposure to the lowest feasible level and in conjunction with higher levels of applicable respiratory protection.

9.11.24 Personnel Hygiene Procedures

Site personnel within the established asbestos regulated area shall utilize Personal Protective Equipment (PPE) in accordance with the requirements of Sections 9.7.14 and 9.33 of this APP.

Worker hygiene and decontamination requirements shall be in accordance with Sections 9.7.10.2 and 9.33.10, "Decontamination" of this APP. Workers shall be fully decontaminated prior to leaving designated asbestos regulated area and prior to entering the designated "support zone". Only disposable worker protective clothing will be utilized. Where the use of onsite showers are required or implemented as a BMP, workers will be advised to shower immediately after the end of the scheduled work shifts.

Hand washing facilities and a respirator cleaning station shall be provided as part of the PDU. Any utilized respiratory protection equipment shall be fully cleaned, decontaminated and stored in accordance with the respiratory protection program that is applicable to the employee. Respiratory protection devices may also require intermediate decontamination prior to resuming work after scheduled breaks.

Prior the end of a scheduled work shift, all generated PPE potentially impacted by asbestos shall be removed and containerized to minimize the potential for the spread of contamination.

All hand tools used in the daily events will be decontaminated/containerized and stored to promote good housekeeping practices.

9.11.25 Local Exhaust Ventilation Systems to be Used and Tested

The use and testing of local exhaust ventilations systems in association with the execution of this work will be identified in the abatement contractors Abatement Plan.

9.11.26 Competent Person and Employee Training Required

Oversight and Supervision of the management and disposal of ACM shall be performed by an asbestos Competent Person, as defined by OSHA 29 CFR 1926.1101 which is as follows:

“In addition to the definition in 29 CFR 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2)”.

At this time, AGVIQ-CH2M HILL anticipates that a licensed and qualified asbestos supervisor will be contracted to support the abatement, loading and packaging of ACM generated at the site and scheduled for offsite disposal. The licensed asbestos supervisor shall act as the asbestos competent person for this project in connection with this function.

9.11.27 Medical Surveillance

For asbestos related work, the employer is required to inform an employee of the information contained in the applicable OSHA asbestos standard(s)/regulations and appendices for asbestos. In addition, employers must instruct employees in the proper work practices for handling asbestos-containing materials, and the correct use of protective equipment.

An employer is required to determine whether you are being exposed to asbestos. An employer must treat exposure to thermal system insulation and sprayed-on and troweled-on surfacing material as asbestos exposure, unless results of laboratory analysis show that the material does not contain asbestos. Employees have the right to observe employee measurements and to record the results obtained. The employer is required to inform employees of their exposure, and, if you are exposed above the permissible exposure limit, they are required to inform employees of the actions that are being taken to reduce your exposure to within the permissible limit.

A medical surveillance program is for employees who, for a combined total of 30 days or more per year, are engaged in Class I, II, or III work or are exposed at or above a PEL.

An employer is required to keep records of your exposures and medical examinations. These exposure records must be kept for at least thirty (30) years. Medical records must be kept for the period of your employment plus thirty (30) years the employer is required to release your exposure and medical records to your physician or designated representative upon your written request.

Medical surveillance program for asbestos and shall be performed in accordance with 29 CFR 1910.1001 and/or 29 CFR 1926.1101. However, because of the nature of other contaminants at the site, the medical surveillance requirements of 29 CFR 1910.120(f)/ 29 CFR 1910.65(f) and 29 CFR 1910.134(e) must also be met.

9.11.28 Waste Generation, Containerization, Transportation, and Disposal

All asbestos-containing waste material shall be disposed of as soon as practicable at an approved asbestos waste landfill. The disposal facility must be permitted to receive ACM. Facility status will be reviewed by the AGVIQ-CH2M HILL Responsible Environmental Manager (REM) and NAVFAC, as applicable.

Although asbestos is not a RCRA hazardous waste, friable ACM is regulated as a Class 9 hazardous material under U.S. Department of Transportation (DOT) regulations (49 CFR 171). Personnel responsible for the oversight of transporting asbestos, including packaging, labeling, handling, must complete the "Dangerous Goods" training in accordance with 49 CFR 172.704 "Dangerous Goods" training.

ACM material must remain wetted and sealed in leak-tight bags, container with liner systems. The outside of the containers must not be contaminated with asbestos debris adhering to the container. All containers must be loaded into the transport vehicle carefully to prevent rupture of the liner in the primary container.

9.11.29 Description of the Method to be Used to Transport Waste Material

All debris originating or generated on this site shall be placed into properly lined containers and stockpiled in designated stockpile areas. Transport of the material for offsite disposal will be accomplished using over the road transport trucks. Each transport container will be double lined with 6-mil polyethylene sheeting. Upon completion of filling each container, the plastic liner will be placed across the top and secured for transport to the receiving facility.

ACM is to be disposed of only in a permitted landfill or other facility authorized by the USEPA and the respective state, for the acceptance of ACM. Every load shall be manifested as required under department of transportation (DOT) rules, state of Maine regulations and, the Base requirements. The receiving landfill facility shall be approved by AGVIQ-CH2M HILL and the base. The manifest shall be signed by an authorized agent for the Navy. A copy shall be left onsite with AGVIQ-CH2M HILL to track the waste being disposed of.

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

It is anticipated that site personnel will have to wear Level D Modified or C PPE during the execution of their assigned tasks on this TO. Because the work may be performed during periods where high ambient air temperatures will persist, workers should be aware of

necessary procedures to prevent heat related disorders, be cognizant of the signs and systems that indicate heat related disorders are occurring and know when first aid or medical treatment may be required to treat heat related disorders. The following information is provided as procedural information to monitor and prevent heat related injuries to site workers, while performing assigned tasks.

- 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.

For employees in permeable work clothing, 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 <u>get medical attention immediately!</u> Provide <u>sips</u> 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

(Reserved)

It is not anticipated that the work will be performed during periods where excessively low ambient temperatures (i.e. < 40°F) will persist where workers could be exposed to extreme cold or be required to work in cold environments where there may be a risk of cold stress injuries.

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

(Reserved)

At this time, it is that no work executed under this TO will be performed at night. If work is to be performed at night, a night operations lighting plan shall be developed to ensure that all activities.

9.17 Fire Prevention Plan

Fire prevention shall be conducted in accordance with the information identified in Section 9.7 of the APP, Health and Safety Hazard Control Program - Fire Prevention.

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

The only identified site conditions or anticipated site operations where the accidental release of stored energy that could cause injury to employees is the termination of site utilities. This task will be performed in a de-energized state, therefore the requirements to develop a hazardous energy control (HEC) program to address the control of hazardous energy sources as applicable to the requirements 29 CFR 1910.147, 29 CFR 1926, Subpart K or EM 385 1-1, section 12 is not applicable to the execution of this TO.

9.20 Critical Lift Plan

(Reserved)

No cranes will be utilized during the execution of this TO.

9.21 Contingency for Severe Weather Plan

See Section 9.7 Health and Safety Hazard Control Program - "Adverse Weather". Although severe weather conditions can be experienced in coastal Maine, Hurricanes and similar severe tropical storm events are generally not experienced in the area the TO is being executed in and therefore a Hurricane Preparedness Plan (HPP) will not be prepared as part of this work.

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

(Reference SOP # HSE&Q 305, Demolition)

As part of the execution of the TO, Buildings 642/643 must be demolished and properly disposed of or recycled. Before demolition of these structures may occur, an environmental survey must be conducted to identify any suspect Asbestos and Universal Wastes which must be abated or otherwise removed before the structures can be razed. All generated demolition material must be characterized prior to offsite transportation to satisfy generator and end receiver requirements. The GDA and the Contractor's designated authority shall be provided written evidence that the required surveys have been performed and shall be provided a copy of the demolition plan.

Specific means and methods, type and quantity of mechanical equipment that will be used and standard safety precautions associated with the demolition shall be

identified in the project Demolition Work Plan. The following are general means and methods, specific Means and Methods will be addressed in the Demolition Work Plan.

The information contained below is intended to provide a general understanding of typical demolition work practices applicable to anticipated site operations at NAS Brunswick. These practices must be implemented by AGVIQ-CH2M HILL personnel (or AGVIQ-CH2M HILL controlled subcontractors) who are exposed to the hazards of demolition operations, regardless of the company responsible for the operation.

9.24.1 Planning

Some local or state governments may require a demolition permit prior to beginning demolition operations. The applicability of securing demolition permits in relation to the execution of this project shall be evaluated by the project team.

Where securing a demolition permit is applicable, generally, in order to secure such permits or approvals to demolish structures, a complete building survey shall be completed prior to start of demolition operations. Typically, building surveys shall determine the following:

- Condition of the structure
- Confirmation of whether regulated materials such as ACM, mercury switches, PCB ballasts lead paint, or other regulated hazardous substances are present in or on the structure
- If hazardous materials are contained in tanks, pipes, and equipment associated with the structure to be demolished
- Evaluate the possibility of unplanned collapse of any portion of the structure
- Any adjacent structure where personnel may be exposed or impacted by proposed demolition operations shall also be similarly evaluated

The survey shall be conducted by a qualified person and a written record of the survey findings shall be maintained at the project site. An engineer's structural survey shall be required when where the integrity of the structure to be razed could be in jeopardy of damaging property, utilities or cause bodily harm to workers or the general public.

If regulated materials are identified to be in or on or in the structure to be razed, that could affect the overall disposal status of generated construction and demolition (C&D) waste, such materials shall be removed prior to demolition. All applicable regulations shall be followed including notification of proper authorities, waste generator and end disposal activities.

All tanks, pipes, and equipment shall be purged of hazardous wastes and materials prior to demolition. Appropriate control measures necessary to prevent injury or exposure to harmful substances or accidental release of such materials to the environment shall be established.

All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled outside the building line before demolition work is started. Any utility company involved shall be notified in advance. If it is necessary to maintain any power, water, or other utilities during demolition, such lines shall be temporarily relocated, as

necessary, and protected. Detection equipment shall be provided to verify that electrical lines are de-energized. The Contractor shall provide the GDA and the Contractor's designated authority with an engineering drawing (e.g., site plans, utility plans) that indicates the location of all service lines and the means for their control.

- The following pre-planning conditions shall be evaluated as to the applicability to expected site demolition operations and implemented as necessary.
- Air monitoring instruments shall be provided if the potential for a hazardous atmosphere exists within the demolition location.
- High-visibility warning vests shall be worn when personnel are exposed to public vehicular traffic or when working in close proximity to heavy equipment.
- Fall protection shall be provided when personnel are exposed to a fall of 6 feet or greater. Lockout/tagout devices may be required for demolition that includes potentially energized systems.
- Adequate supplies of first aid materials and sanitary facilities shall be available at the work site.

9.24.2 Demolition Zone Procedures

- **Review and implement all applicable components of CH2M HILL SOP # HSE&Q-305 Demolition.**
- Remain a safe distance from the demolition zone to reduce exposure to fragmentation of glass, steel, masonry, and other debris during demolition operations.
- Do not enter the demolition zone unless completely necessary and only after the designated competent person has assessed the condition of the structure/ongoing demolition operations and has authorized entry.
- Follow all requirements established by the competent person. The competent person shall inform personnel of the areas that are safe to enter and the areas where entry is prohibited. Where the competent person authorizes access of demolition zone by non-essential personnel, these personnel must be escorted by the competent person.
- All demolition activities that may affect the integrity of the structure or safety of personnel must cease until personnel have exited the demolition zone.
- Stay as clear as possible of all hoisting operations. Loads shall not be hoisted overhead of personnel.
- Personnel shall wear the appropriate PPE. Minimum protection includes hard toed, sturdy work boots that provide sufficient ankle support, hard hats, safety glasses, cut resistant work gloves, high visibility clothing/reflective vests, hearing protection and face protection, as necessary. Safety shoe inserts that protect against punctures should be worn when demolition involves wood frame structures. Hearing protection may be needed when working in proximity to heavy equipment.

9.24.3 General Requirements

- Daily safety briefing/ meetings and a task specific AHA shall be conducted with all site demolition personnel to discuss the work planned for the day and the HS&E requirements to be followed. The requirements of the Behavior Based Loss Prevention Program (BBLPS) shall be implemented.
- Demolition equipment shall be inspected each day, before use, to ensure safe operational condition.
- The competent person shall inspect the demolition area as work progresses to detect hazards resulting from weakened or deteriorated floors, walls or loosened material. Personnel shall not be permitted to work in areas where such hazards exist until they are corrected by shoring, bracing, or other effective means.
- The competent person shall control entry into the demolition zone. Unauthorized entry shall be prohibited.
- Tanks, containers, piping or ducts that held or is contaminated with hazardous substances should be characterized, marked accordingly with non-toxic paint or markers (e.g., color coding), cleaned and removed prior to demolition. Waste streams must be properly segregated and managed. The following SOPs may be applicable to these tasks and should be referred during pre-demolition planning process stages.
 - CH2M HILL SOP # HSE&Q-413, Waste Management Planning
 - CH2M HILL SOP # HSE&Q-408, Waste Characterization, Sampling, and Analysis
 - CH2M HILL SOP # HSE&Q-409, Hazardous Waste Management
 - CH2M HILL SOP # HSE&Q-411, Non-Hazardous Waste Management
- Demolition of the structures shall begin at the top and proceed downward. Each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing removal of the story below.
- If there is a fire suppression system associated with the structures, it shall first be removed from the canopy prior to demolition.
- An appropriate number (based on lateral extent of the work area) and type of fire extinguishers shall be available for use at the demolition area. See Fire Prevention details provided in the APP for minimum requirements.
- Proper control measures shall be in place before cutting on surfaces covered by coatings containing flammable or hazardous materials such as lead, cadmium, zinc, etc. Highly flammable or toxic coatings may require stripping of the coating a sufficient distance from the area to be heated.

9.24.4 Protection of the Public

- Appropriate warning and instructional safety signs shall be conspicuously posted where necessary. In addition, a signalman shall control the movement of motorized equipment in areas where the public might be endangered.

- A temporary fence shall be provided around the perimeter of the demolition zone adjacent to public areas. Perimeter fences, where necessary, shall be at least 6 feet high. When a fence is adjacent to a sidewalk near a street intersection, at least the upper section of fence shall be open wire mesh from a point not over 4 feet above the sidewalk and extending at least 25 feet in both directions from the corner of the fence or as otherwise required by local authorities.
- Barricades, where required, shall be secured against accidental displacement and shall be maintained in place except where temporary removal is necessary to perform the work. During the period a barricade is temporarily removed for the purpose of work, a watch shall be placed at all openings.
- Fugitive dust must be controlled during demolition by using water sprays or other methods, as necessary to eliminate offsite migration of particulate.

9.24.5 Work Area Protection

- Where a hazard of falling through wall openings exists, the openings shall be protected by a standard guardrail 42 inches in height.
- Warning signs, barricades, and flagging shall be used to warn personnel of potential or hidden hazards or advise of intermittent activities that might endanger their safety. These devices are not to be used in lieu of more effective protection.
- Glass should be removed from the structure prior to demolition. If glass is not removed, personnel shall be protected from flying glass fragments by being under cover, remaining a safe distance away, or similar protective action.

9.24.6 Wall Removal

Specific means and methods for wall removal and standard safety precautions associated with the wall removal shall be identified in the project Demolition Work Plan.

9.24.7 Floor Removal

Specific means and methods for floor removal and standard safety precautions associated with the floor removal shall be identified in the project Demolition Work Plan.

9.24.8 Steel Removal

Specific means and methods for steel removal and standard safety precautions associated with the steel removal shall be identified in the project Demolition Work Plan.

9.24.9 Mechanical Demolition

9.24.9.1 Demolition Using Heavy Equipment

- Personnel shall not be permitted in any area that can be adversely affected by the operation of mechanical equipment or cranes.
- Refer to the Heavy Equipment and Demolition sections contained in this APP for standard requirements for the operation of Heavy Equipment at AGVIQ-CH2M HILL project sites.

- Ensure that appropriate material handling/process equipment attachments are selected for demolition operations (hydraulic hammers, grapplers/claws, shears, pulverizers etc.). Do not select equipment which is not appropriate for the task.

9.24.10 Debris Removal

9.24.10.1 Material Chutes

(Reserved)

9.24.11 Debris Storage and Disposal

Debris contaminated with hazardous substances shall be segregated and managed in accordance with Federal, State and local laws governing the same. Most demolition debris can be transported and disposed at any construction and demolition (C&D) landfill or any municipal solid waste landfill that is permitted to accept C&D debris. C&D debris should be reduced whenever possible. Clean C&D debris, such as broken concrete (without protruding metal bars), metal, asphalt pavement may potentially be reused, but is dependent upon state or local regulations. Additionally, there are a number of C&D debris recyclers that will accept wood, aluminum and other metals, asphalt, concrete, and corrugated cardboard. If debris is known to contain hazardous substances, follow refer to CH2M HILL HSE&Q SOP # 409 (Hazardous Waste Management) to verify appropriate waste management procedures.

