

Draft
Accident Prevention Plan

**Installation of Full Scale Treatment System
Liquid-Phase Granular Activated Carbon Units**

**Aqua New York, Inc
Seamans Neck Road Water Plant
NWIRP Bethpage, New York**

**Contract No. N62470-08-D-1006
Task Order No. WE23**

Submitted to:



Prepared by:



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Revision No. 00

Contents

Contents.....	iii
Acronyms and Abbreviations.....	ix
1.0 Signature Sheet.....	1-1
1.1 Revisions.....	1-2
1.2 Introduction.....	1-3
2.0 Background Information.....	2-1
2.1 Facility and Site Background.....	2-1
2.1.1 Site Information.....	2-1
2.2 General Task Order Scope of Work.....	2-2
2.3 Health and Safety Plan Assumption Set.....	2-3
2.4 HAZWOPER-Regulated Tasks.....	2-5
2.5 Non-HAZWOPER-Regulated Tasks.....	2-5
3.0 Statement of Safety and Health Policy.....	3-1
3.1 Purpose.....	3-2
3.2 Objectives.....	3-2
3.3 Accident Goals for this Contract and Program.....	3-2
4.0 Responsibilities and Lines of Authorities.....	4-1
4.1 Statement of Ultimate Responsibility for the Implementation of the SOH Program.....	4-1
4.2 Identification and Accountability of Personnel Responsible for Safety at Both the Corporate and Project Level.....	4-1
4.3 Organization and Responsibility for Health and Safety.....	4-2
4.3.1 Program Manager.....	4-2
4.3.2 Project Manager.....	4-2
4.3.3 Certified Industrial Hygienist.....	4-3
4.3.4 Health and Safety Program Administrator(s).....	4-4
4.3.5 Site Supervisors.....	4-4
4.3.6 Site Safety and Health Officer.....	4-6
4.3.7 4.b(1) - 4.b(9) OSHA 30 hr Course.....	4-7
4.3.8 AGVIQ-CH2MHILL Program Participants.....	4-7
4.4 Employee Competency.....	4-8
4.4.1 4d. Presence of Competent Person On-Site.....	4-8
4.5 Requirements for Pretask Safety and Health Analysis.....	4-8
4.6 Lines of Authority.....	4-9
4.7 Non Compliance with Safety Requirements.....	4-11
4.8 Procedures for Holding Managers and Supervisors Accountable for Safety.....	4-11
5.0 Subcontractors and Suppliers.....	5-1
5.1 Identification of Subcontractors and Suppliers (if known).....	5-1
5.2 Safety Responsibilities of Subcontractor/Supplier.....	5-1
6.0 Training.....	6-1
6.1 New Hire SOH Orientation Training.....	6-1
6.2 Requirements for Mandatory Training and Certificates.....	6-2

6.3	Procedures for Periodic Safety & Health Training of Supervisors and Employees.....	6-4
6.4	Requirements for Emergency Response Training.....	6-4
6.5	Medical Surveillance and Qualification	6-4
7.0	Safety and Health Inspections	7-1
7.1	Specific Assignment of Responsibilities for minimum Daily Job Site Inspections.....	7-1
7.2	External Inspections/Certifications	7-2
8.0	Accident Reporting and Investigation.....	8-1
8.1	Exposure Data (man-hours worked).....	8-1
8.2	Accident Investigations, Reports and Logs.....	8-2
	8.2.1 Immediate Accident Notification Criteria.....	8-3
	8.2.2 Best Management Practices for Incident Investigation.....	8-3
9.0	Plans Required by the Safety Manual.....	9-5
9.1	Layout Plans (04.A.01)	9-5
9.2	Emergency Response Plans (01.E).....	9-5
	9.2.1 Emergency Planning/Preparedness	9-5
	9.2.2 Emergency Equipment and Supplies.....	9-6
	9.2.3 Evacuation.....	9-6
	9.2.4 Procedures and Tests (01.E.01).....	9-9
	9.2.5 Spill Plans (01E.01, 06.A.02).....	9-9
	9.2.5.1 Anticipated Hazardous Materials (06.A.02)	9-10
	9.2.5.2 Notification.....	9-11
	9.2.6 Firefighting Plan (01.E.01, Section 19).....	9-11
	9.2.7 Posting of Emergency Telephone Numbers (01.E.05).....	9-11
	9.2.8 Man Overboard / Abandon Ship (19.A.04)	9-11
	9.2.9 Medical Support.....	9-11
9.3	Plan for Prevention of Alcohol and Drug Abuse (01.C.02).....	9-14
9.4	Site Sanitation Plan (2)	9-14
9.5	Access and Haul Road Plan (4.B)	9-14
9.6	Respiratory Protection Plan (05.G).....	9-14
9.7	Health and Safety Hazard Control Program (06.A).....	9-15
	9.7.1 Adverse Weather.....	9-15
	9.7.2 Lightning.....	9-16
	9.7.3 Aerial Lifts.....	9-16
	9.7.4 Air Compressor Operations	9-16
	9.7.5 Asbestos.....	9-16
	9.7.6 Biological Hazards and Controls	9-17
	9.7.6.1 Venomous Snakes	9-17
	9.7.6.2 Ticks.....	9-22
	9.7.6.3 Spiders - Brown Recluse.....	9-24
	9.7.6.4 Spiders - Widow	9-25
	9.7.6.5 Blood borne Pathogens.....	9-26
	9.7.6.6 Mosquito Bites	9-27
	9.7.6.7 Rabid Animals	9-28
	9.7.7 Buried Objects/Utilities (locating)	9-29
	9.7.8 Chemical Injections.....	9-31

9.7.9 Concrete Work	9-31
9.7.10 Confined Space Entry	9-32
9.7.11 Cranes 9-32	
9.7.12 Demolition/Dismantling	9-36
9.7.13 Drilling/Direct Push Technology	9-36
9.7.14 Electrical Safety	9-36
9.7.15 Excavation Activities	9-38
9.7.16 Fall Protection	9-40
9.7.17 Fire Prevention	9-41
9.7.17.1 Major Workplace Fire Hazards	9-41
9.7.17.2 Fire Prevention Measures	9-42
9.7.18 Flight Line Safety	9-43
9.7.19 General Practices and Housekeeping	9-43
9.7.20 Hand and Power Tools	9-44
9.7.20.1 Machine Guarding	9-45
9.7.20.2 Knife Use	9-46
9.7.20.3 Responsibilities	9-46
9.7.20.4 Glove Requirements	9-46
9.7.20.5 Standard Control Measures for Knife Use	9-46
Examples of Preferred Tools and Kevlar Cut Resistant Gloves	9-47
9.7.21 Haul Trucks	9-48
9.7.22 Heavy Equipment	9-49
9.7.23 Land Clearing Operations - General	9-50
9.7.24 Lock-Out/Tag-Out	9-51
9.7.25 Manual Lifting	9-51
9.7.26 Noise 9-52	
9.7.27 Pressure Washing Operations	9-53
9.7.28 Sample Handling	9-53
9.7.29 Slips, Trips and Falls	9-53
9.7.30 Stairways and Ladders	9-54
9.7.31 Vacuum Truck Operations	9-55
9.7.32 Vehicular Traffic (Exposure to)	9-55
9.7.33 Visible Lighting	9-56
9.7.34 Welding or Cutting Operations	9-57
9.7.35 Working Alone	9-61
9.7.36 Working Around Material Handling Equipment	9-62
9.7.37 Working on or Over Water	9-62
9.8 Hazard Communication Program (06.B.01)	9-62
9.8.1 Shipping and Transportation of Chemical Products	9-63
9.9 Process Safety Management (06.B.04)	9-63
9.10 Lead Abatement Plan (06.B.05)	9-63
9.11 Asbestos Abatement Plan (06.B.05)	9-63
9.12 Radiation Safety Program (06.E.03)	9-63
9.13 Abrasive Blasting (06.H.01)	9-63
9.14 Heat/Cold Stress Monitoring Program (06.I.02)	9-63
9.14.1 Heat Stress Monitoring and Prevention	9-63
9.14.2 Monitoring Heat Stress	9-65

9.14.3	Cold Stress Monitoring and Prevention.....	9-66
9.15	Crystalline Silica Monitoring Plan (06.M).....	9-69
9.16	Night Operations Lighting Plan (07.A.08).....	9-69
9.17	Fire Prevention Plan (09.A).....	9-69
9.18	Wild Land Fire Management Plan(09.K).....	9-69
9.19	Hazardous Energy Control Plan (12.A.01).....	9-69
9.20	Critical Lift Plan (16.H).....	9-69
9.21	Contingency for Severe Weather Plan (19.A.03).....	9-69
9.22	Float Plan (19.F.04).....	9-70
9.23	Site Specific Fall Protection and Prevention Plan (21.C).....	9-70
9.24	Demolition Plan(23.A.01).....	9-70
9.25	Excavation/Trenching Plan (25.A.01).....	9-70
9.26	Emergency Rescue (Tunneling) (26.A).....	9-70
9.27	Underground Construction Fire Prevention and Protection Plan (26.D).....	9-70
9.28	Compressed Air Plan (26.I.01).....	9-71
9.29	Formwork Shoring and Removal Plan (27.C).....	9-71
9.30	Precast Concrete Plan (27.D).....	9-71
9.31	Lift Slab Plan (27.E).....	9-71
9.32	Steel Erection Plan (27.F).....	9-71
9.33	Site Safety and Health Plan of HRTW Work (28.B).....	9-71
9.34	Blasting Safety Plan.....	9-71
9.35	Diving Plan.....	9-72
9.36	Confined Space Program.....	9-72
10.0	Risk Management Process.....	10-1
10.1	Activity Hazard Analysis.....	10-1
10.2	Pre-Task Safety Plans.....	10-2
10.3	Loss Prevention Observations.....	10-4
10.3.1	Deficiency Tracking System.....	10-4
10.4	Loss/Near-Loss Investigations.....	10-5
10.5	Drug-Free Workplace Program.....	10-5
10.6	Project Specific Activity Hazard Analyses.....	10-5

Attachments

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

- 11 Qualifications of Key Site Personnel
- 12 Hurricane Preparedness Plan (RESERVED)

Figures

- 4-1 AGVIQ-CH2MHILL Incident Notification Process & Line Authority
- 9-1 Evacuation Route Map - Evacuation Route Map
- 9-2 Hospital Route Map
- 9-3 Decontamination Line

Tables

- 10-1 Activity Hazard Analysis Basis

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
CIF	Controlled Industrial Facility
CIH	Certified Industrial Hygienist
COC	Chemicals of Concern
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
CSIR	Contractor Significant Incident Report
CTO	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
DON	Department of the Navy
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
MLLW	Mean Lower Low Water
MEC	Munitions and Explosives of Concern
MPPEH	Materials Potentially Presenting an Explosive Hazard
MSDS	Material Safety Data Sheet
NAICS	North American Industry Classification System
NOAA	National Oceanic and Atmospheric
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PACM	Presumed Asbestos Containing Material
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PEL	Permissible Exposure Limit (OSHA)
POC	Point of Contact
PPE	Personal Protective Equipment
ppm	Parts per million
PRGs	Preliminary Remedial Goals
PTSP	Pre-Task Safety Plan
QC	Quality Control Plan
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Process
RPM	Remedial Project Manager
SAP	Sampling and Analysis Plan
SBRAC	Small Business Remedial Action Contract

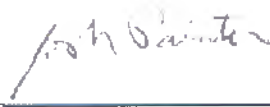
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure (CH2M HILL)
SPCCP	Spill prevention, control, and countermeasure plan
SSHO	Site Safety and Health Officer
SSHSP	Site Specific Health and Safety Plan
SWO	Stop Work Order
SZ	Support Zone
TSCA	Toxic Substances Control Act
USCG	United States Coast Guard
WMP	Waste Management Plan
WP	Work Plan

1.0 Signature Sheet

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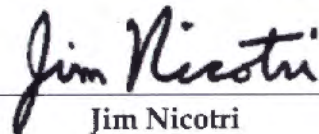


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1.1 Revisions

Revisions Made By:

Date:

Revisions to Plan:

Revisions Approved By:

Date:

1.2 Introduction

The AGVIQ-CH2M HILL Joint Venture III (AGVIQ-CH2M HILL) has been contracted by the United States Navy, Naval Facilities Engineering Command (NAVFAC) Atlantic Division (MIDLANT), for the construction and startup of a full scale permanent treatment system, liquid-phase granular activated carbon (LPGAC) units at the Aqua New York, Inc. (AQUA-NY) Seaman's Neck Road Facility. This work will be performed under the terms and conditions of Contract Number N62470-08-D-1006, Contract Task Order (CTO) WE23.

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 US Army Corps of Engineers, EM 385 1-1, "Safety and Health Requirements Manual". 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 contract task order (CTO) work. However, AGVIQ-CH2M HILL will endeavor to implement the September 15, 2008 version for this project where ever it is feasibly possible. It should be noted that the content 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 on-site for reference by site personnel. Means and methodology for execution of CTO tasks which are detailed in the project work plan (WP) which includes this APP, Environmental Protection Plan (EPP), and Quality Control Plan (QCP). The WP and its attached support documents are not intended to be executed as separate documents. Therefore any means and methods identified within the WP or its support documents will not be significantly elaborated upon herein, in an effort to minimize duplicity or erroneous information.

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

CONTRACTOR: AGVIQ-CH2M HILL Constructors, Inc. Joint Venture III
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CONTRACT#: Number N62470-08-D-1006
(PRIME) Contract Task Orders WE23

PROJECT NAME: Installation of Full Scale Treatment System Liquid-Phase
Granular Activated Carbon Units at Aqua New York, Seaman
Neck Road Facility, NWIRP Bethpage, New York

2.1 Facility and Site Background

This project consists of construction and startup of a permanent well-head treatment remedy for Aqua New York (AQUA-NY) water supply wells N-8480 (Well No. 3) and N-9338 (Well No. 4) located at the Seamans Neck Road Facility.

2.1.1 Site Information

Trichloroethene has been detected at a maximum concentration of 3.3 micrograms per liter ($\mu\text{g/L}$) in groundwater. The Navy has worked with the New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH), Nassau County Department of Health (NCDOH), and Town of Hempstead (TOH) to construct a long-term system to remove VOCs from Well Nos. 3S and 4S. These activities are authorized under the 2001 NYSDEC and 2003 Navy Record of Decision. A Basis of Design Report for the full-scale long-term system was prepared for this system in December 2010, and approval from the NCDOH was received in August 2011 (NCDH 3325-10). In September 2011, a design package was submitted for NCDOH review and comments were received in October and November 2011 and April 2012. NCDOH comments on the full-scale system design are currently being addressed. Responses to those comments and revised drawings showing the changes made were submitted to the NCDOH on September 4, 2012. Construction of the full-scale long-term system is tentatively planned to start in the fall 2012 and be completed in spring 2013.

2.2 General Task Order Scope of Work

The scope of work (SOW) is to implement both the temporary and full scale 100% Design Document (Tetra Tech NUS December 2011, and Tetra Tech NUS September 2011). The 100% Design Document includes the design drawings, and specifications. For the purposes of developing and executing project Activity Hazard Analyses (AHA) from a health and safety requirements and task hazard control perspective, a summary of the major Definable Features of Work (DFOWs) to complete the execution of this CTO are as follows:

1. Mobilization
 - Mobilization and site set up
 - Utility Survey
 - Vegetation Clearing & grubbing
 - Survey and construction stake-out
 - Installation of Erosion and Sediment Controls
2. Demolition
 - Remove asphalt and curbing
 - Remove Well #2 (Motor and Pump Unit)-Dispose/Cap Well
 - Remove the Well #2 Shed Structure
3. Underground Piping and Utilities Installation
 - Trenching/Excavation
 - Gas and Electric temporary line relocation
 - Install piping and conduit
4. Concrete Work
 - Excavation
 - Subsurface Preparation & Testing
 - Footer Installation
 - Concrete foundation
 - Concrete Slab for building structure
 - Interior and exterior Various concrete pads
5. Process Equipment, Piping and Valves
 - Install GAC vessels and Backwash Waste Tank
 - Install process piping and valves
 - Install GAC System Backwash Pumps
 - Install Chemical Systems
 - Other misc piping
 - Rebuild Plant Well Pumps
6. Building construction and interior work
 - Building structural steel frame and vertical wall units
 - Building Structure Installation
 - Roof Structure
 - Doors, windows, wall, and roof penetrations, etc
 - Fire sprinkler system

- Concrete Masonry Unit-rooms with bond beams and roof
 - Mechanical (Heating and AC Units)
 - Electrical (Lighting)
 - Finishes (Painting), Signage, and Fire Extinguishers
7. Electrical and Instrumentation
 - Install electrical equipment
 - Motor Control Centers
 - Automatic Transfer Switch
 - Wiring
 - Instrument Installation
 - Configure Process Control
 8. Final Exterior Work
 - Install and connect Emergency Generator
 - Connect gas piping (National Grid)
 - Electrical Connection (LIPA)
 9. System Start-Up
 - Flushing piping and vessels
 - Sterilizing the system
 - Loading carbon (fill GAC Vessels)
 - Backwash GAC Vessels
 - Start-Up system
 10. Site Restoration
 - Landscaping
 - Restore disturbed areas
 - Repair paving/new asphalt driveways
 - Site cleanup (Building Construction Debris Removal)
 11. Demobilization
 - Equipment Removal
 - Remove Temporary GAC System and Demo Concrete Pad
 - Site Restoration & Clean-Up
 - Remove E/SC Features
 - Temporary Fences/Utilities

AHAs associated with the execution of this work are included in section 10.6 Project Specific Activity Hazard Analyses of this APP.

2.3 Health and Safety Plan Assumption Set

The assumption set for the development of this APP is that AGVIQ-CH2MHILL site personnel and subcontractors controlled by AGVIQ-CH2MHILL who may be covered by this APP are based on the following:

- Work to be performed under this TO does not include exposure to potential site contaminants and is not required to be performed under the OSHA HAZWOPER 29 CFR 1910.120 regulations.
- No Chemical, Biological, Nuclear or Radioactive (CBNR) weapon/agent, material potentially presenting an explosive hazard (MPPEH) or munitions and explosives of concern (MEC) or presumed asbestos containing material (PACM) or asbestos containing material (ACM) will be encountered during the execution of this task order. All site work must cease if it is suspected that these items are on-site.
- 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 Table 1-1, **Attachment 1** (SSHSP) of this APP.
- Where the use of air monitoring equipment is specified, it shall be in accordance with Table 1-2, **Attachment 1** (SSHSP) 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 29CFR1910.120/29CFR1926.65. 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.

- None

2.5 Non-HAZWOPER-Regulated Tasks

HAZWOPER regulations under 29CFR1910.120/29CFR1926.65 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 29CFR1910.120/29CFR1926.65 and where there is question to potential exposure to chemical hazards by site workers. Where it is unlikely or not possible that workers could not be exposed to site chemical hazards during the normal execution of assigned tasks, the task can be considered a Non-Hazwoper Regulated Task. For this project, the following activities can be considered Non-Hazwoper Regulated Tasks.

- Mobilization
- Demolition
- Underground Piping and Utilities Installation
- Concrete Work
- Building construction and interior work
- Process Equipment, Piping and Valves
- Electrical and Instrumentation
- Final Exterior Work
- Site Restoration
- System Start-Up
- 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 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.

3.2 Objectives

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.

3.3 Accident Goals for this Contract and Program

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

4.1 Statement of Ultimate Responsibility for the Implementation of the SOH Program

It is always the ultimate responsibility of the AGVIQ, LLC. and CH2M HILL, Inc. as employers and collective as AGVIQ-CH2M HILL to ensure that the requirements of its safety and health program are properly implemented and that a safe and health work environment is provided. This is done through the guidance and oversight of contract work by key program and project personnel.

4.2 Identification and Accountability of Personnel Responsible for Safety at Both the Corporate and Project Level

The following listed AGVIQ-CH2MHILL key project and program 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-CH2MHILL SBRAC Program Manager

Sidney Allison: (843) 242-8018/ (843) 813-2672 (cell)

AGVIQ-CH2MHILL SBRAC Deputy Program Manager

Michael Halil: (904) 777-4812/ (904) 219-6277 (cell)

AGVIQ-CH2M HILL Project Manager (overall)

Jim Nicotri: (617) 626-7042/ (339) 832-4555 (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/

Randy Grogan: (516) 796-6251/ (907) 441-5814

AGVIQ-CH2M HILL Joint Venture Program SSO

TBD

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

Josh Painter, CSP: (303) 993-9274 (cell)

Mark Orman, CSP, CHMM: (414) 847-0597/ (414) 712-4138 (cell)

4.3 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-CH2MHILL 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-CH2MHILL 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.

4.3.1 Program Manager

The AGVIQ-CH2MHILL Program Manager is the primary operational and safety official of AGVIQ-CH2MHILL and has overall responsibility for ensuring that AGVIQ-CH2MHILL program participants implement the established health and safety policies and procedures adopted by AGVIQ-CH2MHILL. The deputy program manager supports the execution of all operations required of the Program Manager.

4.3.2 Project Manager

The AGVIQ-CH2M HILL Project Manager is responsible for allocation and coordination of 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:
 - Ensuring that the review and acceptance/rejection of subcontractor pre-qualification health and safety questionnaires and safety performance documents has been completed.
 - Ensuring that acceptable certificates of insurance, including AGVIQ-CH2M HILL as named additional insured, are secured as a condition of subcontract award.
 - Ensuring subcontractor HS&E submittals required by subcontract agreements are executed, 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.

- Ensure that subcontract agreements and subcontractor certificates of insurance, bond, contractor's license, training and medical monitoring records, and site-specific safety procedures in the project file are accessible to site personnel.
- Provide oversight of AGVIQ-CH2M HILL and subcontractor HS&E practices per the requirements of established safety documents (i.e. APP, SSHS and AHAs).
- 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.
- Monitor project health and safety performance during site operations. Ensure that both the overall and job-specific HS&E goals are fully and consistently implemented.
- Reporting all accidents injuries, illness, property damage cases and near-miss incidents to the Program CIH and Program and Deputy Program Managers.

4.3.3 Certified Industrial Hygienist

The AGVIQ-CH2MHILL 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 (Health and Safety Manager) 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-CH2MHILL 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.
- Coordinates with the Program Manager, Deputy Program Manager and the Project Manager (and HSPA or SSHO, as necessary) on all site or worker health and safety matters.

4.3.4 Health and Safety Program Administrator(s)

The AGVIQ-CH2MHILL 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 health and safety matters. The HSPA provides the day to day implementation of the health and safety program on behalf of the Program CIH. The HSPA is responsible for supporting and assisting the AGVIQ-CH2MHILL 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, site-specific safety procedures or subcontractor safety performance submittals prior to start of subcontractor's field operations and request corrective actions are made, where required.
- Support the SSO'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).