Storage space into which material is dumped should be blocked off, except for openings necessary for the removal of material. Such openings shall be kept closed at all times when material is not being removed.

9.24.12 Demolition Housekeeping

- During the course of demolition, work areas, passageways, stairs, ladders, and exits shall be kept free of demolition debris.
- Demolition materials, tools, and equipment shall be placed in an orderly manner.
- Receptacles should be placed at appropriate locations for the disposal of miscellaneous trash.
- Air and water lines, electrical cords and cutting leads/hoses shall be positioned to eliminate tripping hazards.

Burning of debris shall not be conducted on AGVIQ-CH2M HILL projects.

9.25 Excavation/Trenching Plan

(Reserved)

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, Section 27 Concrete, Masonry, Steel Erection, and Residential Construction are not applicable to this TO.

9.30 Precast Concrete Plan

(Reserved)

The requirements of EM 385 1-1, Section 27 Concrete, Masonry, Steel Erection, and Residential Construction are not applicable to this TO.

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, Section 27 Concrete, Masonry, Steel Erection, and Residential Construction are not applicable to this TO.

9.33 Site Safety and Health Plan of HRTW

9.33.1 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 heavy equipment or mechanized equipment.
- Demolition Hazards

- Exposure to media impacted by site COCs;

Control measures to mitigate such hazards are presented throughout this APP in Sections 4.0 through 10.0 of this APP and will not be further elaborated upon in this section.

9.33.2 Site Description and Contamination Characterization

A site description is provided in Section 2.0 “background Information” of this APP and will not be further elaborated upon in this section.

Summarized site contamination characterization data is provided by the list of maximum site COC concentrations identified below.

TABLE 9-33 CHEMICALS OF CONCERN

Constituents	Maximum Concentration	Exposure (PEL)	IDLH ppm	Symptoms and Effects of Exposure	PIP ^d (eV)
Asbestos	Vinyl Tile and insulation	0.1 f/cc (PEL)	ND, Ca	Asbestosis (chronic exposure): dyspnea (breathing difficulty), interstitial fibrosis, restricted pulmonary function, finger clubbing; irritation eyes; [potential occupational carcinogen]	NA
PCBs	Potential COC associated with transformer and light ballasts	0.5 mg/m ³	5 Ca	Eye and skin irritation, acne-form dermatitis, liver damage, reproductive effects	UK

Footnotes:

^a Specify sample-designation and media: SB (Soil Boring), A (Air), GW (Groundwater), S (Surface Soil)

^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).

ppb Denotes sample concentration is in Parts per Billion unless otherwise noted.

PEL = Denotes OSHA Permissible Exposure Limit unless otherwise identified.

Ca = Potential Occupational Carcinogen

ST = Short Term Exposure Limit or “excursion limit usually a 15 minute duration unless otherwise noted.

9.33.2.1 Radiological, or Nuclear Hazards and Controls

(Reference CH2M HILL Core Standard, Radiological Control and Radiological Controls Manual for additional requirements)

Hazards	Controls
None	NA

9.33.2.2 Potential Routes of COC Exposure

Dermal: Contact with contaminated media (soil or heavy equipment impacted by heavy metals or PAHs). This route of exposure is minimized through proper use of PPE, as specified in Table 9-1 of this APP.

Inhalation: Air Bourne particulates impacted by heavy metals or other particulates. This route of exposure is minimized through proper use of dust control during executed site operations and by monitoring particulate (dust) concentrations in the worker breathing zone in accordance with the requirements of Table 9-2 of this APP.

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.

9.33.3 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.

9.33.4 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.

9.33.5 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.

9.33.6 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.

9.33.7 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
<ul style="list-style-type: none"> Utility and Land Surveys Mobilization and Site Preparation <ul style="list-style-type: none"> Electrical/gas services disconnection Temporary facilities installation Decontamination pad installation Demolition and Removal Actions <ul style="list-style-type: none"> Installation of work zones including temporary fencing and signage Building inspection and material removal Building demolition, segregation, and transport/disposal Grout any floor openings Remove and dispose of lighting posts and perimeter security fence Demobilization 	D	<ul style="list-style-type: none"> Designated and appropriate work clothes Safety toe work boots that provide sufficient ankle support Work gloves (cut resistant) or liquid resistant for wet work environments Reflective traffic vest Rain gear for foul weather or wet work environments 	<ul style="list-style-type: none"> Hardhat ^c Safety glasses Hearing protection (as applicable) ^d 	<ul style="list-style-type: none"> None required
<ul style="list-style-type: none"> Demolition and Removal Actions <ul style="list-style-type: none"> Remove and dispose of approximately 550 linear feet of concertina razor wire 	D	<ul style="list-style-type: none"> Designated and appropriate work clothes Steel toe work boots that provide sufficient ankle support Kevlar work gloves (cut resistant) With Kevlar sleeves or cut resistant heavy duty leather welding gloves with sleeves Kevlar chain saw chaps 	<ul style="list-style-type: none"> Hardhat ^c Face Shield Safety glasses 	<ul style="list-style-type: none"> None required
<p>Any function identified in this APP where potential dermal contact with site COCs is IS limited to the hands only.</p> <ul style="list-style-type: none"> Demolition and Removal Actions <ul style="list-style-type: none"> Clean out (using a Vac Truck) and abandon in-place of the septic tank Waste Management Demobilization/Equipment Cleaning 	Modified D1	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Hardhat ^c Safety glasses Ear protection (as applicable) ^d Face shields (as applicable) 	None required.
<p>Any function identified in this APP where potential dermal contact with site COCs is NOT limited to the hands only.</p> <ul style="list-style-type: none"> Demolition and Removal Actions <ul style="list-style-type: none"> Clean out of the septic tank Demobilization/Equipment Decon 	Modified D2	<ul style="list-style-type: none"> Coveralls: Poly coated Tyvek® chemical resistant disposable coveralls. Boots: Safety toe work boots that provide sufficient ankle support (preferable leather); with outer rubber boot covers Gloves: Outer surgical-style nitrile chemical-resistant nitrile gloves. 	<ul style="list-style-type: none"> Hardhat ^c Safety glasses Ear protection ^d Face shields 	None required.
<p>Contact HSPA/CIH prior to implementing Level C PPE upgrade.</p> <ul style="list-style-type: none"> Demolition Engineering Survey Asbestos and Universal Waste Abatement Site conditions where defined Action Levels of Table 9-2 are exceeded, or where unknown site conditions are encountered and confirmed by AGVIQ-CH2M HILL program CIH that Level C PPE is required to ensure a negative exposure to site workers. 	C	<ul style="list-style-type: none"> Coveralls: Double Tyvek® Boots: Safety toe work boots that provide sufficient ankle support (preferable leather); with outer rubber boot covers Gloves: Double inner surgical-style nitrile and outer work gloves. 	<ul style="list-style-type: none"> Hardhat ^c Ear protection (as applicable) ^d Spectacle inserts (as applicable) 	MSA Advantage 1000 full face APR with P100 cartridges or equivalent
Reasons for Upgrading or Downgrading Level of Protection				
Upgrade^f		Downgrade		
<ul style="list-style-type: none"> Request from individual performing tasks. Change in work tasks that will increase contact or potential contact with hazardous materials. Occurrence or likely occurrence of gas or vapor emission. Known or suspected presence of dermal hazards. Instrument action levels exceeded (when implemented). 		<ul style="list-style-type: none"> 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 must be developed prior to upgrade in respiratory protection

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 HSPA/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 EQUIPMENT REQUIREMENTS

Instrument	Tasks	Action Levels ^a	Level of Protection/ Response Action	Frequency ^b	Calibration
MIE PDR 1000 or equivalent aerosol monitor (Total Dust)	<ul style="list-style-type: none"> Demolition and Removal Actions 	<p>0 – 1 mg/m³ (TWA) (in worker BZ)</p> <p>> 1 mg/m³ (TWA) (sustained 5 mins in worker BZ)</p>	<p>Level D, Modified D1, or D2 as identified by Table 9-1 for dermal protection. Continue work.</p> <p>Level D, Modified D1, or D2 as identified by Table 9-1 for dermal protection. Suspend operations, institute dust control measures (water application) until total TWA (dust) concentration remains below 0.3 mg/m³. If dust cannot be controlled to an acceptable condition (below 0.3 mg/m³), Lead Biological monitoring and Level C PPE will be required. Consult Program CIH, Project Manager and Client first before initiating the use of Level C PPE.</p>	Continuously during soil sampling activities	Daily
<p>Air Sampling – Asbestos (personal and perimeter)</p> <p>Airchek 52 air sample pump(s) (or equivalent) at a 1 L/min flow rate with a conductive filter holder consisting of a 25-mm diameter, 3-piece cassette having a 50-mm long electrically conductive extension cowl. Backup pad, 25-mm, cellulose. Membrane filter, mixed-cellulose ester (MCE), 25-mm, plain, white, 0.4 to 1.2-um pore size. Sample analyzed via approved NIOSH Method 7400 (8 hr TWA) for asbestos using “A” counting rules. Sufficient air sample “blanks” shall also be retrieved.</p>	<ul style="list-style-type: none"> Demolition Engineering Survey (personal sampling) Asbestos Abatement (personal and perimeter sampling) 	0.1 ff/cc (Asbestos)	Level C PPE. Use of Level D or Level D modified PPE is not applicable.	<ul style="list-style-type: none"> Personal air sampling: Shall be performed in a manner that complies with 29 CFR 1926.1101(f). For the purpose of the implementation of this HSP, this shall mean it will be conducted for the first seven (7) days of operation for each worker category involved in each site process until air monitoring results reveal that employee exposures to asbestos, as indicated by statistically reliable measurements, are BELOW the permissible exposure limit of 0.1 ff/cc (TWA) and the excursion limit of 1 ff/cc (30 minutes), at which time sampling for each worker category involved in each site process may be reduced to once weekly thereafter so long as additional results are < 0.1 f/cc and conditions, processes and work practices do not change. Personal air sampling: Shall be performed whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit. Perimeter Air Monitoring: Shall be performed daily at locations to be determined by the asbestos project monitor. 	Daily

^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 is acceptable; more frequently may be appropriate. Monitoring results shall be recorded in the Air Monitoring Log contained in **Attachment 3** of this APP and included in the final project record. Documentation shall include instrument and calibration information, time, measurement results, personnel/area 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).

9.33.7.1 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, below.

TABLE 9-3
Air Monitoring Equipment Calibration REQUIREMENTS

Instrument	Gas	Span	Reading	Method
Aerosol Monitor: MIE PDR 1000 or equivalent	Dust-free air	Not applicable	0.00 mg/m ³ in "Measure" mode	Dust-free area OR Z-bag with HEPA filter
Personal Sample Pump(s): Airchek 52 or equivalent (where applicable)	NA	Not applicable	2 L/min	Manual adjustment of pump using rotometer to required pump sampling flow rate L/min,

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.

9.33.8 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.

9.33.9 Standard Operating Safety Procedures, Engineering Controls, and Work Practices

9.33.9.1 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

9.33.9.2 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.

9.33.9.3 Material Handling Procedures

Hazard Control Measures for sampling operations are included in Section 9.7 "Health and Safety Hazard Control Program" and will not be further elaborated upon in this section.

9.33.9.4 Drum, Container, Tank Handling

(Reserved)

There will be no significant drum, container or tank handling during the execution of this TO.

9.33.9.5 Comprehensive AHA of Treatment Technologies

(Reserved)

No treatment technologies will be executed during this TO.

9.33.9.6 Site Control Measures - General

Access to the site will be limited to only those authorized personnel designated to work at the site. Site workers and visitors shall sign-in and sign-out as they enter and exit the site work boundaries (see **Attachment 3 of APP**). In addition to the site controls listed in the Demolition Plan and Asbestos Abatement Plan, there will be signage at the site entrance/active work areas to notify visitors to sign-in and PPE requirements so that access to these areas by unauthorized personnel can be adequately controlled. In addition to these procedures, the following measures shall be implemented as general site control processes.

- Project managers and team leaders are to:
 - 1) Evaluate and ensure worker safety in remote/secluded work areas,
 - 2) Confirm if potentially dangerous activities (i.e. coincidence of hunting seasons, live ordinance use, military field exercises/activities, transfer of dangerous or explosive cargo/materials, location of explosive arc zones etc.) could be occurring in or adjacent to any AGVIQ-CH2M HILL work areas that may jeopardize worker health and safety and
 - 3) Reschedule field activities when potentially dangerous activities are not occurring adjacent to AGVIQ-CH2M HILL work locations. Ensure proper two communications with workers in remote work areas. Utilize buddy system.
- Evaluate and ensure worker safety in remote/secluded work areas.
- Confirm if potentially dangerous activities (such as hunting seasons, live ordinance use, military field exercises/activities, transfer of dangerous or explosive cargo/materials, location of explosive arc zones) could be occurring in or adjacent to any AGVIQ-CH2M HILL work areas that may jeopardize worker health and safety.
- Reschedule field activities when potentially dangerous activities are occurring adjacent to AGVIQ-CH2M HILL work locations. Ensure proper two-way communications with workers in remote work areas.
- **Establish and maintain the "Buddy System."**
- **Designate an emergency evacuation route (see Figure 9-1 of this APP).**
- **Designate an evacuation assembly area.**

- Topics for briefing on site safety: Review the site Accident Prevention, site-specific hazards, locations of work zones, site contaminants, PPE and air requirements, equipment, special procedures, emergencies.
- The SSHO records safety briefing attendance in a logbook and documents the topics discussed.
- Ensure that applicable AGVIQ-CH2M HILL personnel have received the BBLPS Training.
- Be aware of any potential for hazardous chemical exposure and know what precautions/training are required.
- Establish support, decontamination, and exclusion zones. Delineate with flags or cones as appropriate. Support zone should be upwind of the site. Use access control at entry and exit from each work zone.
- Know how an emergency should be reported.
- Identify exact facility location and position (where possible) when contacting EMS/Fire Dispatch.
- Have readily available copy of the Hospital Route Map.
- Establish onsite communication consisting of the following:
 - Line-of-sight and hand signals
 - Air horn
 - Two-way radio or cellular telephone if available
- Establish offsite communication.
- Know how, what, when injuries/accidents are reported and treated.

The site supervisor, SSHO or other authorized designee is to conduct periodic inspections of work practices and site conditions to determine the effectiveness of this plan. Such inspections should identify site conditions or actions that are not consistent with the policies and procedures of the H&S program, report to the AGVIQ-CH2M HILL Project Manager (overall) and the AGVIQ-CH2M HILL HSPA/CIH or MR Safety & Quality Officer. The project team shall develop and implement corrective action procedures in a timely manner.

9.33.9.7 Site Control Measures - Hazwoper

For the tasks executed under this TO that are designated as “Hazwoper Regulated”, only personnel trained in accordance with 29 CFR 1910.120/29 CFR 1926.65, that possess skills, experience and knowledge to execute tasks without risk for exposure to site COCs or create increased risk of cross contamination of unimpacted areas of the site will be allowed in active site works. As such, the implementation of a three-zone site control and decontamination process for site personnel and equipment must be established for the execution of designated Hazwoper regulated activities. Establishment of this three zone site control and decontamination process shall be implemented in accordance with the guidelines set below and utilizing the steps illustrated in Section 9.33.12 “Personal Hygiene and Decontamination” of this APP.

This APP recommends that the 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).

9.33.9.8 Exclusion Zone

Where it is necessary to establish an EZ at the site, 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 1910.120/29 CFR 1926.65 and who are authorized by the AGVIQ-CH2M HILL site 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.

9.33.9.9 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.

9.33.9.10 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.

9.33.9.11 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 vapors, particulates or mist before non-HAZWOPER-trained personnel are allowed on the site, or while non-HAZWOPER-trained staff are working in proximity to HAZWOPER designated 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.

9.33.10 Personal Hygiene and Decontamination (Non-Abatement)

Regardless of whether a CRZ or other decontamination zones must be established to ensure proper decontamination of 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;
- 2) Wash hands and face, before eating, drinking, smoking or using tobacco and at the end of the work-shift.