4.3.5 Site Supervisors

Site supervisors are the critical links to the success of our injury and illness prevention and overall implementation of our Risk Management Process (RMP). 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:

- Implementing the health and safety aspects of the AGVIQ-CH2M HILL program and ensuring that any on-site 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;

- Report all accidents injuries, illness, property damage cases and near-miss incidents to the Project Manager (overall).
- 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;
- 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.
- 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;
- 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. The site supervisor shall also have the authority to take prompt corrective measures to eliminate existing and predictable hazards and stop work when required.
- 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.

4.3.6 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:

- The SSHO shall have the on-site responsibility and authority to modify or stop work or remove personnel from the site, if working conditions change or may affect on-site or off-site health and safety. The SSHO shall have the authority to immediately stop work when an employee is deemed to be in imminent danger of serious injury or loss of life.
- The SSHO will remain onsite at all times when work is in progress unless properly relieved by a qualified and designated SSHO alternate.
- Report all accidents injuries, illness, property damage cases and near-miss incidents to the Site Supervisor and Program CIH.
- 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 SSHSP, and sign **Attachment 2**, APP/SSHSP "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 on-site 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 4**, 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 (overall) 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.

4.3.7 OSHA 30 hr Course

Not Applicable. There is no specific information that must be included in this section. Sections 4.b(1) – 4.b(9) of EM 385 1-1, Appendix A of only establishes what shall be included in the OSHA 30-hour course or equivalent course. In order to receive an OSHA sanctioned 30 hr Construction Safety Training card, the course and specific training requirements must be included.

4.3.8 AGVIQ-CH2MHILL Program Participants

All AGVIQ-CH2MHILL 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 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.

4.4 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.

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.

4.4.1 Presence of Competent Person On-Site

Executable on-site 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 and present on the job site.

The only potential identified requirement for competent person during the execution of this project is for inspection of rigging (synthetic slings) before use under 29 CFR 1910.184(d) and EM 385 1-1, section 15.A.1.

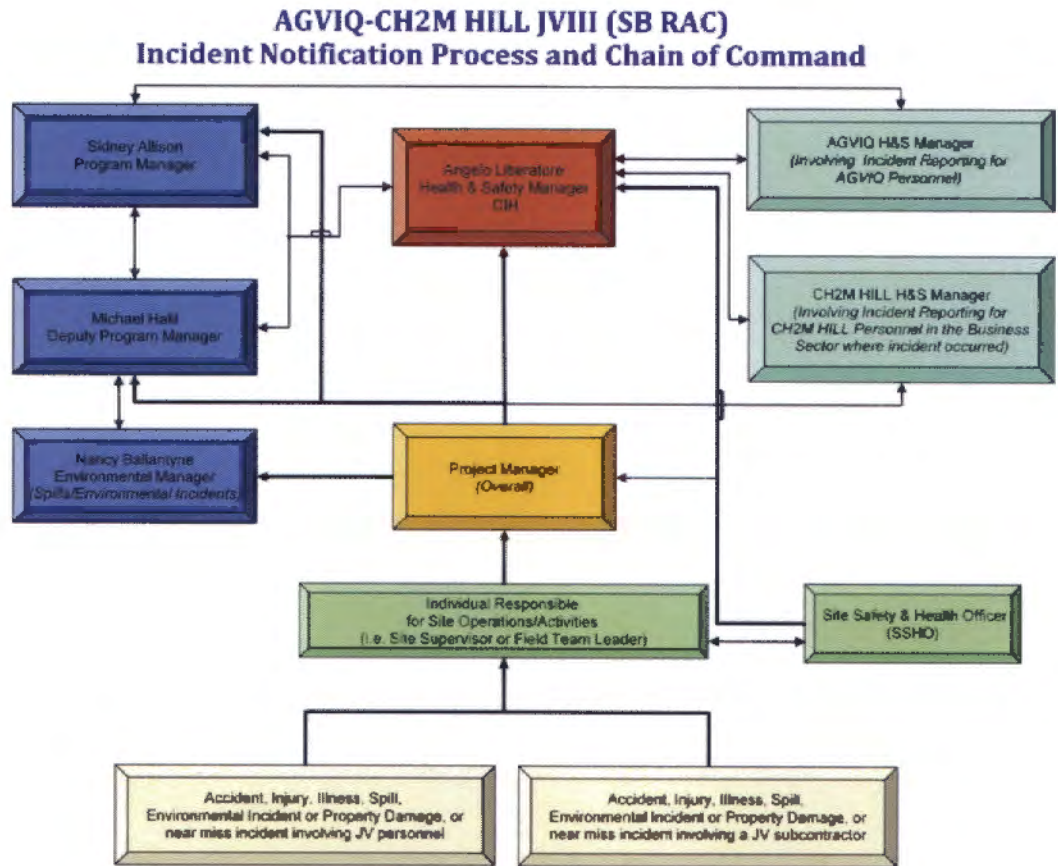
4.5 Requirements for Pre-task Safety and Health Analysis

Requirements for completing Pre-Task Safety and Health Analysis prior to the execution of on-site work must be, at a minimum, in accordance with sections 10.2 Pre-task Safety plans and section 10.1 Activity Hazard Analysis of this APP. Activity Hazard Analysis (AHA) documents applicable to this project are included in section 10.6, project Specific Activity hazard Analyses of this APP.

4.6 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-CH2MHILL Primary Lines of Authority for this project.

2 Where the Program CIH is not immediately available for incident reporting contact a designated AGVIQ-CH2MHILL HSPA.

4.7 Non Compliance with Safety 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-CH2MHILL personnel.

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

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

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

By using progressive discipline, most employee problems can be corrected at an early stage, benefiting both the employee, AGVIQ, LLC., CH2MHILL, Inc. and the AGVIQ-CH2MHILL Joint Venture Program.

Both AGVIQ, LLC. and CH2MHILL, 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-CH2MHILL Joint Venture.

4.8 Procedures for Holding Managers and Supervisors Accountable for Safety

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 on-site 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.

Section 4.7, 4g. Non Compliance with Safety Requirements of this APP identifies the procedures holding managers and supervisors and all other program participants accountable regarding non-compliance of safety requirements.

5.0 Subcontractors and Suppliers

5.1 Identification of Subcontractors and Suppliers (if known)

All subcontractors who may be required to support the execution of this CTO 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 CTO 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 CTO, 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-CH2MHILL 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 Safety Responsibilities of Subcontractor/Supplier

AGVIQ-CH2MHILL 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-CH2MHILL 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.

Typically, the subcontractor reports directly to the AGVIQ-CH2MHILL Project Manager. The AGVIQ-CH2MHILL Project Manager will typically designate daily subcontractor on-site reporting requirements to the AGVIQ-CH2MHILL site supervisor (i.e. Superintendent, foreperson, Field Team Leader or other appropriate designee).

AGVIQ-CH2MHILL subcontractors may be required to acknowledge and adhere to the requirements of the AGVIQ-CH2MHILL 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/SSHSP Acknowledgement Form (**Attachment 2**).

However, if the AGVIQ-CH2MHILL 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-CH2MHILL APP or prime contract documents.

All subcontractor personnel shall be subject to the same training (or medical surveillance requirement, where applicable) as AGVIQ-CH2MHILL personnel, depending on job activity and OSHA requirements.

All subcontractor personnel actively engaged in on-site operations should be required to sign in daily at AGVIQ-CH2MHILL controlled project sites (**Attachment 4**) and either attend an AGVIQ-CH2MHILL 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-CH2MHILL site supervisor and a copy of the subcontractor's incident or injury/illness report will be submitted to the AGVIQ-CH2MHILL 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 (29CFR1910, 29CFR1926, as applicable), EM 385 1-1 or other applicable health and safety plan(s)/protocols. Identified subcontractor health and safety performance or site conditions that are not consistent with established procedures must be corrected.

AGVIQ-CH2MHILL 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-CH2MHILL 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-CH2MHILL Health and Safety Program protocols or project/regulatory requirements, the designated subcontractor on-site 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 on-site 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 4**) affected work until adequate corrective measures are implemented.

- When an apparent imminent danger exists, immediately remove all affected AGVIQ-CH2MHILL and subcontractor personnel, notify on-site 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-CH2MHILL 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-CH2MHILL 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-CH2MHILL endeavors to maintain these documents on-site for review and will provide them to government officials for verification, upon request.

All AGVIQ-CH2MHILL personnel performing Hazardous Waste Operations and Emergency Response (HAZWOPER) Regulated Tasks are enrolled in a comprehensive health and safety program, which at a minimum, meets the requirements of 29CFR1910.120/29CFR1926.65 or 29CFR1910.134. The medical surveillance and training requirements associated with this project are summarized below.

Training or Medical Surveillance Requirement	Applicability
<ul style="list-style-type: none"> 29CFR1910.120(e)(3)/29CFR1926.65(e)(3) Note: 40 hr or 24 training as applicable to employee assigned duties. No periodic refresher performance so long as the requirements of 29CFR1910.120(e)(8)/29CFR1926.65(e)(8) are maintained. 	<ul style="list-style-type: none"> Not anticipated.
<ul style="list-style-type: none"> 29CFR1910.120(e)(8)/29CFR1926.65(e)(8) Refresher training required on an annual basis 	<ul style="list-style-type: none"> Not anticipated.
<ul style="list-style-type: none"> 29CFR1910.120(e)(4)/29CFR1926.65(e)(4) No specific recertification requirements. 	<ul style="list-style-type: none"> Not anticipated.
<ul style="list-style-type: none"> First Aid/CPR 1st Aid – typically 3 yr renewal CPR – 1 or 2 yr renewal (depending on sponsor) 	<ul style="list-style-type: none"> All designated manager, supervisory or SSHO site personnel (2 per site).
<ul style="list-style-type: none"> OSHA 10 hour Construction Safety Training 	<ul style="list-style-type: none"> SSHO
<ul style="list-style-type: none"> 29CFR1910.120(f)/29CFR1926.65(f) On an annual basis under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine 	<ul style="list-style-type: none"> Not anticipated.
<ul style="list-style-type: none"> 29CFR1910.134(e) On an annual basis under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine 	<ul style="list-style-type: none"> All site personnel performing Hazwoper regulated activities identified in section 2.4 of this APP and required to utilize respiratory protection
<ul style="list-style-type: none"> 49CFR172.700 Renewal, every 3 years 	<ul style="list-style-type: none"> 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) certifications. At least two employees on each shift shall be trained to administer First Aid and CPR. These individuals have also been provided training in exercising universal precautions against exposure to blood borne pathogens as a component to FA/CPR training which meets the intent of 29CFR1910.1030. This employee training is also regularly complemented by other regularly scheduled employer training curriculums that are typically executed for the HAZWOPER industry, regulated under 29CFR1910.120/29CFR1926.26.
- Certain key project site personnel that may be responsible for packaging, labeling hazardous materials for transportation will have received training in accordance with 49 CFR 172.700
- Employees being exposed to certain air borne chemicals or contaminants may require medical monitoring requirements defined by OSHA standards but outside of the medical monitoring requirements defined by 29CFR1910.120(f) or 29CFR1910.134(e), as applicable to anticipated site conditions.
- Where it is determined that employees will be performing certain assigned tasks (e.g., confined-space entry, scaffold, fall protection, forklift operations etc.), then training,

additional to that identified above, will be applicable and must be provided by the employer.

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

Supervisor and employee training is 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:

- First Aid and CPR training and Blood Bourne pathogen training
- Review and become familiar with the requirements of section 9.2 Emergency Response Planning of this APP.
- Review and become familiar with and site/facility specific evacuation, emergency response or request for medical support procedures that be applicable to the execution of work at the project site.

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

6.5 Medical Surveillance and Qualification

(Reference CH2M HILL SOP HSE-113, *Medical Surveillance*)

All site workers participating in hazardous waste operations (HAZWOPER) will maintain an adequate medical surveillance program in accordance with 29 CFR 1910.120 or 29 CFR 1926.65 and other applicable OSHA standards. Documentation of employee medical qualification (e.g., physician's written opinion) will be maintained in the project files and made available for inspection.

6.5.1 Job or Site-Specific Medical Surveillance

None required.

6.5.2 Hearing Conservation

Personnel working in hazardous waste operations or operations that fall under 29 CFR 1910.95 and exposed to noise levels in excess of the 85dBA time-weighted average shall be included in a hearing conservation program that includes annual audiometric testing.

7.0 Safety and Health Inspections

7.1 Specific Assignment of Responsibilities for minimum Daily Job Site Inspections

The AGVIQ-CH2MHILL site supervisor or SSHO are required to perform site inspections using the checklists/forms included herein **Attachment 4** of this APP or contained in the CH2M HILL, Inc. SOPs referenced herein. The forms included in **Attachment 4**, 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 CH2MHILL Standards of Practice (SOP), referenced through section 9.0 of this APP, which are available in electronic format for AGVIQ-CH2MHILL program participants.

Site inspections/evaluations will be made by the site supervisor, SSHO or other designated AGVIQ-CH2MHILL 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 9** 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. 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-CH2MHILL 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
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
Heavy Equipment	Designated Heavy Equipment Operator	Daily when operated
Crane Inspection	Crane Competent Person	Daily
Excavations	Excavation Competent Person	Daily with open excavations
Project Audits	Program level: managers, health and safety professionals or quality control managers	Typically once per project but is dependent upon project complexity and size
First Aid Kits	Any site personnel, but typically the Site Supervisor, SSHQ or QCM	Before on-site 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

7.2 External Inspections/Certifications

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

- Issuance of NAVFAC Excavation Permit or CH2M HILL Excavation Permit
- Issuance of Navy Hot Work Permit by the facility Fire Department Inspector or CH2M HILL Hot Work Permit if no Navy Inspector available.
- Annual Crane inspection by independent third party inspector

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 782,054.5 labor hours, from 2003 through November, 2011. During this period, three (3) OSHA other recordable cases and one (1) Days Away, Restriction, or Transfer (DART) or "lost work day" case and zero (0) fatalities have been attributed to completed or ongoing AGVIQ-CH2M HILL Joint Venture program projects. With this information available the following can be determined:

- Days Away, Restriction, or Job Transfer (DART) Incident Rate:
$$\frac{\text{Number of DART Cases} \times 200,000}{\text{Number of Hours Worked}}$$
$$\text{DART Incident Rate} = \frac{1 \times 200,000}{782,054.5} = 0.26 \quad \text{AND}$$
- OSHA Recordable Incident Rate:
$$\frac{\text{Number of OSHA Total Recordable Cases} \times 200,000}{\text{Number of Hours Worked}}$$
$$\text{OSHA Total Recordable Case Rate} = \frac{3 \times 200,000}{782,054.5} = 0.77$$

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

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

- USBLS IR Construction Benchmark (2009): 4.2¹
- USBLS DART Construction Benchmark (2009): 2.3^{1,2}
- USBLS IR Remediation Services Benchmark (2009): 3.2³
- USBLS DART Remediation Services (NAICS Code 56291) Benchmark (2009): 1.5^{2,3}

¹ NAICS Code 23

² DART total "all sizes"

³ NAICS Code 56291

8.2 Accident Investigations, Reports and Logs

Completion of incident and near-miss incident investigation reports for the AGVIQ-CH2M HILL Joint Venture shall be performed using the forms in **Attachment 10** of this APP and generally via the procedures identified herein. The AGVIQ-CH2M HILL Program CIH, HSPA, or their designee (SSHO, site supervisor, project manager), conducts accident/incident investigations and prepares the required incident or near-miss incident investigation reports for the following conditions:

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

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

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

Except for rescue and emergency measures, 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 NAVFAC.

In addition to the incident and near-miss incident investigation report forms contained in **Attachment 10** of this APP, for all OSHA recordable accidents, property damage in excess of \$2,000 a Contractor Significant Incident Report (CSIR) must also be completed. If the CSIR is being used as initial notification of a Fatality or High Visibility Mishap. The initial form is due within 4 hours of a serious accident. A CSIR form marked 'Follow-up' or 'Final' is required within 5 days.

8.2.1 Immediate Accident Notification Criteria

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 NAVFAC as soon as reasonably possible but no later than 24 hours. Where an incident has, or appears to have, any of the consequences listed below, these incidents shall be immediately reported to NAVFAC.

- a. Fatal injury/illness;
- b. Permanent totally disabling injury/illness;
- c. Permanent partial disabling injury/illness;
- d. The hospitalization of three (3) or more people resulting from a single occurrence;
- e. Property damage of \$200,000 or more
- f. Arc Flash Incident/Accident

8.2.2 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 (04.A.01)

Site locus maps, layout plans, haul route maps, drawings, or sketches are included in the project WP, for which this APP is an integral component of and need not duplicated in this section of this APP. Site locus maps, layout plans and drawings are identified in the project WP as follows:

9.2 Emergency Response Plans (01.E)

9.2.1 Emergency Planning/Preparedness

(Reference CH2MHILL 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 on-site 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 on-site 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.

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 and AST fuel storage tank
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/Clean-up Materials/Proper Spill Response PPE	Construction Support Area/ AST fuel storage tank

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.
- 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.
- 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 may be 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 (Verify signal does not coincide with evacuation signals for government personnel in close proximity to the site)	Emergency; leave site now.
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, depicts an Evacuation Route Map. 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 national emergency.

FIGURE 9-1

Evacuation Route Map

**Procedure**

When a site emergency evacuation signal is given or required, all site personnel shall shut down operations and equipment, complete any personnel decontamination procedures, secure the site to the extent possible, and proceed to the **initial rally point** at the site construction trailer. All site personnel shall be accounted for and site personnel will receive further direction from the Site Superintendent. Notify the AGVIQ-CH2MHILL management team in accordance with Figure 4-1 "Incident Reporting Process and Chain of Command" and Attachment 4 "Emergency Contact List" of this APP and secure further instructions.

AGVIQ-CH2MHILL Project - Emergency Contacts

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

Michael Halil - SBRAC Deputy Program Manager: Phone (904) 777-4812 x 233/ (904) 219-6277 (cell)

Jim Nicotri - Project Manager (overall): (617) 626-7042/ (339) 832-4555 (cell)

9.2.4 Procedures and Tests (01.E.01)

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 (01E.01, 06.A.02)

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 within a dike or sump area, an area of isolation must be established around the spill. When any spill occurs, only those persons involved in overseeing or performing containment operations will be allowed within the designated hazard area and must maintain appropriate training and possess proper experience and PPE, to do so.

The onsite emergency coordinator will inform the proper agencies of all spills. A Project Emergency Contact List is provided in **Attachment 5** of this APP. For work at this site, it is the AGVIQ-CH2MHILL's understanding that 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 on-site as part of our scheduled work.

Reporting of spills or releases of oil or hazardous materials to appropriate agencies and stakeholders (i.e. NAVFAC, EPA, US Coast Guard, State DEP, the LECA etc.) must be performed 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.
- 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-CH2MHILL will have project field staff that are trained in accordance with 29CFR1910.120, are enrolled in a medical surveillance program meeting the criteria of 29CFR1910.120(f) and have previous experience training to mitigate unanticipated small releases of materials that could occur on this project (i.e. Petroleum, Oil or Lubricants) and spill materials that will be readily available at the project site.

9.2.5.1 Anticipated Hazardous Materials (06.A.02)

The following is a list of hazardous materials or chemicals that may be brought on-site 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.

- Marking Paint

- Fuel & Grease
- Insect repellent(s)

9.2.5.2 Notification

In the event a spill occurs that requires notification, a project person shall follow the "AGVIQ-CH2MHILL Incident Notification Process and Lines of Authority" organizational chart identified in **section 4.4** of this APP.

In addition, the AGVIQ-CH2MHILL 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-CH2MHILL 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 (01.E.01, Section 19)

AGVIQ-CH2MHILL 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-CH2MHILL 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 (01.E.05)

Emergency contact numbers appropriate to project operations are included in **Attachment 5** of this APP and are referenced as the "Emergency Contact List". For this project it is anticipated that a temporary project construction support trailer will be mobilized to and established at the project site (approximately at Point A of Figure 9-1). Posting of emergency contact information shall be posted in a commonly accessed area of the temporary construction trailer and in clear view of the on-site workers. 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 (19.A.04)

(Reserved)

Man overboard/abandon ship scenarios are not applicable to this CTO.

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 on-site 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 on-site 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.

Procedures for the decontamination and medical treatment of injured personnel are provided in section 1.2.18 of **Attachment 1** of this APP (Site Specific Safety and Health Plan).

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

Injuries and illnesses experienced by AGVIQ-CH2MHILL 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 5** 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 on-site 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



Directions	Distance
A 674 Seamans Neck Rd, Seaford, NY 11783	
Start out going south on Seamans Neck Rd toward Peter St.	~ 1.4 miles
Merge onto RT-135 S / Seaford-Oyster Bay Expy.	~ 0.9 miles
Merge onto Sunrise Hwy / RT-27 W via EXIT 2W toward New York	~ 7.4 miles
Turn left onto N Oceanside Rd.	~ 0.3 miles
Take the 3rd left onto Oswald Ct.	~ 0.03 miles
Turn slight right onto Healthy Way.	
1 HEALTHY WAY is on the left	
B South Nassau Communities Hospital, 1 Healthy Way, Oceanside, NY 11572 (516) 632-3000	

AGVIQ-CH2MHILL Project - Emergency Contacts

Sidney Allison - SBRAC Program Manager: Phone (843) 242-8018/ (843) 813-2672 (cell)
 Michael Halil - SBRAC Deputy Program Manager: Phone (904) 777-4812 x 233/ (904) 219-6277 (cell)
 Jim Nicotri - Project Manager (overall): (617) 626-7042/ (339) 832-4555 (cell)

9.3 Plan for Prevention of Alcohol and Drug Abuse (01.C.02)

The AGVIQ-CH2MHILL 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 (2)

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. 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. 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 off-site on a regular basis.

Temporary sanitary facilities will be located adjacent to the construction support area trailer. The construction support trailer will contain necessary administrative support equipment, required to execute the CTO.

9.5 Access and Haul Road Plan (4.B)

The site access and haul road for the project site has not been authorized by NAVFAC at the time this APP was prepared. It is assumed that the project haul route will be established on or before the project pre-construction meeting, but at this time it is anticipated to be as identified in the WP.

9.6 Respiratory Protection Plan (05.G)

(References: CH2M HILL SOP # HSE&Q 121, Respiratory Protection, TIKIGAQ Corporation Respiratory Protection Program)

(Reserved)

Respiratory protection is not anticipated for this CTO.

9.7 Health and Safety Hazard Control Program (06.A)

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-CH2MHILL 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 that this project is being executed and its geographical region it is not anticipated that Hurricanes or tropical storms would have an impact or require a significant stoppage in scheduled tasks. However, because of the sites location its field crew members could experience a variety of adverse weather conditions during the course of a normal work assignment and should be prepared for the effects of adverse weather conditions.

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 rain squalls, thunder storms or other severe weather systems that may be developing. Check internet, local TV weather or radio channels for daily forecasts and plan daily work activities accordingly. Have a portable radio available on-site to monitoring local weather or marine forecasts. If on-site 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.

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.

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. The requirements of EM 385 1-1, section 26.I.01 are not applicable to the execution of this CTO.