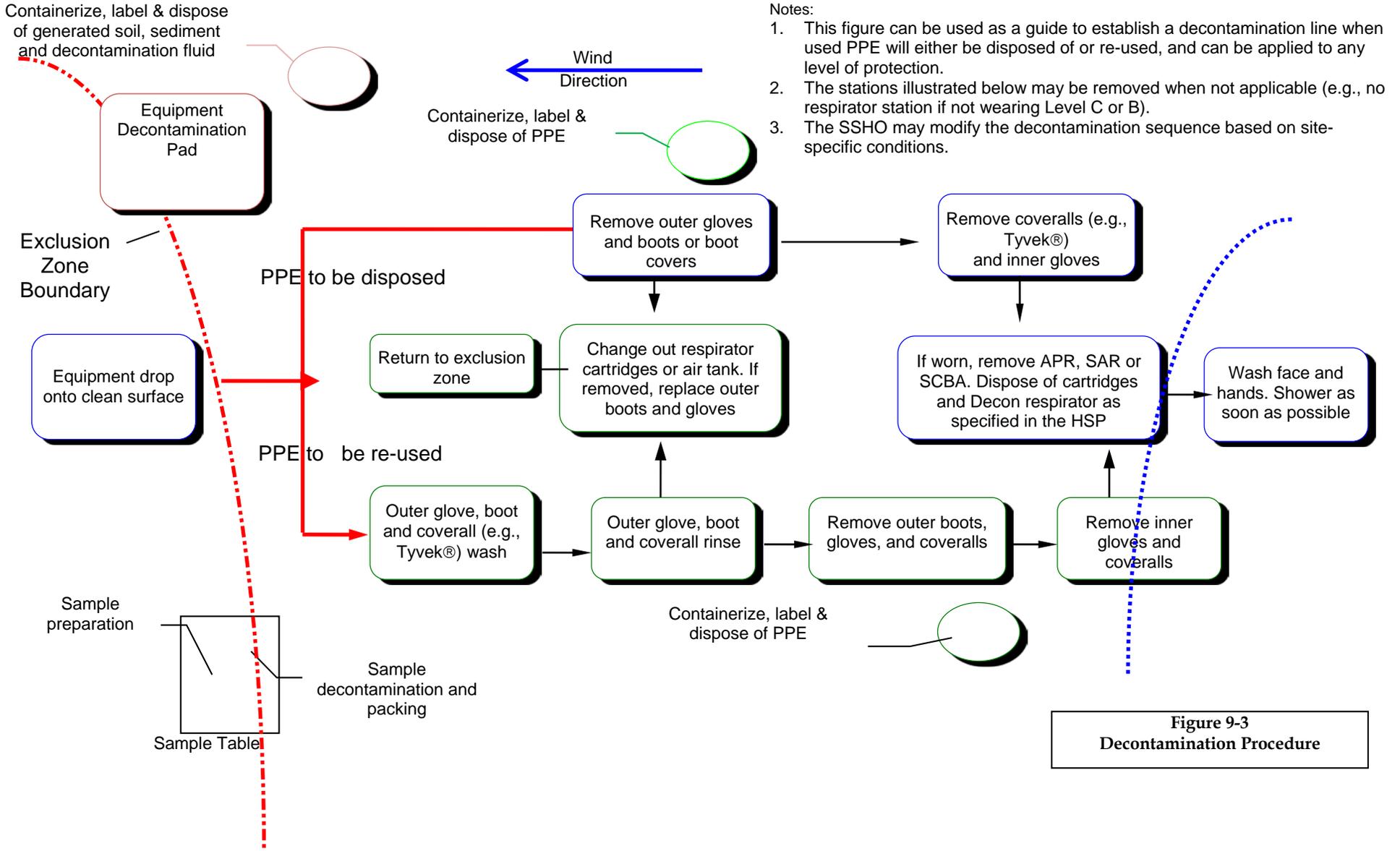
3) shower as soon as feasible after completing field activities.

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.

9.33.10.1 Decontamination Specifications

When the establishment of an EZ and CRZ is 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
<ul style="list-style-type: none"> • 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.) 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Power wash • Steam clean • Collect, properly containerize, label and dispose of all spent of decontamination fluid or residual solids



**Figure 9-3
Decontamination Procedure**

9.33.10.2 Equipment Decontamination

The sequence and location of equipment decontamination is defined by Section 9.33.10.1 and Figure 9-3, Decontamination Procedure.

9.33.11 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.

9.33.12 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.

9.33.13 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.

9.33.14 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.

9.33.15 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.

9.33.15.1 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 quick as possible, as time is off 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.

9.33.16 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.

9.33.17 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.

9.33.18 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.

9.33.19 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.

9.33.20 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.

9.34 Blasting Safety Plan

(Reserved)

No blasting operations will be conducted during the execution of this TO.

9.35 Diving Plan

(Reserved)

No diving operations will be conducted during the execution of this TO.

9.36 Confined Space Program

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

(Reserved)

No confined space entry operations will be conducted during the execution of this TO.

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 five 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). 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 our RMP, is the use of an Activity Hazard Analysis (AHA) for each major Definable Feature of Work (DFOW) and safety sensitive operation. An AHA defines the activity being performed, the hazards posed, and the necessary hazard control measures that must be implemented to facilitate the progression of the work in a safe and health manner. In addition, the equipment to be used to perform the activity, as well as inspection and training requirements, and competent person designations necessary to execute the task are also listed in the AHA.

Site workers review (or are briefed on the content) of the AHA before initiating the DFOW or safety sensitive operation. Worker input should be solicited where ever possible and included in the AHA. After employees review (or are briefed on the content of) each AHA applicable to their assigned task(s), they will acknowledge that this review was completed by adding their printed names, signatures, and the dates that the material was delivered to them or reviewed by them on the last page of the AHA form.

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.

The AHA applicable to the current site operation(s), work phase or safety sensitive function must remain posted in a conspicuous place (project construction trailer, weather proof bulletin board, etc.) that all site or facility personnel can access. When the most current AHA is not in use and not required to be posted, these completed AHAs shall be filed on site in a neat and organized manner for review are kept onsite in a neat and organized manner for review by NAVFAC Points of Contact (POCs) or the AGVIQ-CH2M HILL project management or program management team, or health and safety representatives, if requested.

At the end of project operations, all completed hard copies of AHAs are included in the final project record.

Table 10-1 of Section 10.6, below summarizes identified hazards associated with the phases of work anticipated with the project execution. Table 10-1 provides the basis for the development of Activity Hazard Analysis documents included in Section 10.6 of this APP. **Section 10.6** of this APP contains applicable Activity Hazard Analysis (AHA) documents that must be implemented during the execution of this TO. These AHAs, 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. These meetings set forth various hazard control measures or policies, procedures or requirements that must be implemented by project staff to reduce or eliminate workplace incidents that could be associated with daily scheduled work. The topics developed and delivered during each production day safety meeting are documented on an AGVIQ-CH2M HILL PTSP planner. The PTSPs are held between the site line supervisor and work crews and are designed to focus on eliminating identified hazards associated with daily assigned work. An example PTSP is included in **Attachment 7** of this APP.

Daily safety topics typically include task-specific or site hazards and associated hazard control measures, health and safety processes, or “hazardous conditions” discovered and corrected and/or controlled during a previous work event that may still be applicable to the current daily production goals. Additionally, names of personnel, types of tools and equipment that will be used to perform the assigned daily task(s) are listed, along with the hazards posed and required health and safety procedures that have been identified in the task specific AHAs or the APP and are incorporated into each PTSP.

Preparation and delivery of the PTSP may be delegated to the SSHO by the site supervisor/field team leader (FTL) to facilitate site operations. At the start of each day’s activities, the line supervisor or SSHO completes a PTSP. Ideally, input from the work crew is solicited and integrated into the development and delivery of each PTSP. Implementing daily PTSPs enhances worker participation in the recognition and control of hazardous site conditions or undesirable site acts, while reinforcing the task-specific required H&S procedures with the crew each work day. In the event that more than one type of project task is scheduled in any one daily production event, multiple PTSPs may need to be completed and implemented.

After the delivery of each PTSP, all personnel in attendance at the daily safety meeting acknowledge the delivered material with the addition of their printed names, signatures, and the date on which the material was delivered to them on the last page of the form. Completed PTSPs are kept on site in a neat and organized manner for review by management or the client, as deemed necessary.

Completed PTSPs are kept onsite in a neat and organized manner for review by NAVFAC POCs or the AGVIQ-CH2M HILL project management or program management team, or health and safety representatives, if requested. The project manager and the site line supervisor may establish a process by which these completed PTSPs are scanned and emailed for inclusion in the electronic project file, where email communication capability is available. Where email capability is not available other suitable distribution methods shall be arranged between the overall project manager and the site supervisor/FTL.

At the end of the project or facility operations, all completed PTSP hard copies are included in the final project record.

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

A LPO is a tool to be used by management, site supervisors/FTLs, and SSHOs to determine whether workplace behaviors, acts, and conditions are consistent with established H&S procedures, project site-specific APP requirements, or other established health and safety standards. An LPO may also be completed by an individual work crew member to initiate necessary corrective actions, to identify a work crew member's positive performance or contribution, or to report an undesirable act that would endanger the employee or other co-workers or result in a loss.

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.

LPOs can be completed by any employee involved with or observing site operations, but are typically prepared by the site supervisor/FTL, SSHO, or project manager using the LPO form found in **Attachment 8** of this APP. The LPO is implemented as a comparison of the actual execution of work process observed against established work procedures identified in the project-specific APP, AHAs, established health and safety policies and procedures, or regulatory standards.

One LPO shall be completed weekly and forwarded to the overall AGVIQ-CH2M HILL Project Manager and their designated management team, the CH2M HILL

Administrative Assistant designated to track project labor hours and completed LPO, as well as the designated project HSPA lead where email capability is available. Where email capability is not available other suitable distribution methods shall be arranged between the overall project manager and the site supervisor. When severe or critical deficiencies are observed by the LPO process, the project manager, site supervisor/FTL, or SSHO has a duty to notify the project manager and Chain of Command personnel of the condition for further review and development of corrective action requirements.

Completed LPOs are kept onsite in a neat and organized manner for review by management or NAVFAC, as deemed necessary. At the end of the project or facility operations, all completed LPO hard copies are included in the final project record.

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.

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. Incident reporting and investigation forms are included in **Attachment 9** of this APP.

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 10-1 below summarizes identified hazards associated with the phases of work anticipated with work scheduled at site 4A. Table 10-1 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, BBLPS and overall RMP.

TABLE 10-1: ACTIVITY HAZARD ANALYSIS BASIS							
PROJECT HAZARDS	PROJECT ACTIVITIES						
	Land & Utility Surveys	Demolition Engineering Survey	Mobilization and Site Prep	Asbestos and Universal Waste Abatement	Demolition and Removal	Waste Management	Demobilization
Adverse Weather	X	X	X	X	X	X	X
Biological	X	X	X	X	X	X	X
Buried Utilities			X		X		
Brushcutters/Mowers							
Chemical Hazards		X		X		X	
Compressed Gas Cylin.							
Concrete and Masonry							
Confined Space Entry							
Cuts/Abrasions	X	X	X	X	X	X	X
Cranes							
Demolition/dismantling				X	X		
Electrical Safety	X	X	X	X	X		X
Drilling (HSA/DPT)							
Excavations							
Fall Protection					X		
Fire Prevention	X	X	X	X	X		X
Forklifts							
Hand & Power Tools	X		X	X	X	X	X
Haul Truck Operations			X		X	X	X
Heat /ColdStress	X	X	X	X	X	X	X
Heavy Equipment			X		X	X	X
Housekeeping	X	X	X	X	X	X	X
Ladders & Stairs							
Land Clearing / Stripping							
Lockout /Tagout			X				
Manual Lifting	X		X	X	X	X	X
Material Handling			X	X	X	X	
Machine Guarding					X	X	
MEC/MPPEH							
Noise			X	X	X	X	X
Overhead Utilities			X		X	X	X
Pinch/Struck by/Caught			X	X	X	X	X
Pressure Washing							
Pressurized Lines/ quip.							
Rigging							
Scaffolding							
Slips/Trips/Falls	X	X	X	X	X	X	X
Spill Prevention			X		X	X	
Suspended Loads							
Vacuum Truck Ops.					X		
Vehicle Traffic	X		X		X	X	X
Visible Lighting	X	X	X	X	X	X	X
Welding or cutting							
Working Alone							
Working over water							

Section 10.6 (continued)
Project Activity Hazard Analyses (AHAs)

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 – Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS – Land and Utility Survey Operations

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Land and Utility Survey Operations	Adverse Weather	<ul style="list-style-type: none"> • 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 the office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the skyline for developing rain squalls and thunder storms systems that may developing. • 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	Standard Level D PPE * * Work clothes, reflective vests/ high visibility clothing, hard hat, safety glasses and sturdy hard toed work boots that provide sufficient ankle support, hand, hearing and face protection, as dictated by task.
	Biological	<ul style="list-style-type: none"> • Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, other stinging insects etc. • Where exposure to poisonous plants that have oils, berries or needle-like projects could cause skin irritations, infections or allergic reactions use disposable coveralls for protection. • 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 repellent with DEET or other insect repellent to deter being bit by mosquitoes or other stinging/biting insects. • Tape pant legs to boots and ensure there are no open seams between boots and pant legs. • Cut/maintain tall grass areas to minimize available tick/chigger habits. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure. 	L	Standard Level D PPE *
	Cuts/Abrasions	<ul style="list-style-type: none"> • Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp/cut edges or hand tools. • Avoid use of razor knives. • When cutting with knives, cut away from the body and never towards another worker. 	L	Standard Level D PPE *
	Electric Safety	<ul style="list-style-type: none"> • Ensure that electric connections from generator set to temporary construction facilities are performed by qualified electricians. • Inspect all electrical power circuits are sufficient prior to connection. • If/when electrical extension cords are required to complete work, extension cords must be: <ul style="list-style-type: none"> ✓ Equipped with third-wire grounding. ✓ Covered, elevated, or protected from damage when passing through work areas. ✓ Protected from pinching if routed through doorways. ✓ Extension cords and electrical power tools, must have ground fault circuit interrupters (GFCIs) installed. 	L	Standard Level D PPE *
	Fire Prevention	<ul style="list-style-type: none"> • Only smoke in designated areas. Designated area must be free of combustible/flammable materials. 	L	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 – Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS – Land and Utility Survey Operations

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Land and Utility Survey Operations (cont.)	Hand & Power Tools	<ul style="list-style-type: none"> • Perform daily or more frequent inspections on power tools, as may be needed • Power tools shall only be operated by personnel qualified by prior training or experience. • Ensure that a stable, level, dry work surface is available for the operation of power tools. • 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 a safe 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. 		
	Manual Lifting	<ul style="list-style-type: none"> • 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	Standard Level D PPE *
	High Ambient Temperature	<ul style="list-style-type: none"> • 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. 	L	Standard Level D PPE *
	Visible Lighting	<ul style="list-style-type: none"> • Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable lighting must be provided to sufficient illuminate work area(s). 	L	Standard Level D PPE
	Vehicular Traffic	<ul style="list-style-type: none"> • 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. 	L	Standard Level D PPE
	Slips, Trips, Falls	<ul style="list-style-type: none"> • Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet surfaces, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid/protect these areas. • Use sturdy hard toe work boots with sufficient ankle support. 	L	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Land and Utility Survey Operations

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Land and Utility Survey Operations (cont.)	Other	<ul style="list-style-type: none"> • Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly. Personnel operating laser equipped survey equipment must avoid exposing their eyes to direct or indirect laser light energy sources. • Always using a seat belt while driving on military/government facilities. Always observe posted speed limits, traffic signs and signals. Never using a cell phone or two way radio <u>while driving on</u> military/government facilities. Violating these rules may result in loss of military/government facility driving privileges. • Buddy System maintained for all phases of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. 	L	Standard Level D PPE
EQUIPMENT REQUIRED		INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS	
<ul style="list-style-type: none"> • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • Communication devices Land Survey or EM/GPR utility locating equipment (as applicable to task) 		<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Emergency Response equipment Inspections (Fire Extinguishers, Eye wash First Aid/CPR etc.) 	<ul style="list-style-type: none"> • Review AHA with all task personnel • Review APP for new site personnel. • 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. • Supervisors - BBLPS, 10 hour OSHA Construction Safety Training or equivalent • Competent Person Requirement & Name: NA 	

DATE PREPARED: April 2014
 PREPARED BY (Name/Title): Josh Painter, CSP
 REVIEWED BY (Name/Title):

NOTES (Field Notes, Review Comments, etc.):

Overall Risk Assessment Code (RAC) (Use highest code)					
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
Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				E = Extremely High Risk	
				H = High Risk	
				M = Moderate Risk	
				L = Low Risk	

Probability: Likelihood of the hazard to cause a incident, near miss, or accident

- Frequent - Occurs very often, known to happen regularly
- Likely - Occurs several times, a common occurrence
- Occasional - Occurs sporadically, but is not uncommon
- Seldom - Remotely possible, could occur at some time
- Unlikely - Can assume will not occur, but not impossible

Severity: Outcome/degree of the incident, near miss, or accident

- Catastrophic - Death or permanent total disability; Major property damage
- Critical - Permanent partial disability or temporary total disability; Extensive damage to equipment or systems
- Marginal - Lost workdays due to injury or illness; Minor damage to equipment or systems, property, or the environment
- Negligible - First aid or minor medical treatment; Slight equipment or system damage, but fully functional or serviceable; Little or no property or environmental damage

PRINT

SIGNATURE

Supervisor Name:

Date/Time: _____

Safety Officer Name:

Date/Time: _____

Site Personnel:

Date/Time: _____

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 – Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS – Demolition Engineering Survey

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition Engineering Survey	Adverse Weather	<ul style="list-style-type: none"> • 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 the office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the 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	Level C PPE * * Work clothes, hard hat, safety glasses and sturdy hard toed work boots with outer disposable chemical resistant boot covers (or rubber chemical boots with steel toe and shank), hand protection (inner and outer nitrile/chemical resistant gloves, ½ Face or Full Face APR with P100 HEPA Cartridges.
	Biological	<ul style="list-style-type: none"> • Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/ wasp hives, other stinging insects etc. • Where exposure to poisonous plants that have oils, berries or needle-like projects could cause skin irritations, infections or allergic reactions use disposable coveralls for protection. • 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 repellent with DEET or other insect repellent to deter being bit by mosquitoes or other stinging/biting insects. • Tape pant legs to boots and ensure there are no open seams between boots and pant legs. • Cut/maintain tall grass areas to minimize available tick/chigger habits. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure. 	L	Level C PPE *
	Chemical Exposure	<ul style="list-style-type: none"> • All personnel performing this task shall be trained in accordance with 29 CFR 1910.120 and been rolled in a medical monitoring program. • Do not allow dermal contact or incidental ingestion of impacted soil or groundwater. Skin contact with contaminated water, soils, debris, or equipment shall be avoided at all times. Do not kneel or step in potentially contaminated media (soil or ground water) without first donning proper PPE. • Exercise good hygiene practices. Always wash hands before eating, drinking, smoking and leaving site. Only eat, drink, smoke or chew tobacco in designated areas. • Adhere to PPE and action monitoring level requirements identified in the Tables 9-331 and 9-2 of the site specific APP. 	L	Level C PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
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ACTIVITY HAZARD ANALYSIS - Demolition Engineering Survey

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition Engineering Survey (cont.)	Cuts/Abrasions	<ul style="list-style-type: none"> • Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp/cut edges or hand tools. • Avoid use of razor knives. • When cutting with knives, cut away from the body and never towards another worker. 	L	Level C PPE *
	Electric Safety	<ul style="list-style-type: none"> • Ensure that electric connections from generator set to temporary construction facilities are performed by qualified electricians. • Inspect all electrical power circuits are sufficient prior to connection. • If/when electrical extension cords are required to complete work, extension cords must be: <ul style="list-style-type: none"> ✓ Equipped with third-wire grounding. ✓ Covered, elevated, or protected from damage when passing through work areas. ✓ Protected from pinching if routed through doorways. ✓ Extension cords and electrical power tools, must have ground fault circuit interrupters (GFCIs) installed. 	L	Level C PPE *
	Fire Prevention	<ul style="list-style-type: none"> • Only smoke in designated areas. Designated area must be free of combustible/flammable materials. 	L	Level C PPE *
	Hand & Power Tools	<ul style="list-style-type: none"> • Perform daily or more frequent inspections on power tools, as may be needed • Power tools shall only be operated by personnel qualified by prior training or experience. • Ensure that a stable, level, dry work surface is available for the operation of power tools. • 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 a safe 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. 		Level C PPE *
	Manual Lifting	<ul style="list-style-type: none"> • 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	Level C PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 – Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS – Demolition Engineering Survey

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition Engineering Survey (cont.)	High Ambient Temperature	<ul style="list-style-type: none"> • 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. 	L	Level C PPE *
	Visible Lighting	<ul style="list-style-type: none"> • Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable lighting must be provided to sufficient illuminate work area(s). 	L	Level C PPE *
	Vehicular Traffic	<ul style="list-style-type: none"> • 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. 	L	Level C PPE *
	Slips, Trips, Falls	<ul style="list-style-type: none"> • Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet surfaces, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid/protect these areas. • Use sturdy hard toe work boots with sufficient ankle support. 	L	Level C PPE *
	Other	<ul style="list-style-type: none"> • Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly. Personnel operating laser equipped survey equipment must avoid exposing their eyes to direct or indirect laser light energy sources. • Always using a seat belt while driving on military/government facilities. Always observe posted speed limits, traffic signs and signals. Never using a cell phone or two way radio <u>while driving on</u> military/government facilities. Violating these rules may result in loss of military/government facility driving privileges. • Buddy System maintained for all phases of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. 	L	Level C PPE *

EQUIPMENT REQUIRED

INSPECTION REQUIREMENTS

TRAINING REQUIREMENTS

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demolition Engineering Survey

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
	<ul style="list-style-type: none"> • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • Communication devices Land Survey or EM/GPR utility locating equipment (as applicable to task) 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Emergency Response equipment Inspections (Fire Extinguishers, Eye wash First Aid/CPR etc.) 		<ul style="list-style-type: none"> • Review AHA with all task personnel • Review APP for new site personnel. • 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. • All - Training and medical surveillance in accordance 29 CFR 1910.120 (HAZWOPER), 29CFR 1926.1101 (asbestos) and 29 CFR 1910.134 (respiratory protection) • Supervisors - BBLPS, 10 hour OSHA Construction Safety Training or equivalent • Competent Person Requirement & Name: NA

DATE PREPPARED: April 2014
 PREPARED BY (Name/Title): Josh Painter, CSP
 REVIEWED BY (Name/Title):

NOTES (Field Notes, Review Comments, etc.):

Overall Risk Assessment Code (RAC) (Use highest code)					
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
Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				E = Extremely High Risk	
				H = High Risk	
				M = Moderate Risk	
				L = Low Risk	

Probability: Likelihood of the hazard to cause a incident, near miss, or accident

- Frequent - Occurs very often, known to happen regularly
- Likely - Occurs several times, a common occurrence
- Occasional - Occurs sporadically, but is not uncommon
- Seldom - Remotely possible, could occur at some time
- Unlikely - Can assume will not occur, but not impossible

Severity: Outcome/degree of the incident, near miss, or accident

- Catastrophic - Death or permanent total disability; Major property damage
- Critical - Permanent partial disability or temporary total disability; Extensive damage to equipment or systems
- Marginal - Lost workdays due to injury or illness; Minor damage to equipment or systems, property, or the environment
- Negligible - First aid or minor medical treatment; Slight equipment or system damage, but fully functional or serviceable; Little or no property or environmental damage

PRINT

SIGNATURE

Supervisor Name:

Date/Time: _____

Safety Officer Name:

Date/Time: _____

Site Personnel:

Date/Time: _____

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Mobilization and Site Preparation

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Mobilization and Site Preparation	Buried Utilities or Unknown Objects	<ul style="list-style-type: none"> • Contact Digsafe System, Inc., 888-DIG-SAFE (344-7233) or Dial 811, or www.digsafe.com to secure a utility owner verification request number for utility clearance verification. Keep copies of any written documentation (faxes, email printouts) regarding utility location verification provided by utilities owners in the office project file and in a working field file onsite. • Photo document owner provided field utility mark-outs as related to proposed limits of ground disturbing activities prior to the start of work. • Conduct “third” party utility clearance when the locations of utilities may be in question and document results of third party utility location. • Determine if a NAVFAC “Excavator Permit” is required prior to performing any ground disturbing activities. • Hand dig around identified utilities (within 5’) or as otherwise required by NAVFAC issued excavation permit. • Review base engineering records or drawings against utility owner or third party utility mark-out to verify any potential differences. • 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, utilities must be relocated/marked. • Where unknown or unanticipated buried objects are encountered (i.e. drums, tanks, cylinders, MEC/MPPEH, soil with unusual staining or odor) AGVIQ-CH2M HILL JV or subcontractor personnel shall 1) secure equipment to the extent possible, without causing bodily injury, 2) evacuate the work area and 3) immediately notify the site manager, SSHO or PM of the encountered condition. Work may only resume with appropriate documentation/notification that exposure hazards (physical or chemical) do not exist. Notify AGVIQ-CH2M HILL JV PM and program officials and applicable NAVFAC POCs and do not resume work until authorized to do so. 	M	Standard Level D PPE * Work clothes, reflective vests/ high visibility clothing, hard hat, safety glasses and sturdy hard toed work boots that provide sufficient ankle support, hand, hearing and face protection, as dictated by task.
	Biological	<ul style="list-style-type: none"> • Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/ wasp hives, other stinging insects etc. • Where exposure to poisonous plants that have oils, berries or needle-like projects could cause skin irritations, infections or allergic reactions use disposable coveralls for protection. • 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 repellent with DEET or other insect repellent to deter being bit by mosquitoes or other stinging/biting insects. • Tape pant legs to boots and ensure there are no open seams between boots and pant legs. • Cut/maintain tall grass areas to minimize available tick/chigger habits. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure. 	L	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Mobilization and Site Preparation

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Mobilization and Site Preparation (cont.)	Adverse Weather	<ul style="list-style-type: none"> • 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 the office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the 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	Standard Level D PPE *
	Cuts/ Abrasions	<ul style="list-style-type: none"> • Wear cut resistant work gloves, when the possibility of lacerations or other injury may be caused by sharp edges of power or hand tools. • Keep hands and fingers away from locations where they could be impacted by tools being used (i.e. sledge hammers, staple guns). 	M	Standard Level D PPE *
	Electric Safety	<ul style="list-style-type: none"> • Ensure that electric connections from generator set to temporary construction facilities are performed by qualified electricians. • Inspect all electrical power circuits are sufficient prior to connection. • If/when electrical extension cords are required to complete work, extension cords must be: <ul style="list-style-type: none"> ✓ Equipped with third-wire grounding. ✓ Covered, elevated, or protected from damage when passing through work areas. ✓ Protected from pinching if routed through doorways. ✓ Extension cords and electrical power tools, must have ground fault circuit interrupters (GFCIs) installed. 	L	Standard Level D PPE *
	Hand & Power Tools	<ul style="list-style-type: none"> • Perform daily or more frequent inspections on tools, as may be needed • Ensure that a stable, level, dry work surface is available for the operation of power tools. • All required guards are in place, functioning and utilized. • 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. 	L	Standard Level D PPE

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Mobilization and Site Preparation

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Mobilization and Site Preparation) (cont.)	Haul trucks	<ul style="list-style-type: none"> • All staff working adjacent to traveled way or within work area must wear reflective/high-visibility safety vests. • 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. • Haul roads should be well lit, sufficiently wide (at least 50% of the width of the equipment on both sides of road) and equipped with reflectors to indicate access points. • Haul roads should have adequate right-of-way signs indicating haul directions, where appropriate 	L	Standard Level D PPE *
	Heavy Equipment	<ul style="list-style-type: none"> • Only appropriately sized heavy equipment shall be used in demolition operations and shall be affixed with suitable material handling/demolition attachments. Demolition balls shall be sized according for the heavy equipment to be used. Where demolition balls are used in concrete sizing operations, the ball shall be able to be firmly and appropriately attached to operating heavy equipment material handling/demolition attachments. • Seat belts or other restraint system shall be used by heavy equipment operators. • Demolition equipment shall be inspected each day, before use, to ensure safe operational condition. 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. • Do not swing overhead loads over ground personnel. 	L	Standard Level D PPE *
	High Ambient Temperature	<ul style="list-style-type: none"> • 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. 	L	Standard Level D PPE *
	LO/TO Hazardous Energy	<ul style="list-style-type: none"> • Conduct work area survey of any high voltage electric equipment in structures \ as related to designated sample areas. If designated sample locations are sufficiently close to energized equipment try to relocate the location. • Prior to LOTO removal review process systems, ensure systems are deenergized via the LOTO process. Review and execute SOP # 310 Lockout and Tagout when it is determined that control of hazardous energy is required 	L	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Mobilization and Site Preparation

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Mobilization and Site Preparation (cont.)	Manual Lifting	<ul style="list-style-type: none"> • 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	Standard Level D PPE *
	Noise	<ul style="list-style-type: none"> • Personnel exposed to loud working environments or in open cabs of heavy equipment or adjacent to operating heavy equipment shall wear hearing protection. 	L	Standard Level D PPE *
	Overhead Utilities	<ul style="list-style-type: none"> • When using an excavator to install ESC measures, maintain proper separation between Power Transmission Lines and over overhead utilities during the operation of heavy equipment. See Electric Safety section in APP for references to proper separation between operating equipment and power transmission lines/overhead utilities. Do not swing operate or swing heavy equipment booms or other components of operating heavy equipment toward overhead utilities. Be cognizant of utility pole guy wire positions. 	M	Standard Level D PPE *
	Pinched/Struck-by/ Caught-in-between	<ul style="list-style-type: none"> • 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. • 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. • When using a chain drive trenching machine for the installation of ESC features, 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. • Ensure that all machine guards are in place to prevent contact with drive belts rotary action devises/blades of trenching machine etc. Do not modify safety feature of the trenching machine. 	H	Standard Level D PPE *
	Visible Lighting	<ul style="list-style-type: none"> • Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable light(s) must be provided to sufficient illuminate work area(s). 	L	Standard Level D PPE

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Mobilization and Site Preparation

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Mobilization and Site Preparation (cont.)	Slips, Trips, Falls	<ul style="list-style-type: none"> • Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet surfaces, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid/protect these areas. • 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. • Three points of contact when enter/exiting equipment. 	L	Standard Level D PPE *
	Fire Prevention	<ul style="list-style-type: none"> • 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. • Only smoke in designated areas. Designated area must be free of combustible/flammable materials. • ASTs for heavy equipment fuel storage should have secondary containment capabilities. 	L	Standard Level D PPE *
	Vehicular Traffic	<ul style="list-style-type: none"> • 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. 	L	Standard Level D PPE *
	Other	<ul style="list-style-type: none"> • Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Always using a seat belt while driving on military/government facilities. Always observe posted speed limits, traffic signs and signals. Never using a cell phone or two way radio <u>while driving</u> on military/government facilities. Violating these rules may result in loss of military/government facility driving privileges. • Buddy System maintained for all phases of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. 	L	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Mobilization and Site Preparation

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
EQUIPMENT REQUIRED		INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS	
<ul style="list-style-type: none"> • Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • Spill Kit • Communication devices 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Equipment inspections and maintenance. • Emergency Response equipment Inspections (Fire Extinguishers, Eye wash First Aid/CPR etc.) • Inspections of hand tools (power) and extension cords if used. 	<ul style="list-style-type: none"> • Review AHA with all task personnel • Review Site Specific Health and Safety Plan for new site personnel. • 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). • Supervisors - BBLPS, 10 hour OSHA Construction Safety Training or equivalent • Competent Person Requirement & Name: NA 		

DATE PREPPARED: April 2014
 PREPARED BY (Name/Title): Josh Painter, CSP
 REVIEWED BY (Name/Title):

NOTES (Field Notes, Review Comments, etc.):

Overall Risk Assessment Code (RAC) (Use highest code)					
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
Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
"Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				E = Extremely High Risk	
				H = High Risk	
				M = Moderate Risk	
				L = Low Risk	

Probability: Likelihood of the hazard to cause a incident, near miss, or accident

- Frequent - Occurs very often, known to happen regularly
- Likely - Occurs several times, a common occurrence
- Occasional - Occurs sporadically, but is not uncommon
- Seldom - Remotely possible, could occur at some time
- Unlikely - Can assume will not occur, but not impossible

Severity: Outcome/degree of the incident, near miss, or accident

- Catastrophic - Death or permanent total disability; Major property damage
- Critical - Permanent partial disability or temporary total disability; Extensive damage to equipment or systems
- Marginal - Lost workdays due to injury or illness; Minor damage to equipment or systems, property, or the environment
- Negligible - First aid or minor medical treatment; Slight equipment or system damage, but fully functional or serviceable; Little or no property or environmental damage

PRINT

SIGNATURE

Supervisor Name:

Date/Time: _____

Safety Officer Name:

Date/Time: _____

Site Personnel:

Date/Time: _____

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 – Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS – Asbestos and Universal Waste Abatement

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Asbestos and Universal Waste Abatement	Adverse Weather	<ul style="list-style-type: none"> • 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 the office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the 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	Level C PPE * * Work clothes, hard hat, safety glasses and sturdy hard toed work boots with outer disposable chemical resistant boot covers (or rubber chemical boots with steel toe and shank), hand protection (inner and outer nitrile/chemical resistant gloves, ½ Face or Full Face APR with P100 HEPA Cartridges).
	Biological	<ul style="list-style-type: none"> • Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/wasp hives, other stinging insects etc. • Where exposure to poisonous plants that have oils, berries or needle-like projects could cause skin irritations, infections or allergic reactions use disposable coveralls for protection. • 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 repellent with DEET or other insect repellent to deter being bit by mosquitoes or other stinging/biting insects. • Tape pant legs to boots and ensure there are no open seams between boots and pant legs. • Cut/maintain tall grass areas to minimize available tick/chigger habits. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure. 	L	Level C PPE *
	Chemical Exposure	<ul style="list-style-type: none"> • All personnel performing this task shall be trained in accordance with 29 CFR 1910.120 and been rolled in a medical monitoring program. • Do not allow dermal contact or incidental ingestion of impacted soil or groundwater. Skin contact with contaminated water, soils, debris, or equipment shall be avoided at all times. Do not kneel or step in potentially contaminated media (soil or ground water) without first donning proper PPE. • Exercise good hygiene practices. Always wash hands before eating, drinking, smoking and leaving site. Only eat, drink, smoke or chew tobacco in designated areas. • Adhere to PPE and action monitoring level requirements identified in the Tables 9-331 and 9-2 of the site specific APP. 	L	Level C PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 – Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS – Asbestos and Universal Waste Abatement