9.7.5 Asbestos

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

(Reserved)

Contact with Asbestos Containing Material (ACM) is not anticipated for this project. In the event that suspect PACM/ACM is discovered during site activities, personnel will secure/cover the material to the extent possible secure (i.e. in a manner that doesn't create a possible worker exposure) and exit the immediate work area until the nature of the material can be evaluated by qualified personnel. Personnel who do not possess proper qualifications and who are not enrolled in a medical surveillance program meeting the requirements of 29 CFR 1910.1001/29 CFR 1926.1101 will not disturb material that contains PACM/ACM.

9.7.6 Biological Hazards and Controls

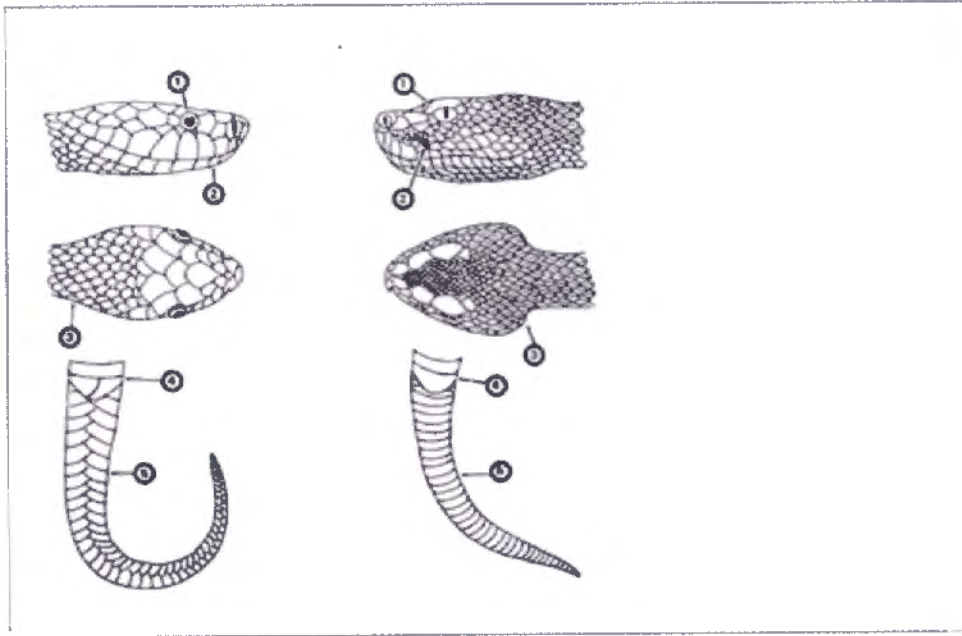
The following sections provide information on potential biological hazards. Site personnel shall notify their overall supervisors and their project site supervisor of any potential allergic reactions that may occur as a result of contact with biological hazards in the workplace. If employee antidotes 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

Snakes typically are found in underbrush and tall grassy areas. If you encounter a snake, stay calm and look around; there may be other snakes. Turn around and walk away on the same path you used to approach the area. If bitten by a snake, wash and immobilize the injured area, keeping it lower than the heart if possible. Call the occupational nurse at 1-866-893-2514 immediately. Do not apply ice, cut the wound, or apply a tourniquet. Try to identify the type of snake: note color, size, patterns, and markings. Below is a guide to identifying poisonous snakes from non-poisonous snakes.

Identification of Poisonous Snakes

Major Identification Features Non-venomous Snake	Major Identification Features Venomous Snake
1. Round pupils	1. Elliptical pupils
2. No sensing pit	2. Sensing pit between eye and nostril
3. Head slightly wider than neck	3. Head much wider than neck
4. Divided anal plate	4. Single anal plate
5. Double row of scales on the underside of the tail	5. Single scales on the underside of the tail



9.7.6.1.1 Poisonous Plants

Poison ivy, poison oak, and poison sumac typically are found in brush or wooded areas, which are common to the site. They are more commonly found in moist areas or along the edges of wooded areas. Shrubs are usually 12" to 30" 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 lose 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.

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 procedures, or others you may find to alleviate the pain and itching.

Poison Oak, Ivy, and Sumac First Aid :

Self-Care/First Aid

- Wash (decontaminate) all affected areas with warm water and a strong soap.
- Keep your hands away from your eyes, mouth and face.
- Do not scratch or rub the rash.
- 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
- Take an over-the-counter antihistamine such as Benadryl, as stated on the label
- If self-care/first aid measures don't bring relief, call your doctor.

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

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 Zanafel™ (www.zanafel.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 Zanafel (from Zanafel):

Zanafel™ 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. Zanafel works by surrounding urushiol and bonding with it, thereby enabling it to be rinsed away. Unlike some products that require use within 10-20 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.

9.7.6.2 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-meta-polyamide (DEET); and check yourself frequently for ticks. Where exposure to ticks is verified, personnel shall consider wearing "bug-out" suits to minimize potential exposures to ticks or other biting insects (i.e., chiggers). However, when these suits are used when ambient air temperatures are elevated (> 70 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:

- Use fine-tipped tweezers or shield your fingers with a tissue, paper towel, or nitrile gloves.
- 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.)
- 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.
- 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.
- After removing the tick, thoroughly disinfect the bite Site and wash your hands with soap and water.
- 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.

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 5** of this APP) for instructions on where to send the tick for analysis of certain tick-borne pathogens.

9.7.6.3 Spiders - Brown Recluse

It is regarded by many as the most dangerous spider in the United States. Although Connecticut is not typically 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 1/4 inch to 10 inches in diameter. Prompt attention is the best defense against preventing the necrosis. The wound is often described as being reddish and surrounded by a bluish area with a narrow whitish separation in between the red and the blue. This gives it the famous "bull's eye" pattern. In just hours, a bite from the highly venomous Brown Recluse spider can create blisters and cause tissue damage.

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

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

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

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

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.

9.7.6.4 Spiders - Widow

Generally only the Northern Black Widow would potentially be encountered in Connecticut. 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., barbecue grill, slide, sand box) that has been undisturbed for a lengthy period.

Formerly, many bites by black widows (usually by female spiders) occurred in outhouse structures, but 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 1-3 hours after the bite. The most common symptoms are intense pain, rigid abdominal muscles, muscle cramping, malaise, local sweating, nausea, vomiting, and hypertension. Other symptoms may include tremors, labored breathing, restlessness, increased blood pressure, and fever. If left untreated, widow bite symptoms usually last 3-5 days.

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

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

9.7.6.5 Blood borne Pathogens

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

In emergency medical situations, certain employees may need to render first aid as a collateral duty in response to workplace accidents or injuries. This category includes the SSHO, site managers/supervisors, or individuals certified in FA and CPR and shall have received training in exercising universal precautions against exposure to blood borne pathogens as a component to FA/CPR training, which meets the intent of 29CFR1910.1030. However, additional worker training programs in to blood borne pathogens may also be required when it is expected that employees could contact landfill waste or other waste streams containing potentially infectious material. This situation is not reasonably expected for this project. Blood borne pathogen employee training is also complemented by other regularly scheduled employer training

curriculums that are typically executed for the HAZWOPER industry, regulated under 29CFR1910.120/29CFR1926.26. The only worker exposure to blood borne pathogens anticipated for this project will potentially be to those individuals providing FA/CPR to an injured or "down" worker.

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

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

- First aid kits and a Blood borne Pathogens Protection Kit shall be immediately available at the Site. The kit is commercially available through most safety or medical supply vendors.
- These kits shall contain gloves, masks, CPR protectors, biohazard disposal bags, antiseptic cleanser, splash-proof goggles, towels, wipes, and an absorbent powder to clean up spills. Gloves, masks, and other PPE measures must be donned by personnel responding to emergency or first aid situations where exposure to Blood borne Pathogens could occur.

A portable eye wash station or means of conducting eye washing or flushing shall be readily available at the project site location.

- Always wash your hands and face with antiseptic soap and running water after contacting potentially infectious material. If washing facilities are unavailable, use an antiseptic cleanser with clean paper towels or moist towelettes. When antiseptic cleansers or towelettes are used, always rewash your hands and face with soap and running water as soon as available. Do not consume food or beverages, smoke, chew tobacco, or perform another hand to eye/face/mouth activity until after thoroughly cleaning your hand (with antiseptic soap and water), then your face and only after the employee has removed themselves from the designated work area that contains materials that can be reasonably considered being contaminated with blood borne pathogens.
- Use universal precautions when dealing with materials or situations where there is a potential for blood borne pathogens. Universal precaution is an approach to infection control whereby all human blood and potentially infectious material are treated as if known to be infectious for HIV, HBV, and other blood borne pathogens.
- Personnel who may be exposed to Blood borne Pathogens should review and implement all applicable components of CH2M HILL SOP # HSE&Q 202, Blood borne Pathogens.

9.7.6.6 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.

9.7.6.7 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 below to make a request to verify the presence or absence of underground utilities that may be within your proposed work area.

- **Local Utility Mark-Out Service**
- **Name:** **Dig Safely New York**
- **Phone:** **811 or 1-800-962-7962**
- **Website:** www.digsafelynewyork.com

In addition to contacting the local utility mark-out service/utility owner, review current and historic engineering or as-built drawings as a supplement to the mark-out service/utility owner location of known 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 potentially insufficient 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 CTO.

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 or the local state/regional utility protection service mark-out 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 on-site.
- 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 CTO.

9.7.9 Concrete Work

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

The requirements of EM 385 1-1, section 27.B are not applicable to the execution of this CTO as we will not perform Post-tensioning operations, constructing structural walls, piers, or columns, Precast concrete operations, or Lift Slab operations.

However, below are the hazard controls and safe work practices to follow when working around or performing concrete and masonry activities. Ensure the requirements in the referenced SOP are followed.

- Mud boots and gloves shall be worn by personnel involved in concrete placement, testing, finishing, cleanup, or other activities where contact with wet concrete is involved.
- Protruding reinforcing steel (rebar), onto which personnel could fall, must be guarded to eliminate the hazard of impalement
- During post-tensioning, only those personnel essential to the operation are permitted behind the tensioning jacks.
- Personnel shall not ride concrete buckets nor position themselves in areas where buckets are lifted overhead.
- Personnel shall maintain a safe distance from formwork and shoring being removed from concrete structures.
- Personnel shall maintain a safe distance from precast and lift-slab concrete being lifted into position until physically secured.
- Personnel shall not enter limited access zones during masonry wall construction.
- When CH2M HILL is in control of concrete and masonry operations, a lift slab competent person will oversee all the concrete and masonry operations.
- Complete the self-assessment checklist for concrete and masonry activities whenever those activities are being performed.

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 CTO. The requirements of EM 385 1-1, section 34 and 29 CFR 1910.146 are not applicable to the execution of this CTO.

9.7.11 Cranes

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

Prior to the start of crane operations, a Crane and Hoisting Plan will be developed with the responsible subcontractor that is compliant with the requirements of EM 385 1-1, section 16 and 29 CFR 1926 Subparts CC and DD

Below are the general hazard controls and safe work practices to follow when working around or operating cranes. Ensure the requirements in the referenced SOP are followed.

- Cranes shall be operated by a certified crane operator. After November 10, 2014, only operators possessing a certificate from a nationally accredited testing organization, an

audited employer training program, or U.S. military or state-issuing agency will be authorized to operate cranes.

- The crane's operations manual and load chart specifically designed for the crane shall be in the crane at all times.
- The crane must have a current annual inspection to include load test certification (within the last 12 months) that meets all state and federal safety standards. Documentation of this inspection must be available for review.
- A competent person will inspect the crane daily to ensure it is in safe operating condition. The daily crane inspection log provided within the crane manufacturer's operations manual shall be used. See also the requirements for monthly inspections, among others, in SOP HSE-303.
- All rigging equipment must be inspected by a competent person prior to use for signs of excessive wear; equipment found to be damaged will be tagged and removed from service.
- A qualified and competent Assembly/Disassembly (A/D) Director shall be assigned when cranes must be assembled onsite. The A/D Director is responsible for ensuring the crane is assembled and disassembled according to manufacturer requirements; performing training for the A/D crew; and ensuring sufficient ground conditions exist for crane placement; among other responsibilities (see SOP HSE-303).
- The assembly/disassembly process must comply with requirements in HSE-303, including having an AHA for the task.
- A critical lift plan shall be prepared when the lift is estimated to be greater than 75% of the crane capacity or when two cranes will be used to make a lift.
- A pre-lift meeting will be conducted to include all parties involved in that day's crane operation.
- Only one qualified person shall be designated to signal the crane operator. This person shall be thoroughly familiar with the ANSI standard method of hand signals and an illustration of these signals shall be posted at the job site.
- No personnel shall be permitted under the load at any time.
- Tag lines shall be attached to every load being made by the crane.
- The swing radius of the rear rotating superstructure (counterweight) of the crane shall be barricaded and no entrance allowed.
- Suspended loads shall not pass over workers or occupied buildings at any time.
- Complete the self-assessment checklist for crane-suspended personnel platforms whenever they are being used.
- AGVIQ- 2M HILL employees exposed to hazards posed by crane operations, must be trained in hazards awareness and control procedures. See requirements for training in HSE-303.

Power Line Safety

It must be determined whether equipment operations including assembly/disassembly, positioning, and crane operation (including traveling with a load) will occur in proximity to power lines within 20 feet (6.1 meters) for line voltage up to 350 kilo volts (kV), and within 50 feet (15.2 meters) for line voltage between 350 kV to 1000 kV. For power lines over 1000 kV, the distance must be determined by the utility/operator or qualified registered professional engineer in electrical power transmission and distribution.

If equipment operations are within proximity of aforementioned distances to power lines, one of the following options must be implemented to prevent encroachment and electrocution:

- **Option 1:** Deenergize and ground the power. Confirm from the utility/operator that the power line has been deenergized and visibly grounded at the worksite
- **Option 2:** If the voltage is not determined, ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer than 20 feet (6.1m) by:
 - Conduct a planning meeting with the operator and other workers in the area to review the actions that will be taken to prevent encroachment and electrocution. Training requirements for working around energized power lines are described in Section 6.0, Training.
 - Use non-conductive tag lines.
 - Erect and maintain an elevated warning line, barricade or line of signs in view of the operator, either with flags or other high-visibility markings at 20 feet (1.6m) from the power line. A spotter must be used when the operator does not have clear line of sight to the elevated warning line.
 - To prevent encroachment, the operator can use a proximity alarm, or position a dedicated spotter with visual aids to demarcate the encroachment and constant communication access to the operator.

If the line voltage can be determined, and if any part of the equipment, line load or load (including rigging and lifting accessories) would encroach within that specified distance listed in Table 1, then the requirements listed in Option 2 must be implemented.

Voltage (nominal, kV, alternating current)	Minimum Clearance - Feet (meters)
Up to 50	10
Over 50 to 200	15
Over 200 to 350	20
Over 350 to 500	25
Over 500 to 750	35
Over 750 to 1000	45
Over 1000	Established by the utility owner/operator or by a qualified registered professional engineer in electrical power transmission and distribution

For equipment traveling within 20 feet (6.1m), under or near power lines without a load, the clearance distances described in Table 2 must be maintained and the following actions implemented.

- A dedicated spotter is assigned during equipment travel, positioned to effectively gauge the clearance distance, and is in continuous communication with the operator.
- During equipment travel, the boom/mast and support system are sufficiently lowered to ensure clearance distances are maintained, along with taking into consideration of the effects of speed and terrain.

Voltage (nominal, kV, alternating current)	Minimum Clearance - Feet (meters)
Up to 0.75	4
Over 0.75 to 50	6
Over 50 to 345	10
Over 345 to 750	16
Over 750 to 1000	20
Over 1000	Established by the utility owner/operator or by a qualified registered professional engineer in electrical power transmission and distribution

9.7.12 Demolition/Dismantling

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

(Reserved)

Demolition activities will not be performed as part of this CTO. The requirements of EM 385 1-1, section 23 and 29 CFR 1926 Subpart DD are not applicable to the execution of this CTO.

9.7.13 Drilling/Direct Push Technology

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

(Reserved)

Drilling will not be a part of this CTO.

9.7.14 Electrical Safety

(Reference CH2M HILL 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, sampling near or adjacent to overhead utilities, use of generators/power sources, power cords or when using electric hand tools used during mobilization/demobilization operations. 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 CH2MHILL SOP # HSE&Q-206, Electrical Safety, except where other requirements may be more stringent.
- Maintain safe clearance distances between overhead power lines and sampling equipment 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.

- 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.

9.7.14.1 Energized Electrical Work

(Reference CH2M HILL SOP HSE-221, *Energized Electrical*)

All electrical work shall be performed while components are de-energized as much as possible. For the few times that energized work is required, such as trouble shooting and testing, follow the below minimum controls.

Energized electrical work is defined as work performed on or near energized electrical systems or equipment with exposed components operating at 50 volts or greater. Working near energized live parts is any activity inside a Limited Approach Boundary.

All electrical systems shall be considered energized unless lockout/tagout procedures are implemented and verified.

Electrical wiring and equipment shall be de-energized prior to conducting work unless it can be demonstrated that de-energizing introduces additional or increased hazards or is unfeasible due to equipment design or operational limitations. When energized electrical work is the only means that work can be performed, all requirements of SOP HSE-221 must be implemented including the following:

- Only qualified personnel are permitted to work on unprotected energized electrical systems. These personnel shall complete Energized Electrical Safety Training.
- An Electrical Hazard Analysis must be performed to identify energized electrical safe work practices before any person approaches exposed live parts within the Limited Approach Boundary (as determined by the shock hazard analysis), by performing both shock hazard analysis and flash hazard analysis, which comprise the electrical analysis.
- The Energized Electrical Work Permit must be completed prior to working on unprotected energized electrical systems.
- Personnel designated as qualified persons working on live parts of energized electrical systems 480 volts and above shall implement the buddy system. Working on live parts of energized electrical systems 480 volts and above means actual contact with live parts or working within the Prohibited Approach Boundary, which is one inch (2.54 cm) for 480 volt systems.
- The buddy system requires the presence of an additional qualified person who shall stand by and render assistance, or summon help for the first person, in the event the first person is inadvertently shocked while performing the work. The second person shall not be assigned to additional distracting duties or tasks while the energized electrical work is being performed and shall know the location of the isolation device(s) for the equipment being worked on.
- Workers designated as qualified persons shall wear the required electric shock and arc-flash PPE, as specified by the qualified person responsible for the energized electrical operations.
- Safety signs, safety symbols or accident prevention tags, meeting applicable American National Standards Institute (ANSI) Standards, shall be used where necessary to warn employees about electrical hazards.

- Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas containing live parts. Conductive barricades shall not be used where it may cause an electrical hazard. Barricades shall be placed no closer than the Limited Approach Boundary.
- If signs and barricades do not provide sufficient warning and protection from electrical hazards, an attendant shall be stationed to warn and protect unqualified employees. The primary duty and responsibility of an attendant providing manual signaling and alerting shall be to keep unqualified employees outside a work area where the unqualified employee might be exposed to electrical hazards. An attendant shall remain in the area as long as there is a potential for employees to be exposed to the electrical hazards.
- Employees shall not perform tasks near exposed energized parts where lack of illumination or an obstruction precludes observation of the work. Employees shall not reach blindly into areas that may contain energized parts.
- Work shall be performed in accordance with National Fire Protection Association (NFPA) 70E requirements (2012 edition).
- Follow all control measures and procedures identified on the Energized Electrical Work Permit.

9.7.15 Excavation Activities

(Reference CH2M HILL SOP # HSE&Q-307, Excavation & Trenching Safety)

Excavation activities will be executed in connection with the Underground Piping and Utilities Installation and Concrete Work. Because it is anticipated that soil within the designated excavation is anticipated to be classified as Type C soil in accordance with the OSHA Soil Classification system, the sides of the excavation areas will be sloped at a 1.5 H:1V ratio.

Because of the depth of the excavation is limited (0 to <4 feet below ground surface [bgs]) and there will be no worker exposure to open excavation edges or fall hazards as part of this proposed excavation work, the full and complete applicability of 29 CFR 1926, Subpart P, and EM 385 1-1, Section 25 Excavations and specifically Section 25.A.01, is limited. However, the information provided below is provided with the intent of addressing EM 385 1-1, 25.A.01.

9.7.15.1 Identification and Credentials of Competent Person

The designated excavation competent person for this project will be the project site supervisor and/or the SSHO (or alternates) named in Section 4.0 of this APP. These individuals have the requisite training, experience, certifications and other qualifications to act as the excavation competent person and have been so designated by their employer.

9.7.15.2 Planned Method for Confined Space Entry, Trench Access and Egress and Atmospheric Monitoring Processes

To facilitate access and egress of the excavation, an earthen ramp or stepped excavation will be utilized as a means of access and egress to the excavation for the purpose of performing

excavation confirmation sampling. As the depth of the trench is less than 4 feet deep, hazardous atmosphere testing required by 29 CFR 1926, Subpart P is not applicable for this work.

9.7.15.3 Digging Permits (Excavation Permits)

The process for verifying underground utilities is detailed in section 9.7.6 Buried Objects/Utilities (locating) in this APP and will not be elaborated upon further in this section. Once the presence/location of all underground utilities is performed, if required a NAVFAC Excavation Permit will be issued by the GDA to allow the excavation work to proceed.

9.7.15.4 Other Excavation Activity Considerations

- Prior to implementing any site excavation activities, review and implement all applicable components of CH2MHILL SOP # HSE&Q-307, Excavation & Trenching Safety.
- The location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation. See section 9.7.6 Buried Objects/Utilities (locating) of this APP.

9.7.16 Fall Protection

(Reference CH2M HILL SOP # HSE&Q-310, Fall Protection)

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

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

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

9.7.17 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).
- Electrical fires from operating site generators
- 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-CH2MHILL 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-CH2MHILL 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, Government Designated Authority (GDA), or Agviq-CH2M HILL SSHO when welding, cutting, heating operations or other spark producing operations are performed unless otherwise indicated by the GDA.

9.7.18 Flight Line Safety

(Reserved)

No CTO activities will occur on, within, or immediately 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 29CFR1926.25(a) or other applicable

regulations. Good housekeeping practices must be implemented on every AGVIQ-CH2MHILL 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 CH2M HILL SOP # HSE&Q 210, Hand and Power Tools)

Hand and power tools may be used intermittently during the support of all operations. 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.
- 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 manufacturer's 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 manufacturer'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. See table 1-1 of this **Attachment 1** (SSHSP) to this APP for details for Level D PPE.
- 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).
- AGVIQ-CH2M HILL personnel must be provided proper training or be qualified by previous experience prior to using powder actuated tools/devices.
- 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.

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.

9.7.20.3 Responsibilities

- Supervisors with assistance from the SSHO are responsible for funding and ensuring the correct tool is being used, employees wear the proper PPE when using knives, and they have reviewed this policy.
- Employees are responsible for having and utilizing the proper PPE while performing an activity requiring the use of a knife. Employees are also responsible for understanding the proper use of a knife.

9.7.20.4 Glove Requirements

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

9.7.20.5 Standard Control Measures for Knife Use

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

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

Examples of Preferred Tools and Kevlar Cut Resistant Gloves





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

9.7.21 Haul Trucks

It is anticipated that haul trucks will be used for the delivery of products or materials to be incorporated into the project, and for the delivery and pick-up of heavy equipment.