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Asbestos and Universal Waste Abatement (cont.)	Cuts/Abrasions	<ul style="list-style-type: none"> • Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp/cut edges or hand tools. • Avoid use of razor knives. • When cutting with knives, cut away from the body and never towards another worker. 	L	Level C PPE *
	Demolition Planning/ Compliance	<ul style="list-style-type: none"> • Review and work Demolition Work Plan • Secure any local or state government demolition permits that may be required prior to beginning demolition and tank removal operations. This may require the inclusion of a structural engineer and be a requirement for C&D disposal options. Verify local/state notification/approval requirements and secure necessary approvals before initiating work. • All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled outside the building line before demolition work is started. Any utility company involved shall be notified in advance. If it is necessary to maintain any power, water, or other utilities during demolition, such lines shall be temporarily relocated, as necessary, and protected. • Verify Dig Safe dig excavation clearance notifications remain valid. Update notifications as may be required by Dig Safe requirements. 	M	Level C PPE *
	Electric Safety	<ul style="list-style-type: none"> • Ensure that electric connections from generator set to temporary construction facilities are performed by qualified electricians. • Inspect all electrical power circuits are sufficient prior to connection. • If/when electrical extension cords are required to complete work, extension cords must be: <ul style="list-style-type: none"> ✓ Equipped with third-wire grounding. ✓ Covered, elevated, or protected from damage when passing through work areas. ✓ Protected from pinching if routed through doorways. ✓ Extension cords and electrical power tools, must have ground fault circuit interrupters (GFCIs) installed. 	L	Level C PPE *
	Fire Prevention	<ul style="list-style-type: none"> • Only smoke in designated areas. Designated area must be free of combustible/flammable materials. 	L	Level C PPE *
	Hand & Power Tools	<ul style="list-style-type: none"> • Perform daily or more frequent inspections on power tools, as may be needed • Power tools shall only be operated by personnel qualified by prior training or experience. • Ensure that a stable, level, dry work surface is available for the operation of power tools. • 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 a safe 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. 		Level C PPE *
		<ul style="list-style-type: none"> • 		

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 – Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS – Asbestos and Universal Waste Abatement

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition Engineering Survey (cont.)	High Ambient Temperature	<ul style="list-style-type: none"> • 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. 	L	Level C PPE *
	Manual Lifting	<ul style="list-style-type: none"> • 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	Level C PPE *
	Material Handling	<ul style="list-style-type: none"> • No Suspended loads allowed. • When a telescopic material handler is used to manage removed materials ; <ul style="list-style-type: none"> – Verify weight of the item to be lifted – Compare weight to boom extension length and angle/height to verify that the lift is not in excess of the material handlers lifting capabilities. – Control material handlers operating envelop to eliminate the potential for unauthorized/unnecessary personnel into the work area. – For large, awkward or heavy items Lift item a few inches to confirm material stability/ lift capabilities of material handler. – Ensure that the material handler is operating from a firm, level, competent ground surface. • Personnel operating forklifts/material handlers shall be qualified by training/experience and meet training/evaluation requirements of 29 CFR 1910.178. 	M	Level C PPE *
	Noise	<ul style="list-style-type: none"> • Personnel exposed to loud working environments or in open cabs of heavy equipment or adjacent to operating heavy equipment shall wear hearing protection. 	L	Level C PPE *
	Visible Lighting	<ul style="list-style-type: none"> • Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable light(s) must be provided to sufficient illuminate work area(s). 	L	Level C PPE *
	Slips, Trips, Falls	<ul style="list-style-type: none"> • Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet surfaces, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid/protect these areas. • Use sturdy hard toe work boots with sufficient ankle support. 	L	Level C PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Asbestos and Universal Waste Abatement

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition Engineering Survey (cont.)	Other	<ul style="list-style-type: none"> • Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Personnel using survey equipment containing lasers shall be trained to utilize that equipment properly. Personnel operating laser equipped survey equipment must avoid exposing their eyes to direct or indirect laser light energy sources. • Always using a seat belt while driving on military/government facilities. Always observe posted speed limits, traffic signs and signals. Never using a cell phone or two way radio <u>while driving on</u> military/government facilities. Violating these rules may result in loss of military/government facility driving privileges. • Buddy System maintained for all phases of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. 	L	Level C PPE *

EQUIPMENT REQUIRED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"> • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • Communication devices • Abatement containments, PDU, air handlers 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Emergency Response equipment Inspections (Fire Extinguishers, Eye wash First Aid/CPR etc.) 	<ul style="list-style-type: none"> • Review AHA with all task personnel • Review APP for new site personnel. • 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. • All - Training and medical surveillance in accordance 29 CFR 1910.120 (HAZWOPER), 29CFR 1926.1101 (asbestos) and 29 CFR 1910.134 (respiratory protection) • Supervisors - BBLPS, 10 hour OSHA Construction Safety Training or equivalent • Competent Person Requirement & Name: NA

DATE PREPPARED: April 2014
 PREPARED BY (Name/Title): Josh Painter, CSP
 REVIEWED BY (Name/Title):

NOTES (Field Notes, Review Comments, etc.):

Overall Risk Assessment Code (RAC) (Use highest code)					
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
Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				E = Extremely High Risk	
				H = High Risk	
				M = Moderate Risk	
				L = Low Risk	

Probability: Likelihood of the hazard to cause a incident, near miss, or accident

- Frequent - Occurs very often, known to happen regularly
- Likely - Occurs several times, a common occurrence
- Occasional - Occurs sporadically, but is not uncommon
- Seldom - Remotely possible, could occur at some time
- Unlikely - Can assume will not occur, but not impossible

Severity: Outcome/degree of the incident, near miss, or accident

- Catastrophic - Death or permanent total disability; Major property damage
- Critical - Permanent partial disability or temporary total disability; Extensive damage to equipment or systems
- Marginal - Lost workdays due to injury or illness; Minor damage to equipment or systems, property, or the environment
- Negligible - First aid or minor medical treatment; Slight equipment or system damage, but fully functional or serviceable; Little or no property or environmental damage

PRINT

SIGNATURE

Supervisor Name:

Date/Time: _____

Safety Officer Name:

Date/Time: _____

Site Personnel:

Date/Time: _____

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demolition and Removal Actions

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition and Removal Actions	Buried Utilities or Unknown Objects	<ul style="list-style-type: none"> • Contact Digsafe System, Inc., 888-DIG-SAFE (344-7233) or Dial 811, or www.digsafe.com to secure a utility owner verification request number for utility clearance verification. Keep copies of any written documentation (faxes, email printouts) regarding utility location verification provided by utilities owners in the office project file and in a working field file onsite. • Photo document owner provided field utility mark-outs as related to proposed limits of ground disturbing activities prior to the start of work. • Conduct “third” party utility clearance when the locations of utilities may be in question and document results of third party utility location. • Determine if a NAVFAC “Excavator Permit” is required prior to performing any ground disturbing activities. • Hand dig around identified utilities (within 5’) or as otherwise required by NAVFAC issued excavation permit. • Review base engineering records or drawings against utility owner or third party utility mark-out to verify any potential differences. • 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, utilities must be relocated/marked. • Where unknown or unanticipated buried objects are encountered (i.e. drums, tanks, cylinders, MEC/MPPEH, soil with unusual staining or odor) AGVIQ-CH2M HILL JV or subcontractor personnel shall 1) secure equipment to the extent possible, without causing bodily injury, 2) evacuate the work area and 3) immediately notify the site manager, SSHO or PM of the encountered condition. Work may only resume with appropriate documentation/notification that exposure hazards (physical or chemical) do not exist. Notify AGVIQ-CH2M HILL JV PM and program officials and applicable NAVFAC POCs and do not resume work until authorized to do so. 	M	Standard Level D PPE * Work clothes, reflective vests/ high visibility clothing, hard hat, safety glasses and sturdy hard toed work boots that provide sufficient ankle support, hand, hearing and face protection, as dictated by task.
	Biological	<ul style="list-style-type: none"> • Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/ wasp hives, other stinging insects etc. • Where exposure to poisonous plants that have oils, berries or needle-like projects could cause skin irritations, infections or allergic reactions use disposable coveralls for protection. • 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 repellent with DEET or other insect repellent to deter being bit by mosquitoes or other stinging/biting insects. • Tape pant legs to boots and ensure there are no open seams between boots and pant legs. • Cut/maintain tall grass areas to minimize available tick/chigger habits. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure. 	L	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demolition and Removal Actions

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition and Removal Actions (cont.)	Adverse Weather	<ul style="list-style-type: none"> • 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 the office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the 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	Standard Level D PPE *
	Cuts/ Abrasions Razor Wire Handling Fencing Removal	<ul style="list-style-type: none"> • Wear cut resistant work gloves, when the possibility of lacerations or other injury may be caused by sharp edges of power or hand tools. • Keep hands and fingers away from locations where they could be impacted by tools being used (i.e. sledge hammers, staple guns). • Keep personnel clear of fencing/razor wire removal areas. These materials may be under tension and can spring when cut or untied. • Use heavy equipment to handle fencing and razor wire, only have personnel handle if required. • If personnel are handling razor wire, they must use Kevlar gloves and sleeves or equivalent, chainsaw chaps, face shields, and safety glasses. 	L	Standard Level D PPE * Plus razor wire handling PPE
	Demolition Planning/ Compliance	<ul style="list-style-type: none"> • Review and work Demolition Work Plan • Secure any local or state government demolition permits that may be required prior to beginning demolition and tank removal operations. This may require the inclusion of a structural engineer and be a requirement for C&D disposal options. Verify local/state notification/approval requirements and secure necessary approvals before initiating work. • All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled outside the building line before demolition work is started. Any utility company involved shall be notified in advance. If it is necessary to maintain any power, water, or other utilities during demolition, such lines shall be temporarily relocated, as necessary, and protected. • Verify Dig Safe dig excavation clearance notifications remain valid. Update notifications as may be required by Dig Safe requirements. 	M	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demolition and Removal Actions

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition and Removal Actions (cont.)	Electric Safety	<ul style="list-style-type: none"> • Ensure that electric connections from generator set to temporary construction facilities are performed by qualified electricians. • Inspect all electrical power circuits are sufficient prior to connection. • If/when electrical extension cords are required to complete work, extension cords must be: <ul style="list-style-type: none"> ✓ Equipped with third-wire grounding. ✓ Covered, elevated, or protected from damage when passing through work areas. ✓ Protected from pinching if routed through doorways. ✓ Extension cords and electrical power tools, must have ground fault circuit interrupters (GFCIs) installed. 	L	Standard Level D PPE *
	Hand & Power Tools	<ul style="list-style-type: none"> • Perform daily or more frequent inspections on tools, as may be needed • Ensure that a stable, level, dry work surface is available for the operation of power tools. • All required guards are in place, functioning and utilized. • 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. 	L	Standard Level D PPE
	Haul trucks	<ul style="list-style-type: none"> • All staff working adjacent to traveled way or within work area must wear reflective/high-visibility safety vests. • 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. • Haul roads should be well lit, sufficiently wide (at least 50% of the width of the equipment on both sides of road) and equipped with reflectors to indicate access points. • Haul roads should have adequate right-of-way signs indicating haul directions, where appropriate 	L	Standard Level D PPE *
	Heavy Equipment	<ul style="list-style-type: none"> • Only appropriately sized heavy equipment shall be used in demolition operations and shall be affixed with suitable material handling/demolition attachments. Demolition balls shall be sized according for the heavy equipment to be used. Where demolition balls are used in concrete sizing operations, the ball shall be able to be firmly and appropriately attached to operating heavy equipment material handling/demolition attachments. • Seat belts or other restraint system shall be used by heavy equipment operators. • Demolition equipment shall be inspected each day, before use, to ensure safe operational condition. 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. • Do not swing overhead loads over ground personnel. 	L	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demolition and Removal Actions

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition and Removal Actions (cont.)	High Ambient Temperature	<ul style="list-style-type: none"> • 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. 	L	Standard Level D PPE *
	Manual Lifting	<ul style="list-style-type: none"> • 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	Standard Level D PPE *
	Noise	<ul style="list-style-type: none"> • Personnel exposed to loud working environments or in open cabs of heavy equipment or adjacent to operating heavy equipment shall wear hearing protection. 	L	Standard Level D PPE *
	Overhead Utilities	<ul style="list-style-type: none"> • When using an excavator to install ESC measures, maintain proper separation between Power Transmission Lines and over overhead utilities during the operation of heavy equipment. See Electric Safety section in APP for references to proper separation between operating equipment and power transmission lines/overhead utilities. Do not swing operate or swing heavy equipment booms or other components of operating heavy equipment toward overhead utilities. Be cognizant of utility pole guy wire positions. 	M	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demolition and Removal Actions

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition and Removal Actions (cont.)	Pinched/Struck-by/ Caught-in-between	<ul style="list-style-type: none"> • Personnel shall remain a safe distance from the demolition zone to reduce exposure to fragmentation of glass, steel, masonry, and other debris during demolition operations. • Demolition of exterior walls and floors shall begin at the top of the structure and proceed downward, except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work. Each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing removal of the story below. • Glass should be removed from the structure prior to demolition. If glass is not removed, personnel shall be protected from flying glass fragments by being under cover, remaining a safe distance away, or similar protective action. • Sufficient separation between ground support personnel and the 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. • 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. 	M	Standard Level D PPE *
	Site control	<ul style="list-style-type: none"> • Personnel shall not enter the demolition zone unless completely necessary, and only after the competent person has assessed the condition of the structure and has authorized entry. • Personnel shall be aware of and follow all requirements established by the competent person. The competent person shall inform personnel of the areas that are safe to enter and the areas where entry is prohibited. The competent person shall escort personnel while in the demolition zone. • The competent person shall control entry into the demolition zone. Unauthorized entry shall be prohibited. • Appropriate warning and instructional safety signs shall be conspicuously posted where necessary. In addition, a signalman shall control the movement of motorized equipment in areas where the public might be endangered. 	M	Standard Level D PPE *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demolition and Removal Actions

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition and Removal Actions (cont.)	Slips, Trips, Falls	<ul style="list-style-type: none"> • Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet surfaces, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid/protect these areas. • 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. • Three points of contact when enter/exiting equipment. 	L	Standard Level D PPE *
	Fire Prevention	<ul style="list-style-type: none"> • 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. • Only smoke in designated areas. Designated area must be free of combustible/flammable materials. • ASTs for heavy equipment fuel storage should have secondary containment capabilities. 	L	Standard Level D PPE *
	Vacuum Truck Operations	<ul style="list-style-type: none"> • Operate vacuum truck in accordance with API Recommended Practice 2219, "Safe Operations of Vacuum Trucks in Petroleum Service". • Bond and ground vacuum truck hoses/truck especially when conveying flammable/combustible materials to prevent static electricity discharges/sparks. • Keep hands and feet from vacuum hose inlet. • Do not place vacuum hose inlet in a position that may inadvertently contact other workers in the area. • Locate vacuum truck upwind of tank with discharge hose downwind of truck and tank. • Keep vacuum truck operations area free from flammable vapors. • Wear protective gloves and hearing protection in the immediate vicinity. 	L	Modified Level D PPE (D ₁ or D ₂) * D ₁ : Work clothes, reflective vests, hard hat, safety glasses and sturdy hard toed work boots, hearing and hand protection (inner and outer chemical resistant gloves) D ₂ : D ₁ + chemical resistant suits and boot covers, face protection for pressure washing operations

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demolition and Removal Actions

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demolition and Removal Actions (cont.)	Vehicular Traffic	<ul style="list-style-type: none"> • 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. 	L	Standard Level D PPE *
	Visible Lighting	<ul style="list-style-type: none"> • Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable lighting must be provided to sufficient illuminate work area(s). 	L	Standard Level D PPE
	Other	<ul style="list-style-type: none"> • Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Always using a seat belt while driving on military/ government facilities. Always observe posted speed limits, traffic signs and signals. Never using a cell phone or two way radio <u>while driving</u> on military/ government facilities. Violating these rules may result in loss of military/ government facility driving privileges. • Buddy System maintained for all phases of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. 	L	Standard Level D PPE *