All haul trucks must following the designated for the project site project. The site access and haul road for the project site has not been authorized by NAVFAC at the time this APP was prepared. It is assumed that the project haul route will be established on or before the project pre-construction meeting, but at this time it is anticipated to be as identified, in Figure 2-4 of the WP.

Where haul trucks are used on the project, the following work practices shall be implemented.

- Haul truck operators should ensure all persons are clear before operating trucks or equipment. Before moving, operators should sound horn or alarm. All haul trucks shall be equipped with an operational backing alarm. Haul trucks or equipment with restricted visibility should be equipped with devices that eliminate blind spots or a spotter.
- Employees shall stay off haul roads. When approaching a haul area, employees should make eye contact and communicate their intentions directly with the equipment operator.
- If material is being delivered to the site, personnel must not be positioned within the potential "flip-over" radius of the haul truck.

- Never approach operating equipment/ vehicles from the rear. Always make positive contact with the haul truck driver, and confirm that the operator has stopped the motion of the truck or does not intent to move the truck before proceeding.
- Where haul truck operators must exit the truck within the site boundary, the driver must be in the same level of PPE, maintain the same level of training and meet the same medical monitoring criteria as other site personnel in the work area. If this condition cannot be maintained, haul truck operators must remain in their truck cabs with the windows closed.
- 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 in the raised position. Haul truck operators must be cognizant of utility pole guy wires and transformers in the accessed work area.

9.7.22 Heavy Equipment

(Reference CH2M HILL SOP # HSE&Q 306, Earth Moving Equipment)

Small heavy earthmoving equipment (track excavator, front-end load, bulldozer etc.) will be used to complete this CTO. When heavy equipment is used on the project, the following work procedures shall be exercised by AGVIQ-CH2M HILL personnel who may be designated to operate or supervise the operation of site heavy equipment.

- AGVIQ-CH2M HILL authorizes only those employees qualified by training or previous experience to operate heavy equipment.
- Equipment must be checked at the beginning of each shift to ensure the equipment is in safe operating condition and free of apparent damage. The check should include service brakes, parking brakes, emergency brakes, tires, horn, back-up alarm, steering mechanism, coupling devices, seat belts, and operating controls. All defects will be corrected before the equipment is placed in service.
 - Documentation of this inspection must be maintained onsite at all times.
 - Refer to the Earthmoving Equipment Inspection Form found in **Attachment 3** of this document.
- Equipment must be on a stable foundation such as solid ground or cribbing; outriggers are to be fully extended.
- Seat belts shall be used by all personnel operating AGVIQ-CH2M HILL equipment.
- Equipment must not be used to lift personnel; loads must not be lifted over the heads of personnel.
- Equipment, or parts thereof, which are suspended must be substantially blocked or cribbed to prevent shifting before personnel are permitted to work under or between them. All controls will be in a neutral position, with the motors stopped and brakes set.
- Equipment that is operating in reverse must have a reverse signal alarm distinguishable from the surrounding noise or a signal person when the operator's view is obstructed.

- When equipment is used near energized power lines, the closest part of the equipment must be at least 10 feet from power lines < 50 kV. Check the electric safety section of this APP for separation distances when working adjacent to overhead energized power lines in excess of 50 kVA person must be designated to observe clearances and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means. All overhead power lines must be considered energized until the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded.
- Underground utility lines must be located before excavation begins. See "Procedures for Locating Buried Utilities" contained in this APP for additional information.
- Operators loading/unloading from vehicles are responsible for seeing that vehicle drivers are in the vehicle cab or in a safe area.
- The parking brake will be set whenever equipment is parked; wheels must be chocked when parked on inclines.
- When heavy equipment is not in operation, the blade/bucket must be blocked or grounded; the master clutch must be disengaged when the operator leaves the cab. When equipment is unattended, power must be shut off, brakes set, blades/buckets landed, and shift lever in neutral.

9.7.23 Land Clearing Operations - General

Minor land clearing involving the removal of brush and ground vegetation may be required to facilitate the construction operations. A task specific AHA shall be implemented for all site land clearing operations.

- The minimum personal protective equipment (PPE) to be used by ground personnel performing site clearing operations shall be as follows:
- Appropriate work clothes (long pants, shirts, sturdy hard-toe work boots with sufficient ankle support)
- ANSI Z87 approved eyewear with a face shield (ground personnel not protected by closed equipment cabs or using chainsaws/brush cutters)
- A hardhat with the visor facing forward
- Leather work gloves
- Long-sleeved shirt
- Ear muffs (or equivalent hearing protection)
- Chainsaw chaps, properly sized for the employee
- Note: For ground personnel engaged in land clearing operations, the substitution of high visibility clothing (reflective/high visibility vests) may be considered where there is potential for worker entanglement in heavy brush growth or working in proximity to rotating heavy equipment.

- The remaining information in this section identifies general work practices that shall be implemented on-site in connection with the execution of land clearing operations.

9.7.23.1 Land Clearing Via Hydraulic Equipment

- Where it is determined that hydraulic mowing equipment (i.e. brush hog) must be used to facilitate site clearing objectives, the following shall be applicable
- Only qualified personnel, by training or previous experience, shall operate hydraulic land clearing heavy equipment.
- Only essential person shall be involved these operations. Sufficient distance must be maintained by ground support personnel or personnel observing the operations.
- Ensure that equipment kill switches are properly operating and accessible by equipment operators.
- Operators should not operate equipment on steep, slippery, or uneven slopes that could cause the equipment to flip over or otherwise become unstable to the point where operators or ground personnel could become exposed to the engaged equipment.
- Ensure all mechanic guards or protective devices over mower discharge chutes are in place.
- Operators shall review or be knowledgeable of equipment manufacturer manuals to ensure that the mower is operated in accordance with manufacturer's parameters.

9.7.24 Lock-Out/Tag-Out

(Reference CH2M HILL SOP # HSE&Q 310, Lock Out Tag Out)

The only identified site operations where the lock-out/tag-out procedures will need to be implemented is to inspect the lock-out performed on the well by Aqua New York. 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 CTO.

However, AGVIQ-CH2M HILL will implement the following controls:

- Standard lockout/tagout procedures include the following six steps: 1) notify all personnel in the affected area of the lockout/tagout, 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, and 6) verify that isolation and deenergization of the equipment has been accomplished. Once verified that the equipment is at the zero energy state, work may begin.
- 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 CH2M HILL SOP # HSE&Q 112, Manual Lifting)

Manual lifting is likely to occur during many phases of the project, but especially during all mobilization and demobilization activities as described herein and sampling events. Personnel executing assigned tasks where manual lifting is required should use the following procedures to help reduce the potential for personal injury.

- AGVIQ-CH2MHILL 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-CH2MHILL 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-CH2MHILL 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 CH2M HILL 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 or adjacent to heavy earthmoving equipment.

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 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)

Pressure Washing is not anticipated for this CTO.

9.7.28 Sample Handling

Sample handling, packaging, and preservation will primarily be conducted during system start-up operations. 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 tables 1-1 and 1-2, respectively, of **Attachment 1** (SSHSP) of the 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 1.13, **Attachment 1** (SSHSP) 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 (3) points of contact when entering or exiting heavy equipment or when climbing or working from ladders.
- Observe, (mark where appropriate) and avoid areas of unprotected holes, ramps, drainage areas, and ground penetrations or protrusions (curbs, utility structures etc). If these conditions cannot be corrected, mark these hazards (i.e. high visibility pant, traffic cones etc) so that workers may recognize and avoid them. Only mark where it does not mar or destroy government property, otherwise barricade as appropriate.
- 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.

- Clear/remove materials from pathways and commonly traveled areas as soon as possible.
- 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-CH2MHILL project site.

9.7.30 Stairways and Ladders

(Reference CH2M HILL SOP # HSE&Q 214, Stairways and Ladders)

Below are the hazard controls and safe work practices to follow when using stairways and ladders. Ensure the requirements in the referenced SOP are followed.

- Stairway or ladder is generally required when a break in elevation of 19 inches (48.3 cm) or greater exists.
- Personnel should avoid using both hands to carry objects while on stairways; if unavoidable, use extra precautions.
- Personnel must not use pan and skeleton metal stairs until permanent or temporary treads and landings are provided the full width and depth of each step and landing.
- Ladders must be inspected by a competent person for visible defects prior to each day's use. Defective ladders must be tagged and removed from service.
- Always obey and pay attention to warning labels or stickers on the specific ladder being used.
- Ladders must be used only for the purpose for which they were designed and shall not be loaded beyond their rated capacity.
- Ladder safety training on safe use (e.g., review SOP HSE-214 as part of a safety meeting) must be documented and kept with the project files.
- Only one person at a time shall climb on or work from an individual ladder.
- User must face the ladder when climbing; keep belt buckle between side rails.
- Ladders shall not be moved, shifted, or extended while in use.
- User must use both hands to climb; use rope to raise and lower equipment and materials.
- Straight and extension ladders must be tied off to prevent displacement.
- Ladders that may be displaced by work activities or traffic must be secured or barricaded.

- Personnel climbing ladders shall face the ladder and maintain 3 points of contact with the ladder.
- Portable ladders must extend at least 3 feet (91.5 cm) above landing surface.
- Straight and extension ladders must be positioned at such an angle that the ladder base to the wall is one-fourth of the working length of the ladder.
- Stepladders are to be used in the fully opened and locked position.
- Users are not to stand on the top two steps of a stepladder; nor are users to sit on top or straddle a stepladder.
- Fixed ladders \geq 24 feet (7.3 meters) in height must be provided with fall protection devices.
- Fall protection should be considered when working from extension, straight, or fixed ladders greater than six feet (1.8 meters) from lower levels and both hands are needed to perform the work, or when reaching or working outside of the plane of ladder side rails.

9.7.31 Vacuum Truck Operations

(Reserved)

The use of vacuum trucks will not be required for the execution of this CTO.

9.7.32 Vehicular Traffic (Exposure to)

(Reference CH2M HILL SOP # HSE&Q 216, Traffic Control)

The site is removed from vehicular traffic. The only significant anticipated employee exposure to vehicular traffic will be that traffic associated use and parking of site support vehicles. 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-CH2MHILL personnel and AGVIQ-CH2MHILL 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 CTO 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 CTO 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 CH2M HILL SOP # HSE&Q 314, Welding & Cutting)

It may be required to perform cutting/welding operations during system installation. Where cutting (or welding) activities are executed on-site, the following processes and precautions must be executed.

- Review and implement all applicable components of CH2MHILL SOP # HSE&Q 314, Welding & Cutting.
- Secure a NAVFAC hot work permit as required for welding and cutting activity and exercise Fire Prevention measures identified in this APP.

- Exercise appropriate fire prevention measures such as maintaining appropriate size, type and quantity of fire extinguishers in the work area, pre-wet area surrounding the cutting or welding operation, protect the surrounding cutting area with fire proof materials and remove flammable or combustible materials from the area where welding and cutting operations are to be engaged. Station a fire watch adjacent cutting or welding work zone but still minimize the total amount of personnel in the work area to "essential personnel" only.
- Prior to performing any cutting operations, evaluate work areas for the potential presence or build-up of hazardous atmosphere conditions that would require the use of a multi-gas meter (LEL, O₂, H₂S, CO) to verify there are no potentially explosive conditions or hazardous atmospheres in the work area. If the potential exists, verify atmospheric conditions of the work area and document readings. Perform periodic checks of the work area for the duration of the welding and cutting procedure.
- During welding or cutting activities, use protective eye equipment which meets the shading where light emitting energy is generated. Use face protection, as necessary to mitigate injuries to the face that may be associated with the selected cutting or welding method. Protective equipment for these activities shall meet the requirements of 29CFR19126.102, Eye and Face Protection.
- Wear a face shield and fire resistant clothing (i.e. welding leathers) during when cutting with an oxy-acetylene torch or similar cutting equipment and when performing welding operations.
- Only qualified personnel (by training or experience) are permitted to operate cutting or welding equipment.
- Wear fire retardant clothing during when cutting with an oxy-acetylene torch or similar cutting equipment and when performing welding operations.
- During any welding and cutting operations, ensure that sparks are not directed towards the location of 1) flammable/combustible materials 2) other site personnel 3) property that could be damaged.
- During any cutting operations, ensure that sparks are not directed toward the location of 1) flammable/combustible materials, 2) other Site personnel, or 3) property that could be damaged.
- Cutters, welders, and their supervisor shall be trained or possess sufficient experience to perform the safe operation of their equipment, cutting practices cutting. Proper training in respiratory and fire protection may also be applicable.
- All cutting equipment (i.e. cutting heads, hoses, cylinders and valves) and welding stingers shall be inspected before each use to ensure that all required safety devices and ancillary equipment are in place and properly functioning. Defective equipment shall be removed from service, replaced or repaired, and re-inspected before again being placed in service.
- Coatings that exist on surfaces, which may potentially create hazardous fumes (i.e. Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Chromium (VI),

Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Ozone, Selenium, Silver, or Vanadium) when ground, heated or otherwise cut, shall be removed a sufficient distance from the area to be heated, to ensure any temperature increase of the unstripped metal will not be appreciable. Whenever these materials are encountered in confined spaces, local mechanical exhaust ventilation and personal respiratory protective equipment shall be used. The use of local mechanical exhaust ventilation systems that permit the re-entry of exhaust air back into the work area, or local exhaust which incorporate a system for the filtration and recirculation of exhaust air back into the work area shall not be permitted. Whenever these materials, except beryllium and chromium (VI), are encountered in outdoor operations, and local mechanical exhaust ventilation systems sufficient to reduce and maintain personal exposures to within acceptable limits are not provided, then appropriate respiratory protective equipment shall be used.

- When cutting, welding or heating toxic surface coatings (paints, preservatives, surface stripping chemicals, etc.) in enclosed spaces, all surfaces covered with the coatings shall be stripped of such for a distance of at least 4 in (10.1 cm) from the area of heat application or the employees shall be protected by airline respirators.
- Plasma cutting shall employ local mechanical exhaust ventilation or other means adequate to remove the fumes generated. For hoses and hose connections used in cutting operations the following shall be applicable:
 - Fuel gas hose and oxygen hose shall be readily distinguishable from each other.
 - Oxygen and fuel gas hoses shall not be interchangeable. A single hose having more than one gas passage shall not be used.
 - Hose couplings of the type that can be unlocked or disconnected without a rotary motion are prohibited.
 - Hose and hose connectors that have been subject to flashback or shows evidence of severe wear or damage shall be tested to twice the normal pressure to which it is subjected, and in no case less than 300 psi (2068.4-kPa) gauge. Damaged hose and hose connectors, or hose and hose connectors in questionable condition, shall not be used.
 - When parallel runs of oxygen and fuel gas hose are taped together, not more than 4 out of every 12 in (10 out of every 30.4 cm) shall be covered by tape.
 - Boxes used for the storage of gas hose shall be ventilated.
 - Hose connections shall be clamped or otherwise securely fastened in a manner that will withstand, without leakage, twice the pressure to which they are normally subjected in service, but not less than 300 psi (2,068 kPa) gauge.

For torches used in cutting operations the following shall be applicable:

- Torches shall be inspected before each use for leaking shutoff valves, hose couplings, and tip connections. Defective torches shall not be used.

- Hoses shall be purged individually before lighting the torch for the first time each day. Hoses shall not be purged into confined spaces or near ignition sources.
- Clogged torch tip openings shall be cleaned with suitable cleaning wires, drills, or other devices designed for such purposes.
- Torches shall be lighted by friction lighters or other approved devices, not by matches or from hot work.
- Torch valves shall be closed and the gas supply shut off whenever work is suspended.
- The torch and hose shall be removed from confined spaces whenever work is suspended

Protective devices for cutting operations shall include the following:

- Oxy fuel gas, and other oxygen-fuel gas welding and cutting systems using cylinder-regulator-hose-torch shall be equipped with both a reverse-flow check valve and a flash arrestor, in each hose, at the torch handle or at the regulator.
- Connection of multiple sets of oxyacetylene hoses to a single regulator on a single set of oxyacetylene tanks may only be accomplished by installing a commercially available fitting approved by Compressed Gas Association (CGA) standards and listed by a nationally-recognized testing laboratory. The fitting shall be installed on the output side of the regulator and shall have a built-in shut-off valve and reverse-flow check valve on each branch.
- When oxygen-fuel gas systems are manifolded together the provisions of NFPA 51 shall apply.
- Acetylene regulators shall not be adjusted to permit a discharge greater than 15 psi (103.4 kPa) gauge.

9.7.34.1 Compressed Gas Cylinders

Although it is not anticipated, the use of compressed gas cylinders may be required to support cutting/welding operations during unanticipated repair operations for heavy equipment or dredging equipment. Where compressed gas cylinders are required to facilitate welding or cutting operations associated with welding or cutting operations the following must be executed.

- Cylinder valves must be closed when cylinders are not being used and when cylinders are being moved. Cylinders being transported, moved, or stored shall have valve protection caps installed.
- When transported by motor vehicle, hoisted, or carried, cylinders shall be in the vertical position.
- Cylinders shall be hoisted by a cradle, slingboard, or pallet designed to do so, and not by magnets or slings. Valve protection caps shall not be used to lift cylinders.
- Cylinders shall be kept from being knocked over by a chain, cylinder truck, or steadying device.

- Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials by a minimum of 20 feet or by a noncombustible barrier at least 5 feet high having a fire resistant rating of at least one half hour.
- Inside of buildings, cylinders shall be stored in well-ventilated, dry locations at least 20 feet from highly combustible materials. Cylinders should be stored in definitely assigned places away from elevators, stairs, or gangways. Assigned storage areas shall be located where cylinders will not be knocked over or damaged.
- During use, cylinders shall be kept far enough away from the actual welding and cutting operations to prevent sparks, hot slag, or flames from reaching them. When impractical, fire resistant shields shall be provided.
- Before a regulator is connected, the valve shall be opened slightly and closed immediately. This is referred to as "cracking" and is intended to clear the valve of dust or dirt. The person cracking the valve shall stand to the side of the outlet. The valve of a fuel-gas cylinder shall not be cracked where the gas could reach an ignition source.
- Cylinders shall not be placed where they can become part of an electrical circuit.
- Cylinders containing oxygen or fuel-gas shall not be taken into confined spaces.
- Cylinders, valves, couplings, regulators, hoses, and apparatus shall be kept free of oil and grease.
- If cylinders are frozen, warm (not boiling) water shall be used to thaw them.
- Fuel-gas cylinder valves shall not be opened more than 1 ½ turns, for quick closing.
- When a special wrench is used to open a cylinder valve, it shall be left in position on the valve. Cylinder valves shall be closed when work is finished.
- No damaged or defective cylinders shall be used. If a leak should develop at a fuse plug or other safety device, the cylinder shall be removed from the work area.
- No one except the owner of the cylinder or authorized agent shall refill a cylinder nor attempt to mix gases in a cylinder.
- Cylinders should be secured in an upright position at all times.
- Cylinders must be shielded from welding and cutting operations and positioned to avoid being struck or knocked over; contacting electrical circuits; or exposed to extreme heat sources.
- Cylinders must be secured on a cradle, basket, or pallet when hoisted; they may not be hoisted by choker slings.

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)

Working around material handling equipment is not anticipated for this CTO.

9.7.37 Working on or Over Water

(Reserved)

It is not anticipated that working on or over water will not be encountered on this CTO.

9.8 Hazard Communication Program (06.B.01)

(Reference CH2M HILL SOP # HSE&Q 316, Rigging
TIKIGAQ Corporation Hazard Communication Program)

A hard copy of the AGVIQ, LLC, and CH2MHILL, 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 on-site 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 6**).
- 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 7** 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 (06.B.04)

(Reserved)

The requirements of EM 385 1-1, section 06.B.04 are not applicable to this CTO.

9.10 Lead Abatement Plan (06.B.05)

(Reserved)

A lead hazard evaluation has been performed for the site and the maximum levels of lead to be encountered at the site are not anticipated to have the potential to cause a lead exposure above the OSHA action level of 30 $\mu\text{g}/\text{m}^3$. The type of work being performed does not fall into the category of lead abatement and therefore the requirements of EM 385 1-1, section 06.B.05 are not applicable to this CTO.

9.11 Asbestos Abatement Plan (06.B.05)

(Reserved)

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

9.12 Radiation Safety Program (06.E.03)

(Reserved)

There are no expected radiological hazards associated with the execution of this CTO. The requirements of EM 385 1-1, section 06.E.03 are not applicable to this CTO.

9.13 Abrasive Blasting (06.H.01)

(Reserved)

There are no abrasive blasting operations associated with the execution of this CTO. The requirements of EM 385 1-1, section 06.H.01 are not applicable to this CTO.

9.14 Heat/Cold Stress Monitoring Program (06.I.02)

9.14.1 Heat Stress Monitoring and Prevention

Because the work may be performed during periods where high/low ambient air temperatures should be prevalent, there is a potential for the development of heat stress

related disorders. 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. 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.
- Use cooling devices, such as cooling vests, to aid natural body ventilation.
- 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.**

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 (104°F 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

A Wet Bulb Globe Thermometer (WBGT) is the established and preferred means of measuring the environmental factors associated with heat stress and for providing indication of when physiological monitoring or rest regimens should be incorporated into the work schedule. The WBGT is the composite temperature used to estimate the effect of temperature, humidity, wind speed, and solar radiation on the human body.

When permeable work clothes are worn (street clothes or clothing ensembles over modesty clothes), physiological monitoring may be required based on the outcome of the WBGT measurements, taking into account the clothing adjustment factors. Use of the WBGT should generally begin when the heat index reaches 80° F (27° C) as indicated in the Heat Index Table below.

If the WBGT is within the TLV (acclimatized workers) or Action Limit (unacclimatized workers) per the tables below, then work may continue while maintaining the established

work/rest regimen. If the WBGT reading meets or exceeds either the TLV or Action Level for a work/rest regimen of 15 minutes work and 45 minutes rest, then physiological monitoring will be implemented.

Screening Criteria for TLV and Action Limit for Heat Stress Exposure								
Allocation of work in a cycle of work and recovery	TLV (WBGT Values in °F/°C) (Acclimatized Workers)				Action Limit (WBGT Values in °F/°C) (Unacclimatized Workers)			
	Light	Moderate	Heavy	Very Heavy	Light	Moderate	Heavy	Very Heavy
75-100%	88/31	82/28	--	--	82/28	77/25	--	--
50-75%	88/31	84/29	82/28	--	83/29	79/26	75/24	--
25-50%	90/32	86/30	84/29	82/28	85/30	81/27	78/26	76/25
0-25%	91/33	89/32	87/31	86/30	86/30	84/29	82/28	81/27
Work Category Descriptions:								
Light	Sitting or standing with light manual work using hands or arms; occasional walking.							
Moderate	Sustained moderate hand, arm, and leg work; light pushing and pulling; normal walking.							
Heavy	Intense arm and trunk work, carrying, shoveling, manually sawing, pushing and pulling heavy loads, walking at a fast pace.							
Very Heavy	Very intense activity at fast to maximum pace.							
Notes:								
WBGT values are expressed to the nearest degree.								
" -- "Dashes indicate the need for physiological monitoring because screening criteria are not recommended for this type of work.								

Clothing Adjustment Factors for Some Clothing Ensembles*	
Clothing Type	Addition to WBGT °F/°C
Work Clothes (sleeved shirt and pants)	0/0
Cloth (woven material) coveralls	0/0
Double-layer woven clothing	5.4/3
Polypropylene coveralls	0.9/0.5
Limited Use Vapor barrier coveralls	19.8/11
* These values must not be used for completely encapsulating (impermeable) coveralls/suits. Coveralls assume that only modesty clothing is worn beneath.	

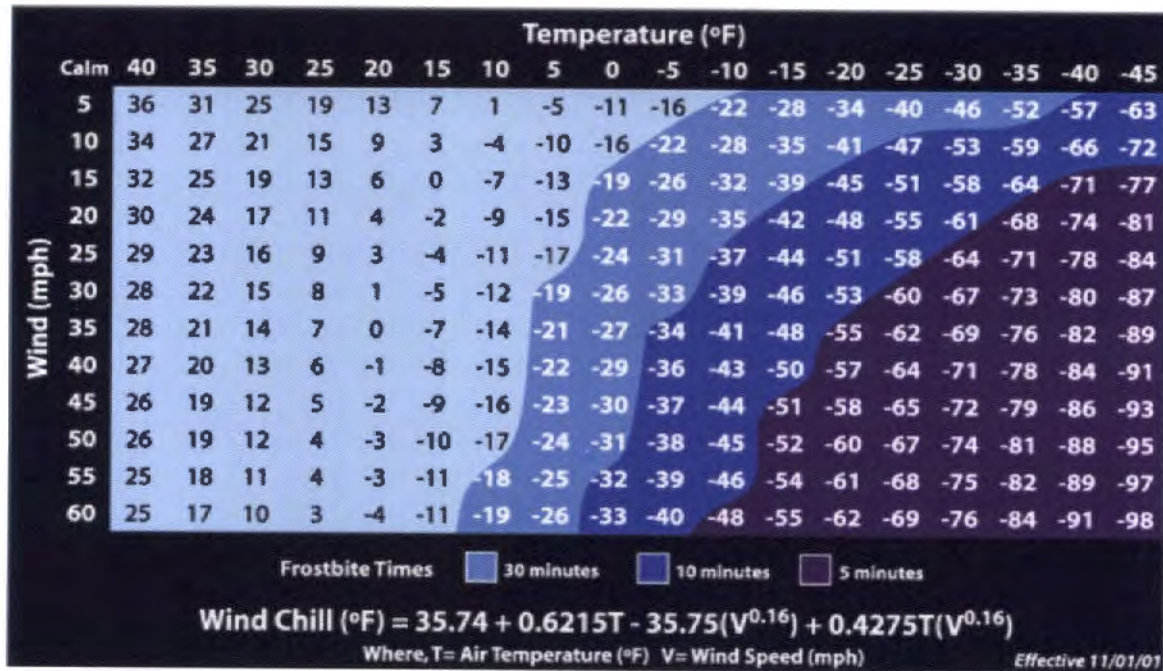
9.14.3 Cold Stress Monitoring and Prevention

- Be aware of the symptoms of cold-related disorders, and wear proper, layered clothing for the anticipated fieldwork. Appropriate rain/foul weather gear is a must in cool/cold weather, especially where precipitation events are occurring.

- Consider monitoring the work conditions and adjusting the work schedule using guidelines developed by the U.S. Army (wind-chill index) and the National Safety Council (NSC).
- Wind-chill index is used to estimate the combined effect of wind and low air temperatures on exposed skin. The wind-chill index does not take into account the body part that is exposed, the level of activity, or the amount or type of clothing worn. For those reasons, it should only be used as a guideline to warn workers when they are in a situation that can cause cold-related illnesses.
- NSC Guidelines for Work and Warm-Up Schedules can be used with the wind-chill index to estimate work and warm-up schedules for fieldwork. The guidelines are not absolute; workers should be monitored for symptoms of cold-related illnesses. If symptoms are not observed, the work duration can be increased.



Wind Chill Chart



- Persons who experience initial signs of immersion foot, frostbite, hypothermia should consult the SHSO to avoid progression of cold-related illness.
- Observe one another for initial signs of cold-related disorders.
- Obtain and review weather forecast – be aware of predicted weather systems along with sudden drops in temperature, increase in winds, and precipitation.

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

9.15 Crystalline Silica Monitoring Plan (06.M)

(Reserved)

There are no anticipated potential worker exposures to crystalline silica associated with the execution of this CTO.

9.16 Night Operations Lighting Plan (07.A.08)

(Reserved)

No operations will be performed at night. The requirements of EM 385 1-1, section 07.A.08 are not applicable to this CTO.

9.17 Fire Prevention Plan (09.A)

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(09.K)

(Reserved)

The requirements of EM 385 1-1, 09.K are not applicable to this CTO as no USACE prescribed or planned wild land fire management operations or potential will be executed under this CTO.

9.19 Hazardous Energy Control Plan (12.A.01)

(Reserved)

There are no identified site conditions or anticipated site operations where the servicing and maintenance of machines and equipment would result in the unexpected energizing or start up of the machines or equipment, or release of stored energy that could cause injury to employees. 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 CTO.

9.20 Critical Lift Plan (16.H)

(Reserved)

No critical lifts will be performed during the execution of this CTO. The requirements of EM 385 1-1, section 16 and 29 CFR 1926 Subparts CC and DD are not applicable to the execution of this CTO.

9.21 Contingency for Severe Weather Plan (19.A.03)

See section 9.7 Health and Safety Hazard Control Program - "Adverse Weather". Although severe weather conditions can be experienced at the site, it is anticipated that the

performance period of this CTO will be during periods where Hurricanes and similar severe tropical storm events are generally not a significant threat (November 30 through June 1) and therefore a Hurricane Preparedness Plan (HPP) will not be prepared as part of this APP for this CTO.

9.22 Float Plan (19.F.04)

(Reserved)

The conditions of EM 385 1-1 19.F.04 are not applicable to this work.

9.23 Site Specific Fall Protection and Prevention Plan (21.C)

(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(23.A.01)

(Reserved)

Demolition activities will not be performed during the execution of this CTO. The requirements of EM 385 1-1, section 23 and 29 CFR 1926 Subparts t and DD are not applicable to the execution of this CTO.

9.25 Excavation/Trenching Plan (25.A.01)

The means and methods for complete excavation activities associated with this TO are detailed in Section 9.7 and will not be elaborated upon further in this section. Because of the depth of the excavation is limited (0 to <4 feet bgs) and there will be no worker exposure to open excavation edges or fall hazards as part of this proposed excavation work, the full and complete applicability of 29 CFR 1926, Subpart P, and EM 385 1-1, Section 25 Excavations and specifically Section 25.A.01, is limited.

9.26 Emergency Rescue (Tunneling) (26.A)

(Reserved)

No tunneling will be performed during the execution of this CTO. The requirements of EM 385 1-1, section 26 are not applicable to the execution of this CTO.

9.27 Underground Construction Fire Prevention and Protection Plan (26.D)

(Reserved)

No underground construction will be performed during the execution of this CTO. The requirements of EM 385 1-1, section 26 are not applicable to the execution of this CTO.

9.28 Compressed Air Plan (26.I.01)

(Reserved)

No underground construction (tunnels), shafts or caissons work will be executed as part of this CTO. The requirements of EM 385 1-1, section 26.I.01 are not applicable to this CTO.

9.29 Formwork Shoring and Removal Plan (27.C)

(Reserved)

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

9.30 Precast Concrete Plan (27.D)

(Reserved)

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

9.31 Lift Slab Plan (27.E)

(Reserved)

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

9.32 Steel Erection Plan (27.F)

(Reserved)

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

9.33 Site Safety and Health Plan of HRTW Work (28.B)

A Site Specific Safety and Health Plan addressing the requirements of section 28.B of EM 385 1-1 is not required as there is not any HAZWOPER related work being performed under this CTO. There are no anticipated exposures to site contaminants.

However, since this project is supporting a CERCLA response action, an abbreviated SSHSP has been developed to address potential concerns.

9.34 Blasting Safety Plan

(Reserved)

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

9.35 Diving Plan

(Reserved)

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

9.36 Confined Space Program

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

(Reserved)

Confined space entry operations will not be performed as part of this CTO. The requirements of EM 385 1-1, section 34 and 29 CFR 1910.146 are not applicable to the execution of this CTO.

10.0 Risk Management Process

AGVIQ-CH2MHILL 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-CH2MHILL promotes and implements a Drug Free Workplace Program (DFWP). AGVIQ-CH2MHILL 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-CH2MHILL subcontractors will be required to provide AHAs specific to their scope of work on the project for acceptance by the SSHO, AGVIQ-CH2MHILL 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-CH2MHILL 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 CTO. 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. Any changes in site conditions or processes, AHA must be updated prior to work proceeding.

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 8** 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 on-site 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 9** 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-CH2MHILL 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 10** of this APP.

10.5 Drug-Free Workplace Program

AGVIQ-CH2MHILL does not tolerate illegal drugs, or any use of drugs, controlled substances, or alcohol that impairs an employees work performance or behavior. AGVIQ-CH2MHILL 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 the site. 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					
	Mobilization	Underground Piping and Utilities Installation	Concrete Work	Process Equipment, Piping and Valves	System Start-Up	Demobilize Test System Subcontractor
Adverse Weather	X	X	X	X	X	X
Air Compressors						
Biological	X	X	X	X	X	X
Buried Utilities		X	X			
Chainsaws/Brush cutters						
Contaminant Exposure						
Concrete and Masonry			X			
Confined Space						
Cuts/Abrasions	X	X	X	X	X	X
Cranes		X		X		
Demolition/Dismantling						
Dredging						
Drilling/DPT						
Electrical Safety	X	X	X	X	X	X
Excavations		X	X			
Fall Prevention				X	X	
Fire/Explosion Prevention	X	X	X	X	X	
Hand & Power Tools	X	X	X	X	X	X
Haul Truck Operations	X	X	X	X		X
Heat Stress/Cold Stress	X	X	X	X		X
Heavy Equipment	X	X	X			X
Housekeeping	X	X	X	X	X	X
Land Clearing	X					
Lockout /Tagout		X			X	
Manual Lifting	X	X	X	X	X	X
MEC/MPPEH						
Noise	X	X	X	X	X	X
Overhead Utilities	X	X	X	X		X
Pinch/Struck by/Caught	X	X	X	X		X
Powered Industrial Trucks						
Pressure Washing Activities						
Pressurized Lines/Systems						
Rigging or Material Handling		X		X		
Sample Handling			X		X	
Slips/Trips/Falls	X	X	X	X	X	X
Stairways & Ladders				X	X	
Vacuum Truck						
Vehicle Traffic / Driving	X	X	X	X		X
Visible Lighting	X	X	X	X	X	X
Welding and cutting		X		X		
Working Alone						
Working over water						

Adverse Weather	X	X	X	X	X	X
Air Compressors						
Biological	X	X	X	X	X	X
Buried Utilities		X	X			
Chainsaws/Brush cutters						
Contaminant Exposure						
Concrete and Masonry			X			
Confined Space						
Cuts/Abrasions	X	X	X	X	X	X
Cranes		X		X		
Demolition/Dismantling						
Dredging						
Drilling/DPT						
Electrical Safety	X	X	X	X	X	X
Excavations		X	X			
Fall Prevention				X	X	
Fire/Explosion Prevention	X	X	X	X	X	
Hand & Power Tools	X	X	X	X	X	X
Haul Truck Operations	X	X	X	X		X
Heat Stress/Cold Stress	X	X	X	X		X
Heavy Equipment	X	X	X			X
Housekeeping	X	X	X	X	X	X
Land Clearing	X					
Lockout /Tagout		X			X	
Manual Lifting	X	X	X	X	X	X
MEC/MPPEH						
Noise	X	X	X	X	X	X
Overhead Utilities	X	X	X	X		X
Pinch/Struck by/Caught	X	X	X	X		X
Powered Industrial Trucks						
Pressure Washing Activities						
Pressurized Lines/Systems						
Rigging or Material Handling		X		X		
Sample Handling			X		X	
Slips/Trips/Falls	X	X	X	X	X	X
Stairways & Ladders				X	X	
Vacuum Truck						
Vehicle Traffic / Driving	X	X	X	X		X
Visible Lighting	X	X	X	X	X	X
Welding and cutting		X		X		
Working Alone						
Working over water						

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

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Concrete Work	Overall Risk Assessment Code (RAC) (Use highest code)			M		
	SIGNATURES	Activity #	1	AHA #	1		
PWD/OICC/ROICC OFFICE		Risk Assessment Code (RAC) Matrix					
NAME & DATE ACCEPTED BY GDA:		Severity	Probability				
CONTRACT NUMBER:	N62470-08-D-1006		Frequent	Likely	Occasional	Seldom	Unlikely
TASK ORDER/DELIVERY #:	WE23		E	E	H	H	M
PRIME CONTRACTOR:	CH2M HILL		E	H	H	M	L
SUBCONTRACTOR:	TBD		H	M	M	L	L
DATE OF PREPARATORY MEETING:			M	L	L	L	L
DATE OF INITIAL INSPECTION:		Catastrophic					
CONTRACTOR COMPETENT PERSON:	NA	Critical					
SITE SAFETY and HEALTH OFFICER		Marginal					
		Negligible					
ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)		Review each "Hazard" with identified safety "Controls" and determine (RAC)					
E = EXTREMELY HIGH (PWD/OICC/ROICC)		Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard". Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity					
H = HIGH RISK (FEAD DIRECTOR)		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place					
M = MODERATE RISK (CM or ET or PAR)							
L = LOW RISK (ET or PAR)							
		"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.					
Job Steps	Hazards	Controls			RAC		
Mobilizing to Site Driving Vehicle Backing	<ul style="list-style-type: none"> Traffic accident Driver fatigue Poor driving skills Load shift Traffic accident Property damage 	<ul style="list-style-type: none"> Keep alert of your surroundings. Do not try to complete other tasks while driving that can distract your attention Do not drive when tired. Pull off at a safe location and walk around your vehicle and take a break if getting tired. Use your mirrors while driving. Do not use evasive driving actions. Obey traffic laws. Secure loads before starting your trip. Make frequent stops to check your load to make sure nothing has become loose. Retighten any loose straps. Check your surroundings when before backing. When possible use a spotter. Check for obstructions before backing. Walk around vehicle to make sure area is clear. 			L		

IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA"
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person's

Job Steps	Hazards	Controls	RAC
Unloading/placing equipment.	<ul style="list-style-type: none"> • Back strain • Hand Injuries; cuts, bruises, pinch points • Slips, Trips, & Falls • Contact with Heavy Equipment while in use. 	<ul style="list-style-type: none"> • Use proper lifting techniques at all times. Request assistance from other personal when weight limits exceeds 50lbs. Mechanical means shall be used for gate relocation whenever possible rather than manual means to avoid the risk of strains and sprains. • Wear protective gloves; Use hand tools in a safe manner and keep hand tools in good working condition. • Use extreme caution when walking in work areas, working on or around truck beds and around equipment during unloading and staging activities. • Only trained and experienced personnel will be allowed to stage and unload heavy equipment. • Only certified operators will be authorized to operate equipment. Certifications must be on site at all times. • High visibility vests will be worn at all times while working in or around heavy equipment, trucks or other mechanized equipment. • All ground personal etc. must maintain eye contact with operators at all times. Do not proceed toward, or into blind spots of equipment without authorization to do so by operator. • All ground personal will stay outside the swing radius of equipment while in operation. 	L
General Construction Hazards	<ul style="list-style-type: none"> • Accidents due to lack of training 	<ul style="list-style-type: none"> ▪ Copies of records will be kept by the SSO. ▪ Worker will be trained prior to performing new activities. Copies of records will be kept by the SSO. This includes signature sheets for AHAs, HASP and any other training documents. ▪ A daily tailgate safety meeting will be held prior to starting each shift. All personnel must attend review and sign the Safety Tailgate log before beginning work. CH2M HILL Staff should be present. ▪ All site workers must understand all Emergency procedures, AHA and HASP procedures. ▪ A copy of each Tailgate meeting must be supplied to the CH2M HILL onsite rep each day. 	L
	<ul style="list-style-type: none"> • Electrical Hazards 	<ul style="list-style-type: none"> • Do not open panels or cabinet's that contain live electrical parts. • NFPA 70e training is required to work on or near live electrical parts. 	L
	<ul style="list-style-type: none"> • Hearing Damage 	<ul style="list-style-type: none"> • Workers will wear hearing protection whenever voices must be raised above normal conversational speech or when noise levels exceed 85 decibels due to a loud noise source; such as working around heavy equipment. • Hearing protection will be worn by equipment operators when working in open cab equipment, or when doors/windows are open. 	L

IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA"
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Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
	<ul style="list-style-type: none"> Injuries from slips, trips, and falls 	<ul style="list-style-type: none"> Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. Personnel will be briefed on the hazards of wet, muddy soil hazards and traversing uneven grades. Walk or climb only on equipment and/or surfaces that are designed for personnel access. Be aware of potential for poor footing while working on un-compacted backfill materials. Use three-point contact when climbing onto equipment. 	L
	<ul style="list-style-type: none"> Accidents due to poor lighting 	<ul style="list-style-type: none"> Work at site is only expected to take place during daylight hours. If work after daylight hours or in dark areas of buildings, provide supplemental lighting. 	L
	<ul style="list-style-type: none"> Injury due to inclement weather 	<ul style="list-style-type: none"> Outdoor work will cease during extreme weather conditions, such as electrical storms, high wind rain, and extreme temperatures. Shut all equipment down when lightning is visible and wait for "all-clear" from the SSHO. Workers will take cover indoors or in vehicle. Supervisors will monitor local forecasts for warnings about specific weather hazards. Workers will comply with all evacuation orders regarding rough weather directives. 	L
	<ul style="list-style-type: none"> Heat Stress 	<ul style="list-style-type: none"> Workers will be trained in the recognition of heat stress and appropriate actions to take. Workers are encouraged to increase fluid intake while working. Workers should minimize or avoid alcohol intake the night before working in heat stress situations. Workers will increase the frequency and duration of rest breaks while working in heat stress situations. Workers will watch each other for signs and symptoms of heat exhaustion and fatigue. 	L
	<ul style="list-style-type: none"> Controlling work areas 	<ul style="list-style-type: none"> Fencing, tape, cones or other SSHO-approved boundaries will be erected to warn approaching personnel of the hazardous area. Appropriate signs will be posted at the boundary to instruct personnel in entry requirements. 	L
	<ul style="list-style-type: none"> Injuries associated with insects, snakes, spiders and poisonous plants 	<ul style="list-style-type: none"> Workers will tuck pants into socks and wear long sleeves and sturdy leather boots when walking in tall grass. Workers will use insect repellent when needed. 	L

**IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA"
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person's**

		<ul style="list-style-type: none"> Workers will use buddy system to check for signs of insect and spider bites, such as redness, swelling, and flu-like symptoms if bitten. If workers have known or suspected allergies, they will carry an Epi-Pen at all times and will notify supervision and co-workers of allergies. If bitten by any insect notify the CH2M HILL (CCI) oversight rep immediately. This includes any type of injury that would require any type of First Aid. 	
Concrete pad installation	<ul style="list-style-type: none"> Concrete Work 	<ul style="list-style-type: none"> Mud boots and gloves shall be worn by personnel involved in concrete placement, testing, finishing, cleanup, or other activities where contact with wet concrete is involved. Protruding reinforcing steel (rebar), onto which personnel could fall, must be guarded to eliminate the hazard of impalement During post-tensioning, only those personnel essential to the operation are permitted behind the tensioning jacks. Personnel shall not ride concrete buckets nor position themselves in areas where buckets are lifted overhead. Personnel shall maintain a safe distance from formwork and shoring being removed from concrete structures. Personnel shall maintain a safe distance from precast and lift-slab concrete being lifted into position until physically secured. Personnel shall not enter limited access zones during masonry wall construction. When CH2M HILL is in control of concrete and masonry operations, a lift slab competent person will oversee all the concrete and masonry operations. Complete the self-assessment checklist for concrete and masonry activities whenever those activities are being performed 	L
	<ul style="list-style-type: none"> Heavy Equipment 	<ul style="list-style-type: none"> Seat belts or other restraint system shall be used by heavy equipment operators. Perform daily maintenance and inspections on operating equipment. Keep documentation on site. Use caution around pressurized lines/hoses. Inspect hoses daily for cuts, abrasions and wear. Equipment shall only be operated by personnel qualified by prior training or experience. Ensure that a stable ground surface is available for the operation of heavy equipment. Equipment operators shall not leave the cab of the equipment while they are lifting/controlling a load unless 	L

IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA"
The AHA will be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person's

		the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured/disengaged and equipment is "de-energized".	
	<ul style="list-style-type: none"> Manual Lifting 	<ul style="list-style-type: none"> AGVIQ-CH2MHILL 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. Do not manually handle any loads that should be moved, lifted transferred via the use heavy. Have someone assist with manually lifting— especially for heavy (> 40lbs.) or awkward loads. 	
	<ul style="list-style-type: none"> 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 for 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. Ensure that all ground personnel have sufficient separation from tub grinding operations 	L
		<ul style="list-style-type: none"> 	

IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA"
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person's

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection 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"> • Review APP by 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, 30 hour OSHA Construction Safety Training or equivalent • Heavy equipment operators qualified by previous training or experience. • Competent Person Requirement & Name: NA • 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Equipment inspections and maintenance. • Brushcutter inspection/maintenance. • Chipper maintenance, if used. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.)