EQUIPMENT REQUIRED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"> • Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • Spill Kit • Communication devices • Excavator with material handling attachments, Loader 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Equipment inspections and maintenance. • Emergency Response equipment Inspections (Fire Extinguishers, Eye wash First Aid/CPR etc.) • Inspections of hand tools (power) and extension cords if used. 	<ul style="list-style-type: none"> • Review AHA with all task personnel • Review Site Specific Health and Safety Plan for new site personnel. • 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). • Supervisors - BBLPS, 10 hour OSHA Construction Safety Training or equivalent • Power tool and heavy equipment operators qualified by previous training or experience. • Competent Person Requirement & Name: Demolition Supervisor

DATE PREPPARED: April 2014
 PREPARED BY (Name/Title): Josh Painter, CSP
 REVIEWED BY (Name/Title):

NOTES (Field Notes, Review Comments, etc.):

Overall Risk Assessment Code (RAC) (Use highest code)					
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
Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				E = Extremely High Risk	
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				H = High Risk	
				M = Moderate Risk	
				L = Low Risk	

Probability: Likelihood of the hazard to cause a incident, near miss, or accident

- Frequent - Occurs very often, known to happen regularly
- Likely - Occurs several times, a common occurrence
- Occasional - Occurs sporadically, but is not uncommon
- Seldom - Remotely possible, could occur at some time
- Unlikely - Can assume will not occur, but not impossible

Severity: Outcome/degree of the incident, near miss, or accident

- Catastrophic - Death or permanent total disability; Major property damage
- Critical - Permanent partial disability or temporary total disability; Extensive damage to equipment or systems
- Marginal - Lost workdays due to injury or illness; Minor damage to equipment or systems, property, or the environment
- Negligible - First aid or minor medical treatment; Slight equipment or system damage, but fully functional or serviceable; Little or no property or environmental damage

PRINT

SIGNATURE

Supervisor Name:

Date/Time: _____

Safety Officer Name:

Date/Time: _____

Site Personnel:

Date/Time: _____

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Waste Management

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Waste Management	Adverse Weather	<ul style="list-style-type: none"> • 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 the office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the 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	Modified Level D PPE (D ₁ or D ₂) * D ₁ : Work clothes, reflective vests, hard hat, safety glasses and sturdy hard toed work boots, hearing and hand protection (inner and outer chemical resistant gloves)
	Biological	<ul style="list-style-type: none"> • Observe ground surfaces, enclosed structures, ground water well heads, surrounding vegetation other site features for presence of spiders, bee/ wasp hives, other stinging insects etc. • Where exposure to poisonous plants that have oils, berries or needle-like projects could cause skin irritations, infections or allergic reactions use disposable coveralls for protection. • 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 repellent with DEET or other insect repellent to deter being bit by mosquitoes or other stinging/biting insects. • Tape pant legs to boots and ensure there are no open seams between boots and pant legs. • Cut/maintain tall grass areas to minimize available tick/chigger habits. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure. 	L	Modified Level D PPE
	Chemical Exposure	<ul style="list-style-type: none"> • All personnel performing this task shall be trained in accordance with 29 CFR 1910.120 and been rolled in a medical monitoring program. • Do not allow dermal contact or incidental ingestion of impacted soil or groundwater. Skin contact with contaminated water, soils, debris, or equipment shall be avoided at all times. Do not kneel or step in potentially contaminated media (soil or ground water) without first donning proper PPE. • Exercise good hygiene practices. Always wash hands before eating, drinking, smoking and leaving site. Only eat, drink, smoke or chew tobacco in designated areas. • Adhere to PPE and action monitoring level requirements identified in the Tables 9-331 and 9-2 of the site specific APP. 	L	Modified Level D PPE

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Waste Management

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Waste Management (cont.)	Cuts/Abrasions Razor Wire Handling Fencing Removal	<ul style="list-style-type: none"> • Wear cut resistant work gloves, when the possibility of lacerations or other injury may be caused by sharp edges of power or hand tools. • Keep hands and fingers away from locations where they could be impacted by tools being used (i.e. sledge hammers, staple guns). • Use heavy equipment to handle fencing and razor wire, only have personnel handle if required. • If personnel are handling razor wire, they must use Kevlar gloves and sleeves or equivalent, chainsaw chaps, face shields, and safety glasses. 	L	Modified Level D PPE
	Electric Safety	<ul style="list-style-type: none"> • Ensure that electric connections from generator set to temporary construction facilities are performed by qualified electricians. • Inspect all electrical power circuits are sufficient prior to connection. • If/when electrical extension cords are required to complete work, extension cords must be: <ul style="list-style-type: none"> ✓ Equipped with third-wire grounding. ✓ Covered, elevated, or protected from damage when passing through work areas. ✓ Protected from pinching if routed through doorways. ✓ Extension cords and electrical power tools, must have ground fault circuit interrupters (GFCIs) installed. 	L	Modified Level D PPE
	Hand & Power Tools	<ul style="list-style-type: none"> • Perform daily or more frequent inspections on tools, as may be needed • Ensure that a stable, level, dry work surface is available for the operation of power tools. • All required guards are in place, functioning and utilized. • 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. 	L	Modified Level D PPE
	Haul trucks	<ul style="list-style-type: none"> • All staff working adjacent to traveled way or within work area must wear reflective/high-visibility safety vests. • 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. • Haul roads should be well lit, sufficiently wide (at least 50% of the width of the equipment on both sides of road) and equipped with reflectors to indicate access points. • Haul roads should have adequate right-of-way signs indicating haul directions, where appropriate 	L	Modified Level D PPE

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Waste Management

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Waste Management (cont.)	Heavy Equipment	<ul style="list-style-type: none"> • Only appropriately sized heavy equipment shall be used in demolition operations and shall be affixed with suitable material handling/ demolition attachments. Demolition balls shall be sized according for the heavy equipment to be used. Where demolition balls are used in concrete sizing operations, the ball shall be able to be firmly and appropriately attached to operating heavy equipment material handling/ demolition attachments. • Seat belts or other restraint system shall be used by heavy equipment operators. • Demolition equipment shall be inspected each day, before use, to ensure safe operational condition. 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. • Do not swing overhead loads over ground personnel. 	L	Modified Level D PPE
	High Ambient Temperature	<ul style="list-style-type: none"> • 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. 	L	Modified Level D PPE
	Manual Lifting	<ul style="list-style-type: none"> • 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	Modified Level D PPE
	Noise	<ul style="list-style-type: none"> • Personnel exposed to loud working environments or in open cabs of heavy equipment or adjacent to operating heavy equipment shall wear hearing protection. 	L	Modified Level D PPE
	Overhead Utilities	<ul style="list-style-type: none"> • When using an excavator to install ESC measures, maintain proper separation between Power Transmission Lines and over overhead utilities during the operation of heavy equipment. See Electric Safety section in APP for references to proper separation between operating equipment and power transmission lines/ overhead utilities. Do not swing operate or swing heavy equipment booms or other components of operating heavy equipment toward overhead utilities. Be cognizant of utility pole guy wire positions. 	M	Modified Level D PPE

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Waste Management

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Waste Management (cont.)	Pinched/Struck-by/ Caught-in-between	<ul style="list-style-type: none"> • Personnel shall remain a safe distance from the demolition zone to reduce exposure to fragmentation of glass, steel, masonry, and other debris during demolition operations. • Demolition of exterior walls and floors shall begin at the top of the structure and proceed downward, except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work. Each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing removal of the story below. • Glass should be removed from the structure prior to demolition. If glass is not removed, personnel shall be protected from flying glass fragments by being under cover, remaining a safe distance away, or similar protective action. • Sufficient separation between ground support personnel and the 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. • 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. 	M	Modified Level D PPE
	Slips, Trips, Falls	<ul style="list-style-type: none"> • Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet surfaces, stumps/roots, unprotected holes, ditches, rip rap, utilities, ground protrusions (well casings). Observe and avoid/protect these areas. • 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. • Three points of contact when enter/exiting equipment. 	L	Modified Level D PPE

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Waste Management

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Waste Management (cont.)	Fire Prevention	<ul style="list-style-type: none"> • 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. • Only smoke in designated areas. Designated area must be free of combustible/flammable materials. • ASTs for heavy equipment fuel storage should have secondary containment capabilities. 	L	Modified Level D PPE
	Vehicular Traffic	<ul style="list-style-type: none"> • 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. 	L	Modified Level D PPE
	Visible Lighting	<ul style="list-style-type: none"> • Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable lighting must be provided to sufficient illuminate work area(s). 	L	Modified Level D PPE
	Other	<ul style="list-style-type: none"> • Verify that EMS services are available and can respond in a prompt manner prior to the start of work. • Always using a seat belt while driving on military/ government facilities. Always observe posted speed limits, traffic signs and signals. Never using a cell phone or two way radio <u>while driving</u> on military/ government facilities. Violating these rules may result in loss of military/ government facility driving privileges. • Buddy System maintained for all phases of work. • Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. • Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. 	L	Modified Level D PPE

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Waste Management

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
EQUIPMENT REQUIRED		INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS	
<ul style="list-style-type: none"> • Fire extinguisher (with fuel and electrical sources) • Eye wash (small portable type) • Miscellaneous power and manual hand tools. • First Aid/BbPK/CPR shield • Spill Kit • Communication devices • Excavator with material handling attachments, Loader 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Equipment inspections and maintenance. • Emergency Response equipment Inspections (Fire Extinguishers, Eye wash First Aid/CPR etc.) • Inspections of hand tools (power) and extension cords if used. 	<ul style="list-style-type: none"> • Review AHA with all task personnel • Review Site Specific Health and Safety Plan for new site personnel. • 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). • All - Training and medical surveillance in accordance 29 CFR 1910.120 (HAZWOPER), 29CFR 1926.1101 (asbestos) and 29 CFR 1910.134 (respiratory protection) • Power tool and heavy equipment operators qualified by previous training or experience. • Supervisors - BBLPS, 10 hour OSHA Construction Safety Training or equivalent • Competent Person Requirement & Name: NA 		

DATE PREPPARED: April 2014
 PREPARED BY (Name/Title): Josh Painter, CSP
 REVIEWED BY (Name/Title):

NOTES (Field Notes, Review Comments, etc.):

Overall Risk Assessment Code (RAC) (Use highest code)					
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
Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
"Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				E = Extremely High Risk	
				H = High Risk	
				M = Moderate Risk	
				L = Low Risk	

Probability: Likelihood of the hazard to cause a incident, near miss, or accident

- Frequent - Occurs very often, known to happen regularly
- Likely - Occurs several times, a common occurrence
- Occasional - Occurs sporadically, but is not uncommon
- Seldom - Remotely possible, could occur at some time
- Unlikely - Can assume will not occur, but not impossible

Severity: Outcome/degree of the incident, near miss, or accident

- Catastrophic - Death or permanent total disability; Major property damage
- Critical - Permanent partial disability or temporary total disability; Extensive damage to equipment or systems
- Marginal - Lost workdays due to injury or illness; Minor damage to equipment or systems, property, or the environment
- Negligible - First aid or minor medical treatment; Slight equipment or system damage, but fully functional or serviceable; Little or no property or environmental damage

PRINT

SIGNATURE

Supervisor Name:

Date/Time: _____

Safety Officer Name:

Date/Time: _____

Site Personnel:

Date/Time: _____

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demobilization and Equipment Cleaning

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demobilization and Equipment Cleaning	Adverse Weather	<ul style="list-style-type: none"> • 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 the office support personnel who may be able to verify pending regional severe weather conditions. • Frequently observe the 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	Modified Level D PPE (D ₁ or D ₂) * D ₁ : Work clothes, reflective vests, hard hat, safety glasses and sturdy hard toed work boots, hearing and hand protection (inner and outer chemical resistant gloves) D ₂ : D ₁ + chemical resistant suits and boot covers, face protection for pressure washing operations
	Biological	<ul style="list-style-type: none"> • Observe ground surfaces, surrounding vegetation other site features for presence of spiders, bee/wasp hives, other stinging insects etc. • Where exposure to poisonous plants that have oils, berries or needle-like projects could cause skin irritations, infections or allergic reactions use disposable coveralls for protection. • 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 repellent with DEET or other insect repellent to deter being bit by mosquitoes or other stinging/biting insects. • Tape pant legs to boots and ensure there are no open seams between boots and pant legs. • Cut/maintain tall grass areas to minimize available tick/chigger habits. • Avoid exposure to blood borne pathogens. Use universal precautions against exposure. 	L	Modified Level D PPE (D ₁ or D ₂) *
	Fire Prevention	<ul style="list-style-type: none"> • 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. • Only smoke in designated areas. Designated area must be free of combustible/flammable materials. 	L	Modified Level D PPE (D ₁ or D ₂) *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demobilization and Equipment Cleaning

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demobilization and Equipment Cleaning (Cont.)	Chemical Exposure	<ul style="list-style-type: none"> • Do not allow dermal contact or incidental ingestion of impacted soil/sediment or water. • Skin contact with contaminated water, soils, debris, or equipment shall be avoided at all times. Do not kneel or step in potentially contaminated media (soil or water) without first donning proper PPE. • Exercise good hygiene practices. Always wash hands before eating, drinking, smoking and leaving site. Shower as soon as possible after leaving the site. • Only eat, drink, smoke or chew tobacco in designated areas. • Adhere to PPE and Ambient Air Monitoring requirements identified in the Section 9.33 of the APP, Site Safety and Health Plan for HTRW. 	L	Modified Level D PPE (D ₁ or D ₂) *
	Hand & Power Tools	<ul style="list-style-type: none"> • Perform daily or more frequent inspections on power tools, as may be needed • Power tools shall only be operated by personnel qualified by prior training or experience. • Ensure that a stable, level, dry work surface is available for the operation of power tools. • 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 a safe 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. 	L	Modified Level D PPE (D ₁ or D ₂) *
	High Ambient Temperature	<ul style="list-style-type: none"> • 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. 	L	Modified Level D PPE (D ₁ or D ₂) *
	Manual Lifting	<ul style="list-style-type: none"> • 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	Modified Level D PPE (D ₁ or D ₂) *
	Noise	<ul style="list-style-type: none"> • Personnel exposed to loud working environments or in open cabs of heavy equipment or adjacent to operating heavy equipment shall wear hearing protection. 	L	Modified Level D PPE (D ₁ or D ₂) *

AGVIQ-CH2M HILL Joint Venture JV III SBRAC, TO WE01 - Buildings 642/643 Demolition at NAS Brunswick
Prime Contract N62470-08-D-1006
ACTIVITY HAZARD ANALYSIS - Demobilization and Equipment Cleaning

Task Breakdown	Potential Hazards	Critical Safety Practices	RAC	Personal Protective Clothing and Equipment
Demobilization and Equipment Cleaning (Cont.)	Pinched/Struck-by/ Caught-in-between	<ul style="list-style-type: none"> Wear reflective vests or high visibility clothing to promote visibility of ground personnel by equipment operators. Keep hands away from pinch points 	H	Modified Level D PPE (D ₁ or D ₂) *
	Visible Lighting	<ul style="list-style-type: none"> Perform tasks in daylight hours whenever possible. If dawn, dusk or dark work is to be performed portable lighting must be provided to sufficient illuminate work area(s). 	L	Modified Level D PPE (D ₁ or D ₂) *
	Slips, Trips, Falls	<ul style="list-style-type: none"> Be aware of poor footing, potential slipping/tripping hazards in the work area, such as wet surfaces. Observe and avoid/protect these areas. 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. Three points of contact when enter/exiting equipment. Evaluate disposable/re-usable footwear to provide footwear that gives workers the best traction/slip resistance during decon operations. 	L	Modified Level D PPE (D ₁ or D ₂) *
	Other	<ul style="list-style-type: none"> Verify that EMS services are available and can respond in a prompt manner prior to the start of work. Always using a seat belt while driving on military/government facilities. Always observe posted speed limits, traffic signs and signals. Never using a cell phone or two way radio <u>while driving</u> on military/government facilities. Violating these rules may result in loss of military/government facility driving privileges. Buddy System maintained for all phases of work. Base or Local Emergency medical Service and Fire Dispatch numbers programmed into cellular phones. Have hospital route maps readily available. Report all unsafe conditions and acts, injury/illness or property damage to supervisors immediately. 	L	Modified Level D PPE (D ₁ or D ₂) *
EQUIPMENT REQUIRED		INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS	
<ul style="list-style-type: none"> Fire extinguisher (with fuel and electrical sources) Eye wash (small portable type) Miscellaneous power and manual hand tools. First Aid/BbPK/CPR shield Pressure washer (2,500 to 3,000 psi) Spill Kit Communication devices 		<ul style="list-style-type: none"> Visual Inspections of designated work areas identify and address hazardous conditions. Equipment inspections and maintenance. Emergency Response equipment Inspections (Fire Extinguishers, Eye wash First Aid/CPR etc.) Inspections of hand tools (power) and pressure washer. 	<ul style="list-style-type: none"> Review Site Specific Health and Safety Plan for new site personnel. 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). Supervisors - BBLPS, 10 hour OSHA Construction Safety Training or equivalent Competent Person Requirement & Name: NA 	

DATE PREPPARED: April 2014
 PREPARED BY (Name/Title): Josh Painter, CSP
 REVIEWED BY (Name/Title):

NOTES (Field Notes, Review Comments, etc.):

Overall Risk Assessment Code (RAC) (Use highest code)					
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
Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
"Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				E = Extremely High Risk	
				H = High Risk	
				M = Moderate Risk	
				L = Low Risk	

Probability: Likelihood of the hazard to cause a incident, near miss, or accident

- Frequent - Occurs very often, known to happen regularly
- Likely - Occurs several times, a common occurrence
- Occasional - Occurs sporadically, but is not uncommon
- Seldom - Remotely possible, could occur at some time
- Unlikely - Can assume will not occur, but not impossible

Severity: Outcome/degree of the incident, near miss, or accident

- Catastrophic - Death or permanent total disability; Major property damage
- Critical - Permanent partial disability or temporary total disability; Extensive damage to equipment or systems
- Marginal - Lost workdays due to injury or illness; Minor damage to equipment or systems, property, or the environment
- Negligible - First aid or minor medical treatment; Slight equipment or system damage, but fully functional or serviceable; Little or no property or environmental damage

PRINT

SIGNATURE

Supervisor Name:

Date/Time: _____

Safety Officer Name:

Date/Time: _____

Site Personnel:

Date/Time: _____

Attachment 1
Accident Prevention Plan Acknowledgement
Form

Attachment 2
Subcontractor H&S Tracking Form

Attachment 3
Project H&S Forms/Permits

EXCAVATION INSPECTION CHECKLIST

This checklist shall only be used when self-performing excavation activities and shall be completed by excavation competent person. Personnel shall be permitted to enter excavations only after the Excavation Entry Permit has been completed, authorized by the excavation competent person, and posted at the excavation entrance.