Instructions for completing Contractor Activity Hazard Analysis

1. **Activity/Work Task** – Insert work/task this AHA is written for i.e. excavation, scaffold building, foundation preparation.
2. **PWO/OICC/ROICC** – Insert name of Public Works Office, Officer In Charge of Construction Office or Resident Officer in Charge of Construction (PWD/OICC/ROICC)
3. **Enter name & date AHA accepted by Government Designated Authority (GDA)**
4. **Enter contract number**
5. **Enter Task order or Delivery order number**
6. **Enter Prime Contractors name**
7. **Enter Subcontractors name**
8. **Enter date preparatory meeting was held**
9. **Enter date initial inspection was performed**
10. **Enter name of contractor competent person on site for this activity**
11. **Enter name of Prime Contractor Site Safety and Health Officer**
12. **Level of government person responsible for accepting the AHA, progressive signatures as level of risk increases.**

IAW EM 385 01.A.13 Contractor-Required AHA “Work will not begin until the AHA for the work activity has been accepted by the GDA”
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person’s

13. Overall Risk Assessment code is highest code assigned to any Job step after Hazards are assessed and Controls have been assigned
14. Schedule number is activity number from production daily reports
15. AHA number is the sequential number of all AHA's for this contract.
16. Job steps is the complete sequence of work, not general statements to complete the entire activity
17. Hazards is the known safety risks associated with completing the task
18. Controls is the safety measures in place to reduce the hazard to the lowest level possible
19. Risk Assessment code is where Severity and Probability intersect, place that letter E, H, M, or L in the RAC column
20. List all equipment to be used to complete this activity i.e. crane, backhoe, vehicle, all heavy equipment
21. List the training requirements required by EM 385, Safety Spec 01356 or OSHA that apply to this task.
 - List competent person(s) required for specific tasks in EM 385
 - List qualified person(s) required for specific tasks in EM 385
 - List CPR/First Aid training and qualification dates
22. List all inspection requirements of EM 385, Governmental Safety Requirements Specifications or OSHA 29 CFR 1926

IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA"
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person's

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Mobilization/Demobilization	Overall Risk Assessment Code (RAC) (Use highest code)			M			
	SIGNATURES	Activity #	1	AHA #	1			
PWD/OICC/ROICC OFFICE		Risk Assessment Code (RAC) Matrix						
NAME & DATE ACCEPTED BY GDA:		Severity	Probability					
CONTRACT NUMBER:	N62470-08-D-1006		Frequent	Likely	Occasional	Seldom	Unlikely	
TASK ORDER/DELIVERY #:	WE23		Catastrophic	E	E	H	H	M
PRIME CONTRACTOR:	CH2M HILL		Critical	E	H	H	M	L
SUBCONTRACTOR:	NA		Marginal	H	M	M	L	L
DATE OF PREPARATORY MEETING:			Negligible	M	L	L	L	L
DATE OF INITIAL INSPECTION:		ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)						
CONTRACTOR COMPETENT PERSON:	NA	Review each "Hazard" with identified safety "Controls" and determine (RAC)						
SITE SAFETY and HEALTH OFFICER		Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" .Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity						
E = EXTREMELY HIGH (PWD/OICC/ROICC)		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place						
H = HIGH RISK (FEAD DIRECTOR)		"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.						
M = MODERATE RISK (CM or ET or PAR)								
L = LOW RISK (ET or PAR)								
Job Steps	Hazards	Controls			RA C			
Mobilizing to Site Driving Vehicle Backing	<ul style="list-style-type: none"> Traffic accident Driver fatigue Poor driving skills Load shift Traffic accident Property damage 	<ul style="list-style-type: none"> Keep alert of your surroundings. Do not try to complete other tasks while driving that can distract your attention Do not drive when tired. Pull off at a safe location and walk around your vehicle and take a break if getting tired. Use your mirrors while driving. Do not use evasive driving actions. Obey traffic laws. Secure loads before starting your trip. Make frequent stops to check your load to make sure nothing has become loose. Retighten any loose straps. Check your surroundings when before backing. When possible use a spotter. Check for obstructions before backing. Walk around vehicle to make sure area is clear. 			L			

IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA" The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person's

Job Steps	Hazards	Controls	RAC
Unloading/placing equipment.	<ul style="list-style-type: none"> • Back strain • Hand Injuries; cuts, bruises, pinch points • Slips, Trips, & Falls • Contact with Heavy Equipment while in use. 	<ul style="list-style-type: none"> • Use proper lifting techniques at all times. Request assistance from other personal when weight limits exceeds 50lbs. Mechanical means shall be used for gate relocation whenever possible rather than manual means to avoid the risk of strains and sprains. • Wear protective gloves; Use hand tools in a safe manner and keep hand tools in good working condition. • Use extreme caution when walking in work areas, working on or around truck beds and around equipment during unloading and staging activities. • Only trained and experienced personnel will be allowed to stage and unload heavy equipment. • Only certified operators will be authorized to operate equipment. Certifications must be on site at all times. • High visibility vests will be worn at all times while working in or around heavy equipment, trucks or other mechanized equipment. • All ground personal etc. must maintain eye contact with operators at all times. Do not proceed toward, or into blind spots of equipment without authorization to do so by operator. • All ground personal will stay outside the swing radius of equipment while in operation. 	L
General Construction Hazards	<ul style="list-style-type: none"> • Accidents due to lack of training 	<ul style="list-style-type: none"> ▪ Copies of records will be kept by the SSO. ▪ Worker will be trained prior to performing new activities. Copies of records will be kept by the SSO. This includes signature sheets for AHAs, HASP and any other training documents. ▪ A daily tailgate safety meeting will be held prior to starting each shift. All personnel must attend review and sign the Safety Tailgate log before beginning work. CH2M HILL Staff should be present. ▪ All site workers must understand all Emergency procedures, AHA and HASP procedures. ▪ A copy of each Tailgate meeting must be supplied to the CH2M HILL onsite rep each day. • 	L
	<ul style="list-style-type: none"> • Electrical Hazards 	<ul style="list-style-type: none"> • Do not open panels or cabinet's that contain live electrical parts. • NFPA 70e training is required to work on or near live electrical parts. 	L
	<ul style="list-style-type: none"> • Hearing Damage 	<ul style="list-style-type: none"> • Workers will wear hearing protection whenever voices must be raised above normal conversational speech or when noise levels exceed 85 decibels due to a loud noise source; such as working around heavy equipment. • Hearing protection will be worn by equipment operators when working in open cab equipment, or when doors/windows are open. 	L

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Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
	<ul style="list-style-type: none"> Injuries from slips, trips, and falls 	<ul style="list-style-type: none"> Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. Personnel will be briefed on the hazards of wet, muddy soil hazards and traversing uneven grades. Walk or climb only on equipment and/or surfaces that are designed for personnel access. Be aware of potential for poor footing while working on un-compacted backfill materials. Use three-point contact when climbing onto equipment. 	L
	<ul style="list-style-type: none"> Accidents due to poor lighting 	<ul style="list-style-type: none"> Work at site is only expected to take place during daylight hours. If work after daylight hours or in dark areas of buildings, provide supplemental lighting. 	L
	<ul style="list-style-type: none"> Injury due to inclement weather 	<ul style="list-style-type: none"> Outdoor work will cease during extreme weather conditions, such as electrical storms, high wind rain, and extreme temperatures. Shut all equipment down when lightning is visible and wait for "all-clear" from the SSHO. Workers will take cover indoors or in vehicle. Supervisors will monitor local forecasts for warnings about specific weather hazards. Workers will comply with all evacuation orders regarding rough weather directives. 	L
	<ul style="list-style-type: none"> Heat Stress 	<ul style="list-style-type: none"> Workers will be trained in the recognition of heat stress and appropriate actions to take. Workers are encouraged to increase fluid intake while working. Workers should minimize or avoid alcohol intake the night before working in heat stress situations. Workers will increase the frequency and duration of rest breaks while working in heat stress situations. Workers will watch each other for signs and symptoms of heat exhaustion and fatigue. 	L
	<ul style="list-style-type: none"> Controlling work areas 	<ul style="list-style-type: none"> Fencing, tape, cones or other SSHO-approved boundaries will be erected to warn approaching personnel of the hazardous area. Appropriate signs will be posted at the boundary to instruct personnel in entry requirements. 	L
	<ul style="list-style-type: none"> Injuries associated with insects, snakes, spiders and poisonous plants 	<ul style="list-style-type: none"> Workers will tuck pants into socks and wear long sleeves and sturdy leather boots when walking in tall grass. Workers will use insect repellent when needed. Workers will use buddy system to check for signs of insect and spider bites, such as redness, swelling, and flu-like symptoms if bitten. If workers have known or suspected allergies, they will carry an Epi-Pen at all times and will notify supervision and co-workers of allergies. If bitten by any insect notify the CH2M HILL (CCI) oversight rep immediately. This includes any type of injury that would require any type of First Aid. 	L

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Construction of Logistical Supplies	<ul style="list-style-type: none"> Injuries associated with power tools 	<ul style="list-style-type: none"> Tools shall be carried in a safe and proper manner. Tools shall not be carried up a ladder by hand; tools should be raised or lowered in a tool bag. Defective tools shall be tagged immediately and removed from service. Tools shall be used correctly and only for their intended purpose. Hand tools will be inspected for mushroomed heads, broken or cracked handles, or loose heads prior to use. 	L
Vegetation Removal	<ul style="list-style-type: none"> Hydraulic Mowing Equipment Use 	<ul style="list-style-type: none"> Only qualified personnel, by training or previous experiences shall operate landscaping mowers. Mower operators shall shut-down and disengage hydraulic mower when ground personnel must approach mowing operations. Mower deck should never be tilted vertically or raised more than 6" above the ground. Ensure that equipment kill switches are properly operating and accessible by mowing equipment operators. Mower operators should not operate equipment on steep, slippery or uneven slopes or unstable ground surfaces which could cause the mower to flip over or otherwise become unstable to the point where operators or ground personnel could become exposed to the blades. Ensure all mechanic guards or protective devices over mower discharge chutes are in place. Operators of hydraulic mowers cutters should not raise cutting decks more than 6" above ground surface to cut saplings. Operators should review mower manufacturer manuals to ensure that the mower is operated in accordance with manufacturer's parameters. Seat belts or other restraint system shall be used by mower operators. Perform daily maintenance and inspections on mowing equipment. Keep documentation on site. 	M
UTILITY LOCATE	<ul style="list-style-type: none"> Traffic Carrying equipment Minor excavation by hand (to recover survey points) Poisonous plants Biting insects Heat exhaustion Hand equipment use 	<ul style="list-style-type: none"> Use traffic cones where parking; wear reflective clothing (vest or jacket – required at all NAVFAC sites) and work signs as appropriate Follow safe lifting procedures for bulky or heavy equipment Be prepared to recognize plants (e.g. Poison Ivy) and avoid them if possible; wear long pants and shirt with sleeves Use insect spray prior to the start of work following manufactures directions; wear long pants and long sleeved shirt Hydrate prior to the start of work and keep a supply of cool water available; take frequent breaks, wear sunscreen Follow safe practices while using hand equipment (shovel, trowel, etc.). 	L
Conduct topographic survey	<ul style="list-style-type: none"> Carrying equipment Minor excavation by hand (to recover survey points) Poisonous plants 	<ul style="list-style-type: none"> Follow safe lifting procedures for bulky or heavy equipment Have site pre-marked for utilities Be prepared to recognize plants (e.g. Poison Ivy) and avoid them if possible; wear long pants and shirt with sleeves Use insect spray prior to the start of work following manufactures directions; wear long 	L

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	<ul style="list-style-type: none"> ▪ Biting insects • Heat exhaustion • Hand equipment use 	<ul style="list-style-type: none"> • pants and long sleeved shirt • Hydrate prior to the start of work and keep a supply of cool water available; take frequent breaks, wear sunscreen • Follow safe practices while using hand equipment (shovel, trowel, etc.) 	
	•	•	
Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection 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 • Track excavator(s) with material handling attachment and/or skid steer brush hog • Spill Kit • Communication devices 	<ul style="list-style-type: none"> • Review APP by 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, 30 hour OSHA Construction Safety Training or equivalent • Heavy equipment operators qualified by previous training or experience. • Competent Person Requirement & Name: NA • 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Equipment inspections and maintenance. • Brushcutter inspection/maintenance. • Chipper maintenance, if used. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.) 	

Instructions for completing Contractor Activity Hazard Analysis

1. **Activity/Work Task** – Insert work/task this AHA is written for i.e. excavation, scaffold building, foundation preparation.
2. **PWO/OICC/ROICC** – Insert name of Public Works Office, Officer In Charge of Construction Office or Resident Officer in Charge of Construction (PWD/OICC/ROICC)
3. **Enter name & date AHA accepted by Government Designated Authority (GDA)**
4. **Enter contract number**
5. **Enter Task order or Delivery order number**
6. **Enter Prime Contractors name**

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7. Enter Subcontractors name
8. Enter date preparatory meeting was held
9. Enter date initial inspection was performed
10. Enter name of contractor competent person on site for this activity
11. Enter name of Prime Contractor Site Safety and Health Officer
12. Level of government person responsible for accepting the AHA, progressive signatures as level of risk increases.
13. Overall Risk Assessment code is highest code assigned to any Job step after Hazards are assessed and Controls have been assigned
14. Schedule number is activity number from production daily reports
15. AHA number is the sequential number of all AHA's for this contract.
16. Job steps is the complete sequence of work, not general statements to complete the entire activity
17. Hazards is the known safety risks associated with completing the task
18. Controls is the safety measures in place to reduce the hazard to the lowest level possible
19. Risk Assessment code is where Severity and Probability intersect, place that letter E, H, M, or L in the RAC column
20. List all equipment to be used to complete this activity i.e. crane, backhoe, vehicle, all heavy equipment
21. List the training requirements required by EM 385, Safety Spec 01356 or OSHA that apply to this task.
List competent person(s) required for specific tasks in EM 385
List qualified person(s) required for specific tasks in EM 385
List CPR/First Aid training and qualification dates
22. List all inspection requirements of EM 385, Governmental Safety Requirements Specifications or OSHA 29 CFR 1926

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Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Process Equipment, Piping, and Valves Installation	Overall Risk Assessment Code (RAC) (Use highest code)			M		
	SIGNATURES	Activity #	1	AHA #	1		
PWD/OICC/ROICC OFFICE		Risk Assessment Code (RAC) Matrix					
NAME & DATE ACCEPTED BY GDA:		Severity	Probability				
CONTRACT NUMBER:	N62470-08-D-1006		Frequent	Likely	Occasional	Seldom	Unlikely
TASK ORDER/DELIVERY #:	WE23		E	E	H	H	M
PRIME CONTRACTOR:	CH2M HILL		E	H	H	M	L
SUBCONTRACTOR:	TBD		H	M	M	L	L
DATE OF PREPARATORY MEETING:			M	L	L	L	L
DATE OF INITIAL INSPECTION:		Catastrophic					
CONTRACTOR COMPETENT PERSON:	Crane Operator TBD	Critical					
SITE SAFETY and HEALTH OFFICER		Marginal					
		Negligible					
ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)		Review each "Hazard" with identified safety "Controls" and determine (RAC)					
E = EXTREMELY HIGH (PWD/OICC/ROICC)		Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard". Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity					
H = HIGH RISK (FEAD DIRECTOR)		<p>"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place</p> <p>"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.</p>					
M = MODERATE RISK (CM or ET or PAR)							
L = LOW RISK (ET or PAR)							
Job Steps	Hazards	Controls			RAC		
Mobilizing to Site Driving Vehicle Backing	<ul style="list-style-type: none"> Traffic accident Driver fatigue Poor driving skills Load shift Traffic accident Property damage 	<ul style="list-style-type: none"> Keep alert of your surroundings. Do not try to complete other tasks while driving that can distract your attention Do not drive when tired. Pull off at a safe location and walk around your vehicle and take a break if getting tired. Use your mirrors while driving. Do not use evasive driving actions. Obey traffic laws. Secure loads before starting your trip. Make frequent stops to check your load to make sure nothing has become loose. Retighten any loose straps. Check your surroundings when before backing. When possible use a spotter. Check for obstructions before backing. Walk around vehicle to make sure area is clear. 			L		

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Job Steps	Hazards	Controls	RAC
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General Construction Hazards	<ul style="list-style-type: none"> • Accidents due to lack of training 	<ul style="list-style-type: none"> • Copies of records will be kept by the SSO. • Worker will be trained prior to performing new activities. Copies of records will be kept by the SSO. This includes signature sheets for AHAs, HASP and any other training documents. • A daily tailgate safety meeting will be held prior to starting each shift. All personnel must attend review and sign the Safety Tailgate log before beginning work. CH2M HILL Staff should be present. • All site workers must understand all Emergency procedures, AHA and HASP procedures. • A copy of each Tailgate meeting must be supplied to the CH2M HILL onsite rep each day. 	L
	<ul style="list-style-type: none"> • Electrical Hazards 	<ul style="list-style-type: none"> • Do not open panels or cabinet's that contain live electrical parts. • NFPA 70e training is required to work on or near live electrical parts. 	L
	<ul style="list-style-type: none"> • Hearing Damage 	<ul style="list-style-type: none"> • Workers will wear hearing protection whenever voices must be raised above normal conversational speech or when noise levels exceed 85 decibels due to a loud noise source; such as working around heavy equipment. • Hearing protection will be worn by equipment operators when working in open cab equipment, or when doors/windows are open. 	L

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	<ul style="list-style-type: none"> • Injuries from slips, trips, and falls 	<ul style="list-style-type: none"> • Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. • Personnel will be briefed on the hazards of wet, muddy soil hazards and traversing uneven grades. • Walk or climb only on equipment and/or surfaces that are designed for personnel access. • Be aware of potential for poor footing while working on un-compacted backfill materials. • Use three-point contact when climbing onto equipment. 	L
	<ul style="list-style-type: none"> • Accidents due to poor lighting 	<ul style="list-style-type: none"> • Work at site is only expected to take place during daylight hours. If work after daylight hours or in dark areas of buildings, provide supplemental lighting. 	L
	<ul style="list-style-type: none"> • Injury due to inclement weather 	<ul style="list-style-type: none"> • Outdoor work will cease during extreme weather conditions, such as electrical storms, high wind rain, and extreme temperatures. • Shut all equipment down when lightning is visible and wait for "all-clear" from the SSHO. • Workers will take cover indoors or in vehicle. • Supervisors will monitor local forecasts for warnings about specific weather hazards. • Workers will comply with all evacuation orders regarding rough weather directives. 	L
	<ul style="list-style-type: none"> • Heat Stress 	<ul style="list-style-type: none"> • Workers will be trained in the recognition of heat stress and appropriate actions to take. • Workers are encouraged to increase fluid intake while working. • Workers should minimize or avoid alcohol intake the night before working in heat stress situations. • Workers will increase the frequency and duration of rest breaks while working in heat stress situations. • Workers will watch each other for signs and symptoms of heat exhaustion and fatigue. 	L
	<ul style="list-style-type: none"> • Controlling work areas 	<ul style="list-style-type: none"> • Fencing, tape, cones or other SSHO-approved boundaries will be erected to warn approaching personnel of the hazardous area. • Appropriate signs will be posted at the boundary to instruct personnel in entry requirements. 	L
	<ul style="list-style-type: none"> • Injuries associated with insects, snakes, spiders and poisonous plants 	<ul style="list-style-type: none"> • Workers will tuck pants into socks and wear long sleeves and sturdy leather boots when walking in tall grass. • Workers will use insect repellent when needed. 	L

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		<ul style="list-style-type: none"> Workers will use buddy system to check for signs of insect and spider bites, such as redness, swelling, and flu-like symptoms if bitten. If workers have known or suspected allergies, they will carry an Epi-Pen at all times and will notify supervision and co-workers of allergies. If bitten by any insect notify the CH2M HILL (CCI) oversight rep immediately. This includes any type of injury that would require any type of First Aid. 	
Process Equipment, Piping, and Valves Installation	<ul style="list-style-type: none"> 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. Rated to handle the voltage/amperage of equipment. 	L
	<ul style="list-style-type: none"> Crane Operations 	<ul style="list-style-type: none"> Follow the Crane Operating subcontractors EM 385 compliant Lift Plan. Cranes shall be operated by a certified crane operator. After November 10, 2014, only operators possessing a certificate from a nationally accredited testing organization, an audited employer training program, or U.S. military or state-issuing agency will be authorized to operate cranes. The crane's operations manual and load chart specifically designed for the crane shall be in the crane at all times. The crane must have a current annual inspection to include load test certification (within the last 12 months) that meets all state and federal safety standards. Documentation of this inspection must be available for review. A competent person will inspect the crane daily to ensure it is in safe operating condition. The daily crane inspection log provided within the crane manufacturer's operations manual shall be used. See also the requirements for monthly inspections, among others, in SOP HSE-303. All rigging equipment must be inspected by a competent 	M

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		<p>person prior to use for signs of excessive wear; equipment found to be damaged will be tagged and removed from service.</p> <ul style="list-style-type: none"> ▪ A qualified and competent Assembly/Disassembly (A/D) Director shall be assigned when cranes must be assembled onsite. The A/D Director is responsible for ensuring the crane is assembled and disassembled according to manufacturer requirements; performing training for the A/D crew; and ensuring sufficient ground conditions exist for crane placement; among other responsibilities (see SOP HSE-303). ▪ The assembly/disassembly process must comply with requirements in HSE-303, including having an AHA for the task. ▪ A critical lift plan shall be prepared when the lift is estimated to be greater than 75% of the crane capacity or when two cranes will be used to make a lift. ▪ A pre-lift meeting will be conducted to include all parties involved in that day's crane operation. ▪ Only one qualified person shall be designated to signal the crane operator. This person shall be thoroughly familiar with the ANSI standard method of hand signals and an illustration of these signals shall be posted at the job site. ▪ No personnel shall be permitted under the load at any time. ▪ Tag lines shall be attached to every load being made by the crane. ▪ The swing radius of the rear rotating superstructure (counterweight) of the crane shall be barricaded and no entrance allowed. ▪ Suspended loads shall not pass over workers or occupied buildings at any time. ▪ Complete the self-assessment checklist for crane-suspended personnel platforms whenever they are being used. ▪ AGVIQ-CH2M HILL employees exposed to hazards posed by crane operations, must be trained in hazards awareness and control procedures. See requirements for training in HSE-303. 	
	<ul style="list-style-type: none"> • Fall Protection 	<ul style="list-style-type: none"> ▪ Appropriate fall protection equipment including anchorage must be identified when a fall hazard of 6 feet (1.8 meters) or greater is present. ▪ Exposed workers must complete project-specific fall protection training using the fall protection systems to be used. 	L

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		<ul style="list-style-type: none"> ▪ The SSHO or designee must complete the Project Fall Protection Evaluation Form and provide project-specific fall protection training to all AGVIO-CH2M HILL staff exposed to fall hazards. ▪ The company responsible for the fall protection system shall provide a fall protection competent person to inspect and oversee the use of fall protection system. ▪ When horizontal lifelines are used, the company responsible for the lifeline system shall provide a fall protection qualified person to oversee the design, installation, and use of the horizontal lifeline. ▪ Inspect all fall protection systems and components prior to each use. ▪ Personal fall arrest systems shall be configured so that individuals can neither free-fall more than 6 feet (1.8 meters) or contact any lower level. ▪ Only attach personal fall arrest systems to anchorage points capable of supporting at least 5,000 pounds (2268 kg). Do not attach personal fall arrest systems to guardrail systems or hoists. ▪ Remain within the guardrail system when provided. Leaning over or stepping across a guardrail system is not permitted. Do not stand on objects (boxes, buckets, bricks, blocks, etc.) or ladders to increase working height on top of platforms protected by guardrails. ▪ Only one person shall be simultaneously attached to a vertical lifeline and shall also be attached to a separate independent lifeline. 	
	<ul style="list-style-type: none"> • Rigging 	<ul style="list-style-type: none"> • All rigging equipment shall be used only for its intended purpose, inspected by a competent person prior to use, and shall not be loaded in excess of its capacity rating. Defective rigging shall be removed from service. • When AGVIO-CH2M HILL is in control of rigging operations, AGVIO-CH2M HILL shall provide a rigging competent person that will inspect, maintain oversee all rigging operations. The competent person shall use the appropriate rigging inspection log form to inspect wire rope, synthetic slings and/or shackles. • Tag lines shall be attached to every load being lifted by a crane. • Rigging equipment shall be protected from flame cutting and electric welding operations, and or contact avoided with solvents and chemicals. • Rigging equipment, when not in use, shall be stored in an 	L

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		<p>area free from damage caused by environmental elements, hazardous substances, and other factors that may compromise equipment integrity and performance.</p> <ul style="list-style-type: none"> • No modification or addition, which that could affect the capacity and or safe operation of the equipment, shall be made without the manufacturer's written approval. • Rigging equipment shall not be shortened with knots, bolts or other makeshift devices. • All rigging equipment shall be load tested at least annually by a competent person and documented. • Special hoisting devices, slings, chokers, hooks, clamps, or other lifting accessories shall be marked to indicate the safe working loads and shall be proof -tested prior to initial use to 125 percent of their rated load. Vendors or suppliers will provide documentation of proof testing documentation. 	
	<ul style="list-style-type: none"> • 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 for 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. • Ensure that all ground personnel have sufficient separation from tub grinding operations 	L
	<ul style="list-style-type: none"> • Welding and Cutting operations 	<ul style="list-style-type: none"> • Use only properly instructed and qualified personnel. • Inspected area and obtain a Hot Work Permit. • Suitable fire extinguishing equipment shall be 	L

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		<p>immediately available in the work area.</p> <ul style="list-style-type: none"> • Flame-resistant blankets shall be used to control sparks produced by welding and cutting operations from traveling to lower levels or adjacent surfaces. • Flow gages and regulators shall be inspected prior to use and removed from cylinders when not in use. • Hoses, leads, and cables shall be not be routed through doorways and walkways unless covered, elevated, or protected from damage. Where hoses, leads, and cables pass through wall openings, adequate protection shall be provided to prevent damage. • Flash arresters shall be installed at the torch handle. • Arc welding electrodes shall not be struck against compressed gas cylinders to strike an arc. • All arc welding or cutting operations shall be shielded by noncombustible or flame resistant screens to protect employees or other persons in the vicinity from the direct rays of the arc. • Proper ventilation shall be provided so as to maintain the level of contaminants in the breathing zone of welders below applicable permissible exposure limits. 	
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Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection 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"> • Review APP by 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, 30 hour OSHA Construction Safety Training or equivalent • Heavy equipment operators qualified by previous training or experience. • Competent Person Requirement Rigging/Crane operations 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Equipment inspections and maintenance. • Brushcutter inspection/maintenance. • Chipper maintenance, if used. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.)

Instructions for completing Contractor Activity Hazard Analysis

1. **Activity/Work Task** – Insert work/task this AHA is written for i.e. excavation, scaffold building, foundation preparation.
 2. **PWO/OICC/ROICC** – Insert name of Public Works Office, Officer In Charge of Construction Office or Resident Officer in Charge of Construction (PWD/OICC/ROICC)
 3. **Enter name & date AHA accepted by Government Designated Authority (GDA)**
 4. **Enter contract number**
 5. **Enter Task order or Delivery order number**
 6. **Enter Prime Contractors name**
 7. **Enter Subcontractors name**
 8. **Enter date preparatory meeting was held**
 9. **Enter date initial inspection was performed**
 10. **Enter name of contractor competent person on site for this activity**
 11. **Enter name of Prime Contractor Site Safety and Health Officer**
 12. **Level of government person responsible for accepting the AHA, progressive signatures as level of risk increases.**
- IAW EM 385 01.A.13 Contractor-Required AHA “Work will not begin until the AHA for the work activity has been accepted by the GDA”**
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person’s

13. Overall Risk Assessment code is highest code assigned to any Job step after Hazards are assessed and Controls have been assigned
14. Schedule number is activity number from production daily reports
15. AHA number is the sequential number of all AHA's for this contract.
16. Job steps is the complete sequence of work, not general statements to complete the entire activity
17. Hazards is the known safety risks associated with completing the task
18. Controls is the safety measures in place to reduce the hazard to the lowest level possible
19. Risk Assessment code is where Severity and Probability intersect, place that letter E, H, M, or L in the RAC column
20. List all equipment to be used to complete this activity i.e. crane, backhoe, vehicle, all heavy equipment
21. List the training requirements required by EM 385, Safety Spec 01356 or OSHA that apply to this task.
List competent person(s) required for specific tasks in EM 385
List qualified person(s) required for specific tasks in EM 385
List CPR/First Aid training and qualification dates
22. List all inspection requirements of EM 385, Governmental Safety Requirements Specifications or OSHA 29 CFR 1926

**IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA"
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person's**

Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Site Restoration	Overall Risk Assessment Code (RAC) (Use highest code)			M		
	SIGNATURES	Activity #	1	AHA #	1		
PWD/OICC/ROICC OFFICE		Risk Assessment Code (RAC) Matrix					
NAME & DATE ACCEPTED BY GDA:		Severity	Probability				
CONTRACT NUMBER:	N62470-08-D-1006		Frequent	Likely	Occasional	Seldom	Unlikely
TASK ORDER/DELIVERY #:	WE23		E	E	H	H	M
PRIME CONTRACTOR:	CH2M HILL		E	H	H	M	L
SUBCONTRACTOR:	TBD		H	M	M	L	L
DATE OF PREPARATORY MEETING:		Catastrophic	E	E	H	H	M
DATE OF INITIAL INSPECTION:		Critical	E	H	H	M	L
CONTRACTOR COMPETENT PERSON:	NA	Marginal	H	M	M	L	L
SITE SAFETY and HEALTH OFFICER		Negligible	M	L	L	L	L
ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)		Review each "Hazard" with identified safety "Controls" and determine (RAC)					
E = EXTREMELY HIGH (PWO/OICC/ROICC)		Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard". Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity					
H = HIGH RISK (FEAD DIRECTOR)		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place					
M = MODERATE RISK (CM or ET or PAR)		"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.					
L = LOW RISK (ET or PAR)							
Job Steps		Hazards	Controls			RAC	
Job Steps	Hazards	Controls				RAC	
Mobilizing to Site Driving Vehicle Backing	<ul style="list-style-type: none"> • Traffic accident • Driver fatigue • Poor driving skills • Load shift • Traffic accident • Property damage • 	<ul style="list-style-type: none"> ▪ Keep alert of your surroundings. Do not try to complete other tasks while driving that can distract your attention ▪ Do not drive when tired. Pull off at a safe location and walk around your vehicle and take a break if getting tired. ▪ Use your mirrors while driving. Do not use evasive driving actions. Obey traffic laws. ▪ Secure loads before starting your trip. Make frequent stops to check your load to make sure nothing has become loose. ▪ Retighten any loose straps. ▪ Check your surroundings when before backing. When possible use a spotter. ▪ Check for obstructions before backing. Walk around vehicle to make sure area is clear. 				L	

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Unloading/placing equipment.	<ul style="list-style-type: none"> • Back strain • Hand Injuries; cuts, bruises, pinch points • Slips, Trips, & Falls • Contact with Heavy Equipment while in use 	<ul style="list-style-type: none"> ▪ Use proper lifting techniques at all times. Request assistance from other personal when weight limits exceeds 50lbs. Mechanical means shall be used for gate relocation whenever possible rather than manual means to avoid the risk of stains and sprains. ▪ Wear protective gloves; Use hand tools in a safe manner and keep hand tools in good working condition. ▪ Use extreme caution when walking in work areas, working on or around truck beds and around equipment during unloading and staging activities. ▪ Only trained and experienced personnel will be allowed to stage and unload heavy equipment. ▪ Only certified operators will be authorized to operate equipment. Certifications must be on site at all times. ▪ High visibility vests will be worn at all times while working in or around heavy equipment, trucks or other mechanized equipment. ▪ All ground personal etc. must maintain eye contact with operators at all times. Do not proceed toward, or into blind spots of equipment without authorization to do so by operator. ▪ All ground personal will stay outside the swing radius of equipment while in operation. 	L
General Construction Hazards	<ul style="list-style-type: none"> • Accidents due to lack of training 	<ul style="list-style-type: none"> ▪ Copies of records will be kept by the SSO. ▪ Worker will be trained prior to performing new activities. Copies of records will be kept by the SSO. This includes signature sheets for AHAs, HASP and any other training documents. ▪ A daily tailgate safety meeting will be held prior to starting each shift. All personnel must attend review and sign the Safety Tailgate log before beginning work. CH2M HILL Staff should be present. ▪ All site workers must understand all Emergency procedures, AHA and HASP procedures. ▪ A copy of each Tailgate meeting must be supplied to the CH2M HILL onsite rep each day. 	L
	<ul style="list-style-type: none"> • Electrical Hazards 	<ul style="list-style-type: none"> • Do not open panels or cabinet's that contain live electrical parts. • NFPA 70e training is required to work on or near live electrical parts. 	L
	<ul style="list-style-type: none"> • Hearing Damage 	<ul style="list-style-type: none"> • Workers will wear hearing protection whenever voices must be raised above normal conversational speech or when noise levels exceed 85 decibels due to a loud noise source; such as working around heavy equipment. • Hearing protection will be worn by equipment operators when working in open cab equipment, or when doors/windows are open. 	L
	<ul style="list-style-type: none"> • Injuries from slips, trips, and falls 	<ul style="list-style-type: none"> • Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. • Personnel will be briefed on the hazards of wet, muddy soil hazards and traversing uneven grades. • Walk or climb only on equipment and/or surfaces that are designed for personnel access. • Be aware of potential for poor footing while working on un-compacted backfill materials. • Use three-point contact when climbing onto equipment. 	L
	<ul style="list-style-type: none"> • Accidents due to poor lighting 	<ul style="list-style-type: none"> • Work at site is only expected to take place during daylight hours. If work after daylight hours or in dark areas of buildings, provide supplemental lighting. 	L
	<ul style="list-style-type: none"> • Injury due to inclement weather 	<ul style="list-style-type: none"> • Outdoor work will cease during extreme weather conditions, such as electrical storms, high wind rain, and extreme temperatures. • Shut all equipment down when lightning is visible and wait for "all-clear" from the SSO. 	L

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		<ul style="list-style-type: none"> Workers will take cover indoors or in vehicle. Supervisors will monitor local forecasts for warnings about specific weather hazards. Workers will comply with all evacuation orders regarding rough weather directives. 	
	<ul style="list-style-type: none"> Heat Stress 	<ul style="list-style-type: none"> Workers will be trained in the recognition of heat stress and appropriate actions to take. Workers are encouraged to increase fluid intake while working. Workers should minimize or avoid alcohol intake the night before working in heat stress situations. Workers will increase the frequency and duration of rest breaks while working in heat stress situations. Workers will watch each other for signs and symptoms of heat exhaustion and fatigue. 	L
	<ul style="list-style-type: none"> Controlling work areas 	<ul style="list-style-type: none"> Fencing, tape, cones or other SSHO-approved boundaries will be erected to warn approaching personnel of the hazardous area. Appropriate signs will be posted at the boundary to instruct personnel in entry requirements. 	L
	<ul style="list-style-type: none"> Injuries associated with insects, snakes, spiders and poisonous plants 	<ul style="list-style-type: none"> Workers will tuck pants into socks and wear long sleeves and sturdy leather boots when walking in tall grass. Workers will use insect repellent when needed. Workers will use buddy system to check for signs of insect and spider bites, such as redness, swelling, and flu-like symptoms if bitten. If workers have known or suspected allergies, they will carry an Epi-Pen at all times and will notify supervision and co-workers of allergies. If bitten by any insect notify the CH2M HILL (CCI) oversight rep immediately. This includes any type of injury that would require any type of First Aid. 	L
Landscaping, Restore disturbed areas, Repair paving/new asphalt driveways, Site cleanup	<ul style="list-style-type: none"> Heavy Equipment 	<ul style="list-style-type: none"> Seat belts or other restraint system shall be used by heavy equipment operators. Perform daily maintenance and inspections on operating equipment. Keep documentation on site. Use caution around pressurized lines/hoses. Inspect hoses daily for cuts, abrasions and wear. Equipment shall only be operated by personnel qualified by prior training or experience. Ensure that a stable ground surface is available for the operation of heavy equipment. Equipment operators shall not leave the cab of the equipment while they are lifting/controlling a load unless the load has been delivered to its intended transport location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured/disengaged and equipment is "de-energized". 	L
	<ul style="list-style-type: none"> 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 for 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. 	L

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		<ul style="list-style-type: none"> ▪ 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. ▪ Ensure that all ground personnel have sufficient separation from tub grinding operations 	
	<ul style="list-style-type: none"> • Manual Lifting 	<ul style="list-style-type: none"> • AGVIQ-CH2MHILL 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. Do not manually handle any loads that should be moved, lifted transferred via the use heavy. • Have someone assist with manually lifting— especially for heavy (> 40lbs.) or awkward loads. 	L
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Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection 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"> • Review APP by 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, 30 hour OSHA Construction Safety Training or equivalent • Heavy equipment operators qualified by previous training or experience. • Competent Person Requirement: NA 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Equipment inspections and maintenance. • Brushcutter inspection/maintenance. • Chipper maintenance, if used. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.)

Instructions for completing Contractor Activity Hazard Analysis

1. **Activity/Work Task** – Insert work/task this AHA is written for i.e. excavation, scaffold building, foundation preparation.
2. **PWO/OICC/ROICC** – Insert name of Public Works Office, Officer In Charge of Construction Office or Resident Officer in Charge of Construction (PWD/OICC/ROICC)
3. **Enter name & date AHA accepted by Government Designated Authority (GDA)**
4. **Enter contract number**
5. **Enter Task order or Delivery order number**
6. **Enter Prime Contractors name**
7. **Enter Subcontractors name**
8. **Enter date preparatory meeting was held**
9. **Enter date initial inspection was performed**
10. **Enter name of contractor competent person on site for this activity**
11. **Enter name of Prime Contractor Site Safety and Health Officer**
12. **Level of government person responsible for accepting the AHA, progressive signatures as level of risk increases.**

**IAW EM 385 01.A.13 Contractor-Required AHA “Work will not begin until the AHA for the work activity has been accepted by the GDA”
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13. Overall Risk Assessment code is highest code assigned to any Job step after Hazards are assessed and Controls have been assigned
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17. Hazards is the known safety risks associated with completing the task
18. Controls is the safety measures in place to reduce the hazard to the lowest level possible
19. Risk Assessment code is where Severity and Probability intersect, place that letter E, H, M, or L in the RAC column
20. List all equipment to be used to complete this activity i.e. crane, backhoe, vehicle, all heavy equipment
21. List the training requirements required by EM 385, Safety Spec 01356 or OSHA that apply to this task.
List competent person(s) required for specific tasks in EM 385
List qualified person(s) required for specific tasks in EM 385
List CPR/First Aid training and qualification dates
22. List all inspection requirements of EM 385, Governmental Safety Requirements Specifications or OSHA 29 CFR 1926

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Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	System Startup	Overall Risk Assessment Code (RAC) (Use highest code)			M		
	SIGNATURES	Activity #	1	AHA #	1		
PWD/OICC/ROICC OFFICE		Risk Assessment Code (RAC) Matrix					
NAME & DATE ACCEPTED BY GDA:		Severity	Probability				
CONTRACT NUMBER:	N62470-08-D-1006		Frequent	Likely	Occasional	Seldom	Unlikely
TASK ORDER/DELIVERY #:	WE23		E	E	H	H	M
PRIME CONTRACTOR:	CH2M HILL		E	H	H	M	L
SUBCONTRACTOR:	TBD		H	M	M	L	L
DATE OF PREPARATORY MEETING:		M	L	L	L	L	
DATE OF INITIAL INSPECTION:		Catastrophic					
CONTRACTOR COMPETENT PERSON:	NA	Critical					
SITE SAFETY and HEALTH OFFICER		Marginal					
		Negligible					
ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)		Review each "Hazard" with identified safety "Controls" and determine (RAC)					
E = EXTREMELY HIGH (PWD/OICC/ROICC)		Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard". Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity					
H = HIGH RISK (FEAD DIRECTOR)		<p>"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place</p> <p>"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.</p>					
M = MODERATE RISK (CM or ET or PAR)							
L = LOW RISK (ET or PAR)							
Job Steps	Hazards		Controls			RAC	
Job Steps	Hazards	Controls			RAC		
General Construction Hazards	<ul style="list-style-type: none"> Accidents due to lack of training 	<ul style="list-style-type: none"> Copies of records will be kept by the SSO. Worker will be trained prior to performing new activities. Copies of records will be kept by the SSO. This includes signature sheets for AHAs, HASP and any other training documents. A daily tailgate safety meeting will be held prior to starting each shift. All personnel must attend review and sign the Safety Tailgate log before beginning work. CH2M HILL Staff should be present. All site workers must understand all Emergency procedures, AHA and HASP procedures. A copy of each Tailgate meeting must be supplied to the CH2M HILL onsite rep each day. 			L		
	<ul style="list-style-type: none"> Electrical Hazards 	<ul style="list-style-type: none"> Do not open panels or cabinet's that contain live electrical parts. NFPA 70e training is required to work on or near live electrical parts. 			L		
	<ul style="list-style-type: none"> Hearing Damage 	<ul style="list-style-type: none"> Workers will wear hearing protection whenever voices must be raised above normal conversational speech or when noise levels exceed 85 decibels due to a loud noise source; such as working around heavy equipment. Hearing protection will be worn by equipment operators when working in open cab equipment, or when doors/windows are open. 			L		

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	<ul style="list-style-type: none"> Injuries from slips, trips, and falls 	<ul style="list-style-type: none"> Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. Personnel will be briefed on the hazards of wet, muddy soil hazards and traversing uneven grades. Walk or climb only on equipment and/or surfaces that are designed for personnel access. Be aware of potential for poor footing while working on un-compacted backfill materials. Use three-point contact when climbing onto equipment. 	L
	<ul style="list-style-type: none"> Accidents due to poor lighting 	<ul style="list-style-type: none"> Work at site is only expected to take place during daylight hours. If work after daylight hours or in dark areas of buildings, provide supplemental lighting. 	L
	<ul style="list-style-type: none"> Injury due to inclement weather 	<ul style="list-style-type: none"> Outdoor work will cease during extreme weather conditions, such as electrical storms, high wind rain, and extreme temperatures. Shut all equipment down when lightning is visible and wait for "all-clear" from the SSHO. Workers will take cover indoors or in vehicle. Supervisors will monitor local forecasts for warnings about specific weather hazards. Workers will comply with all evacuation orders regarding rough weather directives. 	L
	<ul style="list-style-type: none"> Heat Stress 	<ul style="list-style-type: none"> Workers will be trained in the recognition of heat stress and appropriate actions to take. Workers are encouraged to increase fluid intake while working. Workers should minimize or avoid alcohol intake the night before working in heat stress situations. Workers will increase the frequency and duration of rest breaks while working in heat stress situations. Workers will watch each other for signs and symptoms of heat exhaustion and fatigue. 	L
	<ul style="list-style-type: none"> Controlling work areas 	<ul style="list-style-type: none"> Fencing, tape, cones or other SSHO-approved boundaries will be erected to warn approaching personnel of the hazardous area. Appropriate signs will be posted at the boundary to instruct personnel in entry requirements. 	L
	<ul style="list-style-type: none"> Injuries associated with insects, snakes, spiders and poisonous plants 	<ul style="list-style-type: none"> Workers will tuck pants into socks and wear long sleeves and sturdy leather boots when walking in tall grass. Workers will use insect repellent when needed. 	L

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		<ul style="list-style-type: none"> Workers will use buddy system to check for signs of insect and spider bites, such as redness, swelling, and flu-like symptoms if bitten. If workers have known or suspected allergies, they will carry an Epi-Pen at all times and will notify supervision and co-workers of allergies. If bitten by any insect notify the CH2M HILL (CCI) oversight rep immediately. This includes any type of injury that would require any type of First Aid. 	
Flushing piping and vessels Sterilizing the system	<ul style="list-style-type: none"> Chemical Exposure 	<ul style="list-style-type: none"> All personnel performing this task shall be trained and enrolled in a medical surveillance program in accordance with 29CFR1910.120. 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 action monitoring requirements identified in Tables 1-2 and 1-3 respectively of Attachment 1 of the APP, Site Safety and Health Plan of the APP. Review applicable MSDS information. 	L
	<ul style="list-style-type: none"> Fall Protection 	<ul style="list-style-type: none"> Appropriate fall protection equipment including anchorage must be identified when a fall hazard of 6 feet (1.8 meters) or greater is present. Exposed workers must complete project-specific fall protection training using the fall protection systems to be used. The SSHO or designee must complete the Project Fall Protection Evaluation Form and provide project-specific fall protection training to all AGVIQ-CH2M HILL staff exposed to fall hazards. The company responsible for the fall protection system shall provide a fall protection competent person to inspect and oversee the use of fall protection system. When horizontal lifelines are used, the company responsible for the lifeline system shall provide a fall protection qualified person to oversee the design, 	L

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		<p>installation, and use of the horizontal lifeline.</p> <ul style="list-style-type: none"> ▪ Inspect all fall protection systems and components prior to each use. ▪ Personal fall arrest systems shall be configured so that individuals can neither free-fall more than 6 feet (1.8 meters) or contact any lower level. ▪ Only attach personal fall arrest systems to anchorage points capable of supporting at least 5,000 pounds (2268 kg). Do not attach personal fall arrest systems to guardrail systems or hoists. ▪ Remain within the guardrail system when provided. Leaning over or stepping across a guardrail system is not permitted. Do not stand on objects (boxes, buckets, bricks, blocks, etc.) or ladders to increase working height on top of platforms protected by guardrails. ▪ Only one person shall be simultaneously attached to a vertical lifeline and shall also be attached to a separate independent lifeline. 	
	<ul style="list-style-type: none"> • Lock-out/ Tag-out 	<ul style="list-style-type: none"> • Inspect the LO/TO performed on the well by Aqua New York to ensure it is complete and all hazardous energies have been isolated or relieved. 	L
	<ul style="list-style-type: none"> • Sample Handling 	<ul style="list-style-type: none"> • All personnel performing this task shall be trained and enrolled in a medical surveillance program in accordance with 29CFR1910.120. • Do not allow dermal contact or incidental ingestion of impacted water. • Exercise good hygiene practices. Always wash hands before eating, drinking, smoking and leaving site. • Adhere to PPE and action monitoring requirements identified in Tables 1-2 and 1-3 respectively of Attachment 1 of the APP, Site Safety and Health Plan of the 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. • Properly contain and label all decontamination solutions used for the cleaning of sampling equipment and tools. • Review applicable MSDS information. 	L

IAW EM 385 01.A.13 Contractor-Required AHA “Work will not begin until the AHA for the work activity has been accepted by the GDA”
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<p>Loading carbon (fill GAC Vessels) Backwash GAC Vessels</p>	<ul style="list-style-type: none"> • Chemical Exposure 	<ul style="list-style-type: none"> • All personnel performing this task shall be trained and enrolled in a medical surveillance program in accordance with 29CFR1910.120. • 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 action monitoring requirements identified in Tables 1-2 and 1-3 respectively of Attachment 1 of the APP, Site Safety and Health Plan of the APP. • Review applicable MSDS information 	
	<ul style="list-style-type: none"> • Manual Lifting 	<ul style="list-style-type: none"> • AGVIQ-CH2MHILL 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. Do not manually handle any loads that should be moved, lifted transferred via the use heavy. • Have someone assist with manually lifting— especially for heavy (> 40lbs.) or awkward loads. 	L
	<ul style="list-style-type: none"> • 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 for 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 	L

**IAW EM 385 01.A.13 Contractor-Required AHA “Work will not begin until the AHA for the work activity has been accepted by the GDA”
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		<p>person to provide hand signals to equipment operators performing lifting/hoisting operations.</p> <ul style="list-style-type: none"> • 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. • Ensure that all ground personnel have sufficient separation from tub grinding operations. 	
	<ul style="list-style-type: none"> • Sample Handling 	<ul style="list-style-type: none"> • All personnel performing this task shall be trained and enrolled in a medical surveillance program in accordance with 29CFR1910.120. • Do not allow dermal contact or incidental ingestion of impacted water. • Exercise good hygiene practices. Always wash hands before eating, drinking, smoking and leaving site. • Adhere to PPE and action monitoring requirements identified in Tables 1-2 and 1-3 respectively of Attachment 1 of the APP, Site Safety and Health Plan of the 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. • Properly contain and label all decontamination solutions used for the cleaning of sampling equipment and tools. • Review applicable MSDS information. 	L
Tie-In to AQUA System Start-Up system by Aqua employees	<ul style="list-style-type: none"> • Chemical Exposure 	<ul style="list-style-type: none"> • All personnel performing this task shall be trained and enrolled in a medical surveillance program in accordance with 29CFR1910.120. • 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 	

IAW EM 385 01.A.13 Contractor-Required AHA “Work will not begin until the AHA for the work activity has been accepted by the GDA”
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		<p>before eating, drinking, smoking and leaving site. Shower as soon as possible after leaving the site.</p> <ul style="list-style-type: none"> • Only eat, drink, smoke or chew tobacco in designated areas. • Adhere to PPE and action monitoring requirements identified in Tables 1-2 and 1-3 respectively of Attachment 1 of the APP, Site Safety and Health Plan of the APP. • Review applicable MSDS information. 	
	<ul style="list-style-type: none"> • Lock-out/ Tag-out 	<ul style="list-style-type: none"> • Inspect the LO/TO performed on the well by Aqua New York to ensure it is complete and all hazardous energies have been isolated or relieved. 	
	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • • 	

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Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection 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"> • Review APP by 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, 30 hour OSHA Construction Safety Training or equivalent • Heavy equipment operators qualified by previous training or experience. • Competent Person Requirement: NA 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Equipment inspections and maintenance. • Brushcutter inspection/maintenance. • Chipper maintenance, if used. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.)