GENERAL INFORMATION

Project/Site Name: _____ Project Number: _____

Name/Location of Excavation: _____

Scope of Work Description: _____

Excavation Depth: _____ Excavation Width: _____

Yes No NA

PRIOR TO EXCAVATING

- | | | | |
|---|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Personnel meet training and medical surveillance requirements |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dig permit obtained, where required by client/facility |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Client, installation owners, and utility companies contacted for exact location of underground utilities/installations |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Detection equipment used when exact location of underground utilities is unknown |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Soils to be excavated have been classified: <input type="checkbox"/> Stable Rock <input type="checkbox"/> Type A <input type="checkbox"/> Type B <input type="checkbox"/> Type C |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | At least 1 manual & 1 visual test: Combination, describe: _____ |
| NOTE: If soils unclassified, assume to be Type C | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Groundwater table and stormwater run-off evaluated |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Area evaluated for existence of ordnance explosives (OE) and unexploded ordnance (UXO) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Soils characterized where contamination may be present |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | USDA (or local equivalent) soil permit obtained for soil transport |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Excavation evaluated for wetlands, endangered species, cultural/historic resources |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ACOE/CWA 404 (or local equivalent) permit obtained for wetland areas |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Stockpile management plan prepared to address national, state, and local regulations |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Waste discharge/NPDES (or local equivalent) permit obtained for excavation dewatering |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Storm Water Pollution Prevention or Erosion & Sediment Control Plan prepared, where required |

GENERAL REQUIREMENTS

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Daily safety briefing/meeting conducted with excavation personnel |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Guardrails provided on walkways over excavation 6' or deeper |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Barriers provided at excavations 6' or deeper when not readily visible |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Barriers/covers provided for wells, pits, shafts, or similar excavation 6' or deeper |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Earthmoving equipment operated safely |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Personnel provided with and wearing appropriate PPE |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Employees protected from loose rock or soil that could pose a hazard by falling or rolling into the excavation. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Excavation spoils and materials have been placed at least 2 ft away from the edge of the excavation/trench. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Personnel are wearing proper and designated PPE for the assigned task. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Presence of a hazardous atmosphere has been checked. |

WET CONDITONS

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Precautions taken to protect employees from the accumulation of water. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Water removal equipment monitored by a competent person. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Surface water or runoff diverted or controlled to prevent accumulation in the excavation. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Inspections made after every rainstorm or other hazard-increasing occurrence. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dewatering equipment is monitored by a competent person |

EXCAVATION INSPECTION CHECKLIST (continued)

Yes No NA

EXCAVATING ACTIVITIES

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Rocks, trees, and other unstable surface objects removed or supported |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Exposed underground utility lines supported |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Undermined surface structures supported or determined to be in safe condition |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Warning system used to remind equipment operators of excavation edge |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Stockpile covers/liners and excavation silt fences/covers provided, where required |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Fugitive dust suppressed |

PROTECTIVE SYSTEMS USE

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Protective systems used for excavations 5' (1.5 m) or deeper, unless stable rock |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Protective systems for excavation deeper than 20' (6.1 m) designed by registered PE |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Protective systems used: <input type="checkbox"/> Sloping <input type="checkbox"/> Shoring <input type="checkbox"/> Trench Box <input type="checkbox"/> Combination
Describe: _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sloping cut to appropriate angle for soil classification (if unclassified, assume Type C soil) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Shoring/trench boxes used according to manufacturer recommendations and not subjected to loads exceeding design limits |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Protective system components securely connected to prevent movement or failure |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Protective systems inspected daily and free from damage |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Defective protective systems replaced or corrected |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Personnel removed from shielding systems when installed, removed, or during vertical movement |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Lateral travel to means of egress no greater than 25 feet in excavations four feet or more in depth. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Ladders used in excavations extended three (3) feet above the edge of the trench & secured. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Structural ramps used by employees designed by a competent person. |

PROTECTIVE SYSTEM REMOVAL and BACKFILLING

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Protective system removal starts and progresses from excavation bottom |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Protective systems removed slowly and cautiously |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Temporary structure supports used if failure of remaining components observed |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Backfilling taking place immediately after protective system removal |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Backfill certified clean when required by client or local regulation |

EXCAVATING AT HAZARDOUS WASTE SITES

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Waste disposed of according to Health & Safety Plan and RCRA regulations |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Appropriate decontamination procedures being followed, per Health & Safety Plan |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Potential hazardous atmospheres are being evaluated and documented |

EXCAVATING AT ORDNANCE EXPLOSIVES SITES

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | OE plan prepared and approved by UXO Safety Officer |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | OE/UXO avoidance provided, access routes cleared, and boundaries marked prior to excavation |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Personnel remain inside marked boundary |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Earthmoving equipment does not excavate closer than 1' (30.5 cm) to anomalies |

Excavation Competent Person Name: _____

Excavation Competent Person Signature: _____

Date Completed: ___/___/_____

EQUIPMENT INSPECTION FORM

This form will be used to document AGVIQ-CH2M HILL earthmoving equipment inspections. Earthmoving equipment will be inspected each day and shift prior to use. All components will be inspected for damage and proper operation. Any component failing the inspection will be corrected prior to earthmoving equipment use. Check each box after passing inspection and initial bottom of form each day.

Equipment Name: _____ Identification #: _____ Week of: _____

INSPECTION ITEM	Mon	Tue	Wed	Thu	Fri	Sa	Sun
Visual Checks							
Operating manual – present							
Controls - labeled as to their function, visible and legible, safety latches/guards present							
Tires/tracks – proper inflation/tension, not excessively worn or damaged							
Fluid levels/leaks - engine, transmission, hydraulic, radiator, swing motor and PTO oils.							
Lubrication - to the manufacturer's specifications							
Air filter gauge - gauge is not in the red zone.							
Hydraulics – no fluid leaks, connections tight, hoses, cylinders free of damage.							
Hoses/belts – held securely, not loose or rubbing, no excessive wear or crimping							
Fuel system - tank free of damage, all valves/hoses secure, no leaks							
Body & ground-engaging tools – no damage, cracks, bends, or excessive wear.							
Cylinders/articulation joints– no worn pins, loose connections or other damage.							
Roll-over protective structures (ROPS) - no damage, no cracks or bends							
Seat belt/bar – required unless operator stands or no ROPS							
Handrails, steps, platforms – clean, free from grease, oil, clear of obstructions.							
Cab glass – safety glass, clean, no cracks or visible distortion							
Mirrors – properly adjusted, no cracks or visible distortion							
Windshield wipers, fluid, and defroster - functioning							
Machine guards – present and in good condition							
• Fire extinguisher – present and charged							
Operational Checks – check items through normal maneuvers							
Horn & back-up alarm – operating and distinguishable from surrounding noise							
Lights, directional signals, and brake lights - functioning							
Gauges/indicators – visible and working properly							
Operating controls - lift and tilt functioning properly							
Outriggers, if present – functioning properly							
Accelerator - even acceleration, does not stick							
Brakes (service & parking) - brings to complete stop, holds in fixed position							
Steering – responsive, minimal looseness							
Exhaust system – guarded if potential for contact, no signs of sparks/leaks							
Inspector's Initials							

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:

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
 (See attached instructions *)

<p>Fire, Ambulance, Police: 911</p> <p>NAVFAC POC:</p> <p>Todd Bober: 215-897-4911 (cell)</p> <p>Joseph Gallant: 207-252-7353 (cell)</p>	<p>CH2M HILL- 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 AGVIQ VBO office for a detailed list of Medical Facilities/contacts.</p>
<p>AGVIQ-CH2M HILL SBRAC Program Manager Name: Sidney Allison AGVIQ Phone (843) 242-8018 / (843) 813-2672 (cell)</p> <p>AGVIQ-CH2M HILL Project Coordinator Name: Jason Chebetar, AGVIQ Phone: (757) 318-9426/(757) 544-7391 (cell)</p>	<p>AGVIQ-CH2M HILL SBRAC Deputy Program Manager Name: Sam Naik, CH2M HILL Phone: (770) 604-9182 x54248; (678) 860-9626 (cell)</p> <p>AGVIQ-CH2M HILL Project Manager (overall) Name: Venky Venkatesh Phone: (216) 235-8613 (cell)</p>
<p>AGVIQ-CH2M HILL Site Superintendent Name: Randy Johnson Cell Phone: (757) 544 6769</p> <p>AGVIQ-CH2M HILL HSPA Name: Josh Painter Cell Phone: 303-993-9274</p>	<p>AGVIQ-CH2M HILL Program CIH Name: Angelo Liberatore, CH2M HILL Constructors, Inc. Phone: (678) 530-4210/(770) 335-2076 (cell)</p> <p>AGVIQ-CH2M HILL SSHO Name: Rachel Clennon (BOS) Phone: 978-387-8171(cell)</p>
<p>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)</p> <p>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.</p>	<p>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.</p>
<p>AGVIQ Corporate HSM Name: Troy Izatt Office phone # (907) 365-6182 Cell phone # (907) 748-3697</p>	<p>Federal Express Dangerous Goods Shipping Phone: 800/238-5355 Emergency Number for Shipping Dangerous Goods Phone: 800/255-3924</p>
<p>Facility Alarms: Sound vehicle horn three times. (Site 4A)</p>	<p>Evacuation Assembly Area(s): See Figure 9-1 of this APP.</p>
<p>Facility/Site Evacuation Assembly Area/Route: See Figure 9-1 of this APP.</p>	
<p>Hospital Name/Address: Civisita Medical Hospital, 701 Charles Drive, La Plata, MD 20646 (301)-609-4000 See Figure 9-2 of this APP.</p>	

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.

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 5
Material Safety Data Sheets
(provided onsite)

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 SSC 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.

Attachment 7
Pre-Task Safety Plan



EXAMPLE ONLY

DAILY PRE-TASK SAFETY PLAN (PTSP)

Page 1 of 3

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):								
<input checked="" type="checkbox"/> Chemical burns/contact Dermal protection (hands), eye protection. See APP for PPE requirements per task.			<input type="checkbox"/> Trench, excavations, cave-ins			<input type="checkbox"/> Ergonomics		
<input type="checkbox"/> Pressurized lines/equipment			<input checked="" type="checkbox"/> Overexertion Work/break regiment as dictated by task. Maintain fluid intake for hydration			<input checked="" type="checkbox"/> Chemical splash Use PPE in accordance with the APP. Protect hands from splash during decon. activities.		
<input checked="" type="checkbox"/> Thermal burns Watch for warm engine/muffler components on generators.			<input type="checkbox"/> Pinch points			<input checked="" type="checkbox"/> 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).		
<input checked="" type="checkbox"/> Electrical GCFIs for generators, inspect. & protect extension cords, cords rated for use & have 3 rd wire grounding			<input checked="" type="checkbox"/> 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)			<input checked="" type="checkbox"/> 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.		
<input type="checkbox"/> Weather conditions Foul and cold weather clothing as dictated by expected conditions			<input checked="" type="checkbox"/> Spills Use funnels & nozzles during fueling of generators.			<input type="checkbox"/> Inhalation hazard		
<input type="checkbox"/> Heights/fall > 6'			<input type="checkbox"/> Overhead Electrical hazards			<input checked="" type="checkbox"/> 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.		
<input checked="" type="checkbox"/> Noise Use hear protection in loud work environments			<input type="checkbox"/> Elevated loads			<input type="checkbox"/> Water/drowning hazard		
<input checked="" type="checkbox"/> 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.			<input checked="" type="checkbox"/> 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.			<input type="checkbox"/> Heavy equipment		
<input checked="" type="checkbox"/> Radiation Solar. UV protection on skin and UV eye protection. ANSI rated safety eye protection only.			<input checked="" type="checkbox"/> Manual lifting >50 lbs or awkward loads, get assistance. If employee not capable of lifting 40 lbs. seek assistance.			<input type="checkbox"/> Aerial lifts/platforms		
<input type="checkbox"/> Confined space entry			<input type="checkbox"/> Welding/cutting			<input type="checkbox"/> Demolition		
Continue on page 3 of 3 (if necessary)								

Hazard Control Measures (Check all that apply):

<p>PPE</p> <p><input checked="" type="checkbox"/> Head protection</p> <p><input type="checkbox"/> Face protection</p> <p><input checked="" type="checkbox"/> Hard toe work boots</p> <p><input type="checkbox"/> Thermal/lined</p> <p><input checked="" type="checkbox"/> Eye</p> <p><input checked="" type="checkbox"/> Dermal/hand</p> <p><input type="checkbox"/> Hearing</p> <p><input type="checkbox"/> Respiratory</p> <p><input checked="" type="checkbox"/> Reflective vests</p>	<p>Protective Systems</p> <p><input type="checkbox"/> Locate buried utilities</p> <p><input type="checkbox"/> Competent person</p> <p><input type="checkbox"/> Daily inspections</p> <p><input type="checkbox"/> Sloping</p> <p><input type="checkbox"/> Shoring</p> <p><input type="checkbox"/> Trench box</p> <p><input type="checkbox"/> Barricades</p>	<p>Fire Protection</p> <p><input type="checkbox"/> Fire extinguishers</p> <p><input type="checkbox"/> Fire watch</p> <p><input type="checkbox"/> Non-spark tools</p> <p><input type="checkbox"/> Grounding/bonding</p> <p><input type="checkbox"/> Intrinsically safe equipment</p> <p><input type="checkbox"/> Combustible materials storage</p> <p><input type="checkbox"/> Chemical Storage</p>	<p>Electrical</p> <p><input type="checkbox"/> Lockout/tagout</p> <p><input type="checkbox"/> Grounded</p> <p><input type="checkbox"/> Panels covered</p> <p><input checked="" type="checkbox"/> GFCI/extension cords</p> <p><input type="checkbox"/> Power tools/cord inspected</p> <p><input type="checkbox"/> Insulated tools/gloves</p>
<p>Fall Protection</p> <p><input type="checkbox"/> Harness/lanyards</p> <p><input type="checkbox"/> Adequate anchorage</p> <p><input type="checkbox"/> Guardrail system</p> <p><input type="checkbox"/> Covered opening</p> <p><input type="checkbox"/> Fixed barricades</p> <p><input type="checkbox"/> Warning system</p>	<p>Air Monitoring</p> <p><input type="checkbox"/> PID/FID</p> <p><input type="checkbox"/> Detector tubes</p> <p><input type="checkbox"/> Radiation</p> <p><input type="checkbox"/> Personnel sampling</p> <p><input type="checkbox"/> LEL/O2</p> <p><input type="checkbox"/> Other</p>	<p>Proper Equipment</p> <p><input type="checkbox"/> Aerial lift/ladders/scaffolds</p> <p><input type="checkbox"/> Forklift/ Heavy equipment</p> <p><input type="checkbox"/> Backup alarms</p> <p><input type="checkbox"/> Hand/power tools</p> <p><input type="checkbox"/> Crane w/current inspection</p> <p><input type="checkbox"/> Proper rigging</p> <p><input type="checkbox"/> Operator qualified</p>	<p>Welding & Cutting</p> <p><input type="checkbox"/> Cylinders secured/capped</p> <p><input type="checkbox"/> Cylinders separated/upright</p> <p><input type="checkbox"/> Flash-back arrestors</p> <p><input type="checkbox"/> No cylinders in CSE</p> <p><input type="checkbox"/> Flame retardant clothing</p> <p><input type="checkbox"/> Appropriate goggles</p>
<p>Confined Space Entry</p> <p><input type="checkbox"/> Isolation</p> <p><input type="checkbox"/> Air monitoring</p> <p><input type="checkbox"/> Trained personnel</p> <p><input type="checkbox"/> Permit completed</p> <p><input type="checkbox"/> Rescue provisions</p>	<p>Medical/Emerg. Response</p> <p><input checked="" type="checkbox"/> First-aid & BBP kit</p> <p><input checked="" type="checkbox"/> Eye wash</p> <p><input checked="" type="checkbox"/> FA-CPR training</p> <p><input checked="" type="checkbox"/> Route to hospital</p>	<p>Heat/Cold Stress</p> <p><input checked="" type="checkbox"/> Work/rest regime</p> <p><input checked="" type="checkbox"/> Rest area</p> <p><input checked="" type="checkbox"/> Liquids available</p> <p><input checked="" type="checkbox"/> Monitoring</p> <p><input type="checkbox"/> Training</p>	<p>Vehicle/Traffic</p> <p><input type="checkbox"/> Traffic Awareness</p> <p><input type="checkbox"/> Traffic control</p> <p><input type="checkbox"/> Barricades</p> <p><input type="checkbox"/> Flags</p> <p><input type="checkbox"/> Signs</p>
<p>Permits</p> <p><input type="checkbox"/> Hot work</p> <p><input type="checkbox"/> Confined space</p> <p><input type="checkbox"/> Lockout/tagout</p> <p><input type="checkbox"/> Excavation</p> <p><input type="checkbox"/> Demolition</p> <p><input type="checkbox"/> Energized work</p> <p><input type="checkbox"/> Local/Environmental</p>	<p>Demolition</p> <p><input type="checkbox"/> Pre-demolition survey</p> <p><input type="checkbox"/> Structure condition</p> <p><input type="checkbox"/> Isolate area/utilities</p> <p><input type="checkbox"/> Competent person</p> <p><input type="checkbox"/> Hazmat present</p>	<p>Inspections</p> <p><input type="checkbox"/> Ladders/aerial lifts</p> <p><input type="checkbox"/> Lanyards/harness</p> <p><input type="checkbox"/> Scaffolds</p> <p><input type="checkbox"/> Heavy equipment</p> <p><input type="checkbox"/> Cranes and rigging</p> <p><input type="checkbox"/> Other per Field Safety Plan</p>	<p>Training</p> <p><input checked="" type="checkbox"/> Hazwaste</p> <p><input type="checkbox"/> Construction</p> <p><input type="checkbox"/> Equipment</p> <p><input type="checkbox"/> Competent person</p> <p><input checked="" type="checkbox"/> Task-specific (AHA)</p> <p><input checked="" type="checkbox"/> Hazcom</p>

Field Notes:

DAILY PRE-TASK SAFETY PLAN (PTSP)
Page 3 of 3

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:		
<ul style="list-style-type: none"> 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)

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

General Information (Complete for all incident types)

Preparer's Name: _____ Preparer's Employee Number: _____
 Date of Report: _____ Date of Incident: _____ Time of Incident: _____ am/pm

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

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

Location of Incident (Select one)

- Company Premises (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)

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

If 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

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

Part of Body Injured

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

Nature of Injury

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

- Initial Diagnosis/Treatment Date: _____

Type of Treatment

- | | |
|---|---|
| <input type="checkbox"/> Admission to hospital/medical facility | <input type="checkbox"/> Soaking Therapy- One Treatment |
| <input type="checkbox"/> Application of bandages | <input type="checkbox"/> Stitches/Sutures |
| <input type="checkbox"/> Cold/Heat Compression/Multiple Treatment | <input type="checkbox"/> Tetanus |
| <input type="checkbox"/> Cold/Heat Compression/One Treatment | <input type="checkbox"/> Treatment for infection |
| <input type="checkbox"/> First Degree Burn Treatment | <input type="checkbox"/> Treatment of 2 nd /3 rd degree burns |
| <input type="checkbox"/> Heat Therapy/Multiple treatment | <input type="checkbox"/> Use of Antiseptics - multiple treatment |
| <input type="checkbox"/> Multiple (Specify) _____ | <input type="checkbox"/> Use of Antiseptics - single treatment |
| <input type="checkbox"/> Heat Therapy/One Treatment | <input type="checkbox"/> Whirlpool bath therapy/multiple treatment |
| <input type="checkbox"/> Non-Prescriptive medicine | <input type="checkbox"/> Whirlpool bath therapy/single treatment |
| <input type="checkbox"/> None | <input type="checkbox"/> X-rays negative |
| <input type="checkbox"/> Observation | <input type="checkbox"/> X-rays positive/treatment of fracture |
| <input type="checkbox"/> Other (Specify) _____ | |
| <input type="checkbox"/> Prescription- Multiple dose | |
| <input type="checkbox"/> Prescription- Single dose | |
| <input type="checkbox"/> Removal of foreign bodies | |
| <input type="checkbox"/> Skin Removal | |
| <input type="checkbox"/> Soaking therapy- Multiple Treatment | |

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:

<u>Physician Information</u>	<u>Hospital Information</u>
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.



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”.

Personal Factors

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

Job Factors

2. Lack of or inadequate operational procedures or work standards.
3. Inadequate communication of expectations regarding procedures or standards
4. Inadequate tools or equipment

Other

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

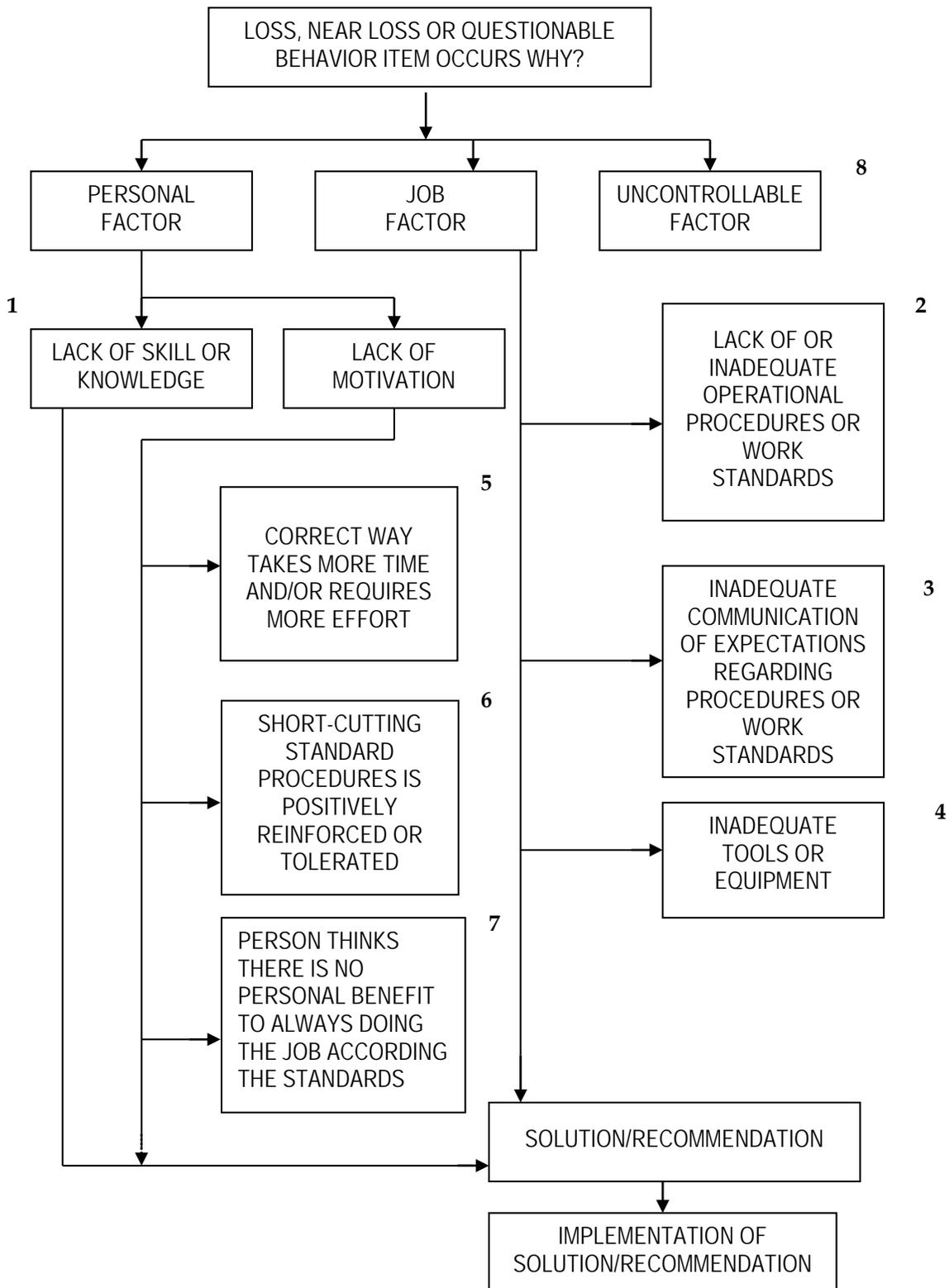
Name	Job Title	Date

Results of Solution Verification and Validation

Reviewed By

Name	Job Title	Date

Root Cause Analysis Flow Chart



Attachment 11
Hurricane Preparedness Plan

(RESERVED)

Appendix C
Quality Control Attachments

Submittal Register

Contract Number: N62470-08-D-1006		TO No.: WE01			TO Title: Demolition: Buildings 642/643, Former Naval Air Station Brunswick					Location: Brunswick, Maine			Contractor: 			
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
	Project Schedule															
	Demolition Work Plan															
	Accident Prevention Plan															
	Waste Management Plan															
	Quality Control Plan															
	Waste Management Plan															
	Environmental Protection Plan															
	Project Completion Report															
	Maine DEP Stormwater Permit-by-Rule Application															
	Natural Resources Protection Act Permit-By-Rule Application - Restoration of Natural Areas															
	Town or Topsham Permit Application															
	Photographic Records/Log															
	Waste Manifests															
	Electrician License															
	Pre-final/Final Inspection Checklist															
	Waste Tracking Log															

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

CH2M HILL RAC 4		PREPARATORY PHASE REPORT		REPORT NO:	REPORT DATE:
					REVISION NO:
					REVISION DATE:
PROJECT NO:		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 <input type="checkbox"/> NO <input type="checkbox"/>			
		YES <input type="checkbox"/> NO <input type="checkbox"/>			
SAFETY	ACTIVITY HAZARD ANALYSIS APPROVED? YES <input type="checkbox"/> NO <input type="checkbox"/>				
	REVIEW APPLICABLE PORTION OF EM 385-1-1 AND AHA.				
MEETING COMMENTS	NAVY/ROICC COMMENTS DURING MEETING.				
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS:				
QC REPRESENTATIVE'S NAME		QC REPRESENTATIVE'S SIGNATURE		DATE	



Small Business RAC
N62470-08-D-1006

CONTRACTOR PRODUCTION REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE OF REPORT:

REVISION NO:

REVISION DATE:

TO NO: WE01	PROJECT NAME/LOCATION: Topsham Annex, Naval Air Station Brunswick / Topsham, Maine	REPORT NO:
PROJECT NO:	SUPERINTENDENT:	SITE H&S SPECIALIST:
AM WEATHER:	PM WEATHER:	MAX TEMP: F MIN TEMP: F

SUMMARY OF WORK PERFORMED TODAY

JOB SAFETY	Was A Job Safety Meeting Held This Date? <input type="checkbox"/> Yes <input type="checkbox"/> 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) <input type="checkbox"/> Yes <input type="checkbox"/> No	CH2MHILL On-Site Hours	
	Was a Confined Space Entry Permit Administered This Date? (If Yes, attach copy of each permit) <input type="checkbox"/> Yes <input type="checkbox"/> No	AGVIQ On-Site Hours	
	Was Crane/Manlift/Trenching/Scaffold/HV Elec/High Work/Hazmat Work Done?? (If Yes, attach statement or checklist showing inspection performed) <input type="checkbox"/> Yes <input type="checkbox"/> No	Subcontractor On-Site Hours	
	Was Hazardous Material/Waste Released into the Environment? (If Yes, attach description of incident and proposed action) <input type="checkbox"/> Yes <input type="checkbox"/> No	Total On-Site Hours This Date	
	Cumulative Total of Work Hours From Previous Report		
	Total Work Hours From Start of Construction		

SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED (Include Safety Violations, Corrective Instructions Given, Corrective Actions Taken, and Results of 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'S SIGNATURE

DATE



Small Business RAC
N62470-08-D-1006

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

REPORT DATE:
 REVISION NO:
 REVISION DATE:

TO NO: WE01	PROJECT NAME/LOCATION: Topsham Annex, Naval Air Station Brunswick / Topsham, Maine	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
1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	

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 Small Business RAC N62470-08-D-1006	CONTRACTOR QUALITY CONTROL REPORT (ATTACH ADDITIONAL SHEETS IF NECESSARY)	REPORT DATE: REVISION NO: REVISION DATE:
--	---	--

CTO NO:	PROJECT NAME/LOCATION:	REPORT NO:
PROJECT NO:	PROJECT QC MANAGER:	SITE H&S SPECIALIST:

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 <input type="checkbox"/> NO <input type="checkbox"/>	
		YES <input type="checkbox"/> NO <input type="checkbox"/>	
		YES <input type="checkbox"/> NO <input type="checkbox"/>	
		YES <input type="checkbox"/> NO <input type="checkbox"/>	
		YES <input type="checkbox"/> NO <input type="checkbox"/>	
		YES <input type="checkbox"/> NO <input type="checkbox"/>	

SUBMITTALS INSPECTION / REVIEW				
SUBMITTAL NO	SUBMITTAL DESCRIPTION	SPEC/PLAN REFERENCE	SUBMITTAL APPROVED?	COMMENT/REASON/ACTION
			YES <input type="checkbox"/> NO <input type="checkbox"/>	
			YES <input type="checkbox"/> NO <input type="checkbox"/>	
			YES <input type="checkbox"/> NO <input type="checkbox"/>	
			YES <input type="checkbox"/> NO <input type="checkbox"/>	

OFF-SITE SURVEILLANCE ACTIVITIES, INCLUDING ACTIONS TAKEN:							
ACCUMULATION/STOCKPILE AREA INSPECTION							
INSPECTION PERFORMED BY:		SIGNATURE OF INSPECTOR:					
ACCUMULATION/STOCKPILE AREA LOCATION							
NO OF CONTAINERS:		NO OF TANKS:		NO OF ROLL-OFF BOXES:		NO OF DRUMS:	

INSPECTION RESULTS:
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.):

<i>On behalf of the contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.</i>	_____ PROJECT QC MANAGER'S SIGNATURE	_____ DATE
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<i>On behalf of the contractor, I attest that the work for which payment is requested, including stored material, is in compliance with contract requirements.</i>	_____ PROJECT QC MANAGER'S SIGNATURE	_____ DATE
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REQUEST FOR INFORMATION

Project Name/Description:	RFI No.:		Date Submitted:
Contract/TO No:	Project No:		
To:			
Name		Title	
From:			
Name		Title	
REFERENCES			
Document (<i>Work Plan, Scope of Work, etc.</i>):			
Drawing(s)/Specification (<i>Drawing No, Specification No., etc.</i>):			
Detail/Section (<i>Page No., Section No., Paragraph No., etc.</i>):			
Discipline (<i>Architecture, Electrical, Mechanical, Chemical, Hydrogeology, etc.</i>):			
POTENTIAL IMPACT: Cost <input type="checkbox"/> Schedule <input type="checkbox"/> Activity/Task Impacted:			
REQUEST			
Requested By: <i>(Name/Company/Title)</i>		Response Requested by Date:	
REPLY:			
Responded By: <i>(Name/Company/Title)</i>		Date of Response:	
RESPONSE DISPOSITION/ CONCURRENCE:			
Response Dispositioned / Concurred With By: <i>(Name/Company/Title)</i>		Date Response Dispositioned Concurred With:	
FURTHER ACTIONS REQUIRED:			
REVIEW DISTRIBUTION		FINAL DISTRIBUTION	
<input type="checkbox"/> CH2M HILL PM	<input type="checkbox"/>	<input type="checkbox"/> CH2M HILL PM	<input type="checkbox"/>
<input type="checkbox"/> CH2M HILL CM	<input type="checkbox"/>	<input type="checkbox"/> CH2M HILL CM	<input type="checkbox"/>
<input type="checkbox"/> CH2M HILL QC	<input type="checkbox"/> Project Files	<input type="checkbox"/> CH2M HILL QC	<input type="checkbox"/> Project Files