Instructions for completing Contractor Activity Hazard Analysis

1. **Activity/Work Task** – Insert work/task this AHA is written for i.e. excavation, scaffold building, foundation preparation.
 2. **PWO/OICC/ROICC** – Insert name of Public Works Office, Officer In Charge of Construction Office or Resident Officer in Charge of Construction (PWD/OICC/ROICC)
 3. **Enter name & date AHA accepted by Government Designated Authority (GDA)**
 4. **Enter contract number**
 5. **Enter Task order or Delivery order number**
 6. **Enter Prime Contractors name**
 7. **Enter Subcontractors name**
 8. **Enter date preparatory meeting was held**
 9. **Enter date initial inspection was performed**
 10. **Enter name of contractor competent person on site for this activity**
 11. **Enter name of Prime Contractor Site Safety and Health Officer**
 12. **Level of government person responsible for accepting the AHA, progressive signatures as level of risk increases.**
- IAW EM 385 01.A.13 Contractor-Required AHA “Work will not begin until the AHA for the work activity has been accepted by the GDA”**
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13. Overall Risk Assessment code is highest code assigned to any Job step after Hazards are assessed and Controls have been assigned
14. Schedule number is activity number from production daily reports
15. AHA number is the sequential number of all AHA's for this contract.
16. Job steps is the complete sequence of work, not general statements to complete the entire activity
17. Hazards is the known safety risks associated with completing the task
18. Controls is the safety measures in place to reduce the hazard to the lowest level possible
19. Risk Assessment code is where Severity and Probability intersect, place that letter E, H, M, or L in the RAC column
20. List all equipment to be used to complete this activity i.e. crane, backhoe, vehicle, all heavy equipment
21. List the training requirements required by EM 385, Safety Spec 01356 or OSHA that apply to this task.
List competent person(s) required for specific tasks in EM 385
List qualified person(s) required for specific tasks in EM 385
List CPR/First Aid training and qualification dates
22. List all inspection requirements of EM 385, Governmental Safety Requirements Specifications or OSHA 29 CFR 1926

**IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA"
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Activity Hazard Analysis (AHA)

ACTIVITY/WORK TASK:	Underground Piping and Utilities Installation	Overall Risk Assessment Code (RAC) (Use highest code)			M		
	SIGNATURES	Activity #	1	AHA #	1		
PWD/OICC/ROICC OFFICE		Risk Assessment Code (RAC) Matrix					
NAME & DATE ACCEPTED BY GDA:		Severity	Probability				
CONTRACT NUMBER:	N62470-08-D-1006		Frequent	Likely	Occasional	Seldom	Unlikely
TASK ORDER/DELIVERY #:	WE23		E	E	H	H	M
PRIME CONTRACTOR:	CH2M HILL		E	H	H	M	L
SUBCONTRACTOR:	TBD		H	M	M	L	L
DATE OF PREPARATORY MEETING:			M	L	L	L	L
DATE OF INITIAL INSPECTION:		Catastrophic					
CONTRACTOR COMPETENT PERSON:	TBD	Critical					
SITE SAFETY and HEALTH OFFICER		Marginal					
		Negligible					
ACCEPTANCE BY GOVERNMENT DESIGNATED AUTHORITY (GDA)		Review each "Hazard" with identified safety "Controls" and determine (RAC)					
E = EXTREMELY HIGH (PWD/OICC/ROICC)		Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard". Place the highest RAC at the top of AHA. This is the overall risk assessment code for this activity					
H = HIGH RISK (FEAD DIRECTOR)		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible after controls are in place					
M = MODERATE RISK (CM or ET or PAR)		"Probability" is the likelihood to cause an incident, near miss, or accident did occur and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely after controls are put in place.					
L = LOW RISK (ET or PAR)							
Job Steps	Hazards	Controls			RAC		
Mobilizing to Site Driving Vehicle Backing	<ul style="list-style-type: none"> Traffic accident Driver fatigue Poor driving skills Load shift Traffic accident Property damage 	<ul style="list-style-type: none"> Keep alert of your surroundings. Do not try to complete other tasks while driving that can distract your attention Do not drive when tired. Pull off at a safe location and walk around your vehicle and take a break if getting tired. Use your mirrors while driving. Do not use evasive driving actions. Obey traffic laws. Secure loads before starting your trip. Make frequent stops to check your load to make sure nothing has become loose. Retighten any loose straps. Check your surroundings when before backing. When possible use a spotter. Check for obstructions before backing. Walk around vehicle to make sure area is clear. 			L		

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Job Steps	Hazards	Controls	RAC
Unloading/placing equipment.	<ul style="list-style-type: none"> • Back strain • Hand Injuries; cuts, bruises, pinch points • Slips, Trips, & Falls • Contact with Heavy Equipment while in use. 	<ul style="list-style-type: none"> • Use proper lifting techniques at all times. Request assistance from other personal when weight limits exceeds 50lbs. Mechanical means shall be used for gate relocation whenever possible rather than manual means to avoid the risk of strains and sprains. • Wear protective gloves; Use hand tools in a safe manner and keep hand tools in good working condition. • Use extreme caution when walking in work areas, working on or around truck beds and around equipment during unloading and staging activities. • Only trained and experienced personnel will be allowed to stage and unload heavy equipment. • Only certified operators will be authorized to operate equipment. Certifications must be on site at all times. • High visibility vests will be worn at all times while working in or around heavy equipment, trucks or other mechanized equipment. • All ground personal etc. must maintain eye contact with operators at all times. Do not proceed toward, or into blind spots of equipment without authorization to do so by operator. • All ground personal will stay outside the swing radius of equipment while in operation. 	L
General Construction Hazards	<ul style="list-style-type: none"> • Accidents due to lack of training 	<ul style="list-style-type: none"> ▪ Copies of records will be kept by the SSO. ▪ Worker will be trained prior to performing new activities. Copies of records will be kept by the SSO. This includes signature sheets for AHAs, HASP and any other training documents. ▪ A daily tailgate safety meeting will be held prior to starting each shift. All personnel must attend review and sign the Safety Tailgate log before beginning work. CH2M HILL Staff should be present. ▪ All site workers must understand all Emergency procedures, AHA and HASP procedures. ▪ A copy of each Tailgate meeting must be supplied to the CH2M HILL onsite rep each day. 	L
	<ul style="list-style-type: none"> • Electrical Hazards 	<ul style="list-style-type: none"> • Do not open panels or cabinet's that contain live electrical parts. • NFPA 70e training is required to work on or near live electrical parts. 	L
	<ul style="list-style-type: none"> • Hearing Damage 	<ul style="list-style-type: none"> • Workers will wear hearing protection whenever voices must be raised above normal conversational speech or when noise levels exceed 85 decibels due to a loud noise source; such as working around heavy equipment. • Hearing protection will be worn by equipment operators when working in open cab equipment, or when doors/windows are open. 	L

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Equipment to be Used	Training Requirements and Competent or Qualified Personnel name(s)	Inspection Requirements	RAC
	<ul style="list-style-type: none"> Injuries from slips, trips, and falls 	<ul style="list-style-type: none"> Walking/working surfaces will be kept free of clutter, debris, and congestion to the greatest extent possible. Personnel will be briefed on the hazards of wet, muddy soil hazards and traversing uneven grades. Walk or climb only on equipment and/or surfaces that are designed for personnel access. Be aware of potential for poor footing while working on un-compacted backfill materials. Use three-point contact when climbing onto equipment. 	L
	<ul style="list-style-type: none"> Accidents due to poor lighting 	<ul style="list-style-type: none"> Work at site is only expected to take place during daylight hours. If work after daylight hours or in dark areas of buildings, provide supplemental lighting. 	L
	<ul style="list-style-type: none"> Injury due to inclement weather 	<ul style="list-style-type: none"> Outdoor work will cease during extreme weather conditions, such as electrical storms, high wind rain, and extreme temperatures. Shut all equipment down when lightning is visible and wait for "all-clear" from the SSHO. Workers will take cover indoors or in vehicle. Supervisors will monitor local forecasts for warnings about specific weather hazards. Workers will comply with all evacuation orders regarding rough weather directives. 	L
	<ul style="list-style-type: none"> Heat Stress 	<ul style="list-style-type: none"> Workers will be trained in the recognition of heat stress and appropriate actions to take. Workers are encouraged to increase fluid intake while working. Workers should minimize or avoid alcohol intake the night before working in heat stress situations. Workers will increase the frequency and duration of rest breaks while working in heat stress situations. Workers will watch each other for signs and symptoms of heat exhaustion and fatigue. 	L
	<ul style="list-style-type: none"> Controlling work areas 	<ul style="list-style-type: none"> Fencing, tape, cones or other SSHO-approved boundaries will be erected to warn approaching personnel of the hazardous area. Appropriate signs will be posted at the boundary to instruct personnel in entry requirements. 	L
	<ul style="list-style-type: none"> Injuries associated with insects, snakes, spiders and poisonous plants 	<ul style="list-style-type: none"> Workers will tuck pants into socks and wear long sleeves and sturdy leather boots when walking in tall grass. Workers will use insect repellent when needed. 	L

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		<ul style="list-style-type: none"> Workers will use buddy system to check for signs of insect and spider bites, such as redness, swelling, and flu-like symptoms if bitten. If workers have known or suspected allergies, they will carry an Epi-Pen at all times and will notify supervision and co-workers of allergies. If bitten by any insect notify the CH2M HILL (CCI) oversight rep immediately. This includes any type of injury that would require any type of First Aid. 	
Trenching/Excavation	<ul style="list-style-type: none"> Buried Utilities or Unknown Objects 	<ul style="list-style-type: none"> Contact Name: Dig Safely New York, Phone: 811 or 1-800-962-7962, Website: www.digsafelynewyork.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 on-site. 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 	L

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		(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.	
	<ul style="list-style-type: none"> Excavations 	<ul style="list-style-type: none"> Inspect the excavation and temporary water dam every day and after everyday hazard increasing event. Documentation of this inspection must be maintained daily and available as part of the project record. Documentation should be available on-site for inspection. All overburden soil removed during excavation operations shall be stockpiled a minimum of 2' horizontal feet away from any open edge of the excavation. Increased distances are preferable. Material shall also be placed in such a manner to prevent excessive loading on the face of the cut. No person shall stand adjacent to a vertical excavation edge. Inspection and soil logging and photographic documentation shall occur from a safe distance or from cab of excavator, such that employee exposure to fall or engulfment hazards are eliminated. Personnel will not enter test pit excavations under any circumstance. Position bearing weight of excavator away from edges of open trenches. Where excavation edges are exposed to public, excavations shall be protected and identified from inadvertent access by the public until the excavation is backfilled. Provide Excavation Perimeter Protection and Warning signs as necessary to be in compliance with EM 385 11-1, Section 25B Safe Access and Appendix Q, "Perimeter Protection". 	L
	<ul style="list-style-type: none"> Heavy Equipment 	<ul style="list-style-type: none"> Seat belts or other restraint system shall be used by heavy equipment operators. Perform daily maintenance and inspections on operating equipment. Keep documentation on site. Use caution around pressurized lines/hoses. Inspect hoses daily for cuts, abrasions and wear. Equipment shall only be operated by personnel qualified by prior training or experience. Ensure that a stable ground surface is available for the operation of heavy equipment. Equipment operators shall not leave the cab of the equipment while they are lifting/controlling a load unless the load has been delivered to its intended transport 	L

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		location or the load has been fully secured (no potential for rolling onto or crushing ground personnel) and the equipment and controls are fully secured/disengaged and equipment is "de-energized".	
	<ul style="list-style-type: none"> 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 for 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. Ensure that all ground personnel have sufficient separation from tub grinding operations 	L
Install piping and conduit	Crane Operations	<ul style="list-style-type: none"> Follow the Crane Operating subcontractors EM 385 compliant Lift Plan. Cranes shall be operated by a certified crane operator. After November 10, 2014, only operators possessing a certificate from a nationally accredited testing organization, an audited employer training program, or U.S. military or state-issuing agency will be authorized to operate cranes. The crane's operations manual and load chart specifically designed for the crane shall be in the crane at all times. The crane must have a current annual inspection to include load test certification (within the last 12 months) that meets all state and federal safety standards. Documentation of this inspection must be available for review. A competent person will inspect the crane daily to ensure it 	M

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		<p>is in safe operating condition. The daily crane inspection log provided within the crane manufacturer's operations manual shall be used. See also the requirements for monthly inspections, among others, in SOP HSE-303.</p> <ul style="list-style-type: none"> • All rigging equipment must be inspected by a competent person prior to use for signs of excessive wear; equipment found to be damaged will be tagged and removed from service. • A qualified and competent Assembly/Disassembly (A/D) Director shall be assigned when cranes must be assembled onsite. The A/D Director is responsible for ensuring the crane is assembled and disassembled according to manufacturer requirements; performing training for the A/D crew; and ensuring sufficient ground conditions exist for crane placement; among other responsibilities (see SOP HSE-303). • The assembly/disassembly process must comply with requirements in HSE-303, including having an AHA for the task. • A critical lift plan shall be prepared when the lift is estimated to be greater than 75% of the crane capacity or when two cranes will be used to make a lift. • A pre-lift meeting will be conducted to include all parties involved in that day's crane operation. • Only one qualified person shall be designated to signal the crane operator. This person shall be thoroughly familiar with the ANSI standard method of hand signals and an illustration of these signals shall be posted at the job site. • No personnel shall be permitted under the load at any time. • Tag lines shall be attached to every load being made by the crane. • The swing radius of the rear rotating superstructure (counterweight) of the crane shall be barricaded and no entrance allowed. • Suspended loads shall not pass over workers or occupied buildings at any time. • Complete the self-assessment checklist for crane-suspended personnel platforms whenever they are being used. • AGVIQ-CH2M HILL employees exposed to hazards posed by crane operations, must be trained in hazards awareness and control procedures. See requirements for
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		training in HSE-303.	
	<ul style="list-style-type: none"> • Lock-out/ Tag-out 	<ul style="list-style-type: none"> • Inspect the LO/TO performed on the well by Aqua New York to ensure it is complete and all hazardous energies have been isolated or relieved. 	L
	<ul style="list-style-type: none"> • Rigging 	<ul style="list-style-type: none"> • All rigging equipment shall be used only for its intended purpose, inspected by a competent person prior to use, and shall not be loaded in excess of its capacity rating. Defective rigging shall be removed from service. • When AGVIQ-CH2M HILL is in control of rigging operations, AGVIQ-CH2M HILL shall provide a rigging competent person that will inspect, maintain oversee all rigging operations. The competent person shall use the appropriate rigging inspection log form to inspect wire rope, synthetic slings and/or shackles. • Tag lines shall be attached to every load being lifted by a crane. • Rigging equipment shall be protected from flame cutting and electric welding operations, and or contact avoided with solvents and chemicals. • Rigging equipment, when not in use, shall be stored in an area free from damage caused by environmental elements, hazardous substances, and other factors that may compromise equipment integrity and performance. • No modification or addition, which that could affect the capacity and or safe operation of the equipment, shall be made without the manufacturer's written approval. • Rigging equipment shall not be shortened with knots, bolts or other makeshift devices. • All rigging equipment shall be load tested at least annually by a competent person and documented. • Special hoisting devices, slings, chokers, hooks, clamps, or other lifting accessories shall be marked to indicate the safe working loads and shall be proof -tested prior to initial use to 125 percent of their rated load. Vendors or suppliers will provide documentation of proof testing documentation. 	L
	<ul style="list-style-type: none"> • Welding and Cutting operations 	<ul style="list-style-type: none"> • Use only properly instructed and qualified personnel. • Inspected area and obtain a Hot Work Permit. • Suitable fire extinguishing equipment shall be immediately available in the work area. • Flame-resistant blankets shall be used to control sparks 	L

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		<p>produced by welding and cutting operations from traveling to lower levels or adjacent surfaces.</p> <ul style="list-style-type: none"> • Flow gages and regulators shall be inspected prior to use and removed from cylinders when not in use. • Hoses, leads, and cables shall not be routed through doorways and walkways unless covered, elevated, or protected from damage. Where hoses, leads, and cables pass through wall openings, adequate protection shall be provided to prevent damage. • Flash arresters shall be installed at the torch handle. • Arc welding electrodes shall not be struck against compressed gas cylinders to strike an arc. • All arc welding or cutting operations shall be shielded by noncombustible or flame resistant screens to protect employees or other persons in the vicinity from the direct rays of the arc. • Proper ventilation shall be provided so as to maintain the level of contaminants in the breathing zone of welders below applicable permissible exposure limits. 	
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**IAW EM 385 01.A.13 Contractor-Required AHA “Work will not begin until the AHA for the work activity has been accepted by the GDA”
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person’s**

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection 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"> • Review APP by 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, 30 hour OSHA Construction Safety Training or equivalent • Heavy equipment operators qualified by previous training or experience. • Competent Person Requirement & Name: TBD • 	<ul style="list-style-type: none"> • Visual Inspections of designated work areas identify and address hazardous conditions. • Equipment inspections and maintenance. • Brushcutter inspection/maintenance. • Chipper maintenance, if used. • Emergency Response equipment Inspections • (Fire Extinguishers, Eye wash First Aid/CPR etc.)

Instructions for completing Contractor Activity Hazard Analysis

1. **Activity/Work Task** – Insert work/task this AHA is written for i.e. excavation, scaffold building, foundation preparation.
2. **PWO/OICC/ROICC** – Insert name of Public Works Office, Officer In Charge of Construction Office or Resident Officer in Charge of Construction (PWD/OICC/ROICC)
3. **Enter name & date AHA accepted by Government Designated Authority (GDA)**
4. **Enter contract number**
5. **Enter Task order or Delivery order number**
6. **Enter Prime Contractors name**
7. **Enter Subcontractors name**
8. **Enter date preparatory meeting was held**
9. **Enter date initial inspection was performed**
10. **Enter name of contractor competent person on site for this activity**
11. **Enter name of Prime Contractor Site Safety and Health Officer**
12. **Level of government person responsible for accepting the AHA, progressive signatures as level of risk increases.**

IAW EM 385 01.A.13 Contractor-Required AHA “Work will not begin until the AHA for the work activity has been accepted by the GDA”
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person’s

13. Overall Risk Assessment code is highest code assigned to any Job step after Hazards are assessed and Controls have been assigned
14. Schedule number is activity number from production daily reports
15. AHA number is the sequential number of all AHA's for this contract.
16. Job steps is the complete sequence of work, not general statements to complete the entire activity
17. Hazards is the known safety risks associated with completing the task
18. Controls is the safety measures in place to reduce the hazard to the lowest level possible
19. Risk Assessment code is where Severity and Probability intersect, place that letter E, H, M, or L in the RAC column
20. List all equipment to be used to complete this activity i.e. crane, backhoe, vehicle, all heavy equipment
21. List the training requirements required by EM 385, Safety Spec 01356 or OSHA that apply to this task.
 - List competent person(s) required for specific tasks in EM 385
 - List qualified person(s) required for specific tasks in EM 385
 - List CPR/First Aid training and qualification dates
22. List all inspection requirements of EM 385, Governmental Safety Requirements Specifications or OSHA 29 CFR 1926

IAW EM 385 01.A.13 Contractor-Required AHA "Work will not begin until the AHA for the work activity has been accepted by the GDA"
The AHA shall be reviewed and modified as necessary to address changing site condition, operations or change of competent/qualified person's

Attachment 1
Site Specific Health and Safety Plan

Site Health & Safety Plan

Installation of Full Scale Treatment System Liquid-Phase Granular Activated Carbon Units

Aqua New York, Inc
Seamans Neck Road Water Plant
NWIRP Bethpage, New York

Contract No. N62470-08-D-1006
Task Order No. WE23

Submitted to:



Prepared by:



September 2012
Revision No. 00

Contents

Contents.....	iii
Acronyms and Abbreviations	v
1.0 Site Safety and Health Plan of HRTW Work)	1
1.1 Occupational Safety and Health Hazards with Site Cleanup	1
1.2 Site Description and Contamination Characterization.....	1
1.3 Hazard/Risk Analysis.....	1
1.4 Staff Organization, Qualifications, and Responsibilities.....	1
1.4.1 Training, General and Project-Specific.....	1
1.5 Medical Surveillance.....	2
1.6 Personal Protective Equipment and Exposure Monitoring/Air Sampling.....	2
1.7 Heat and Cold Stress	5
1.8 Standard Operating Safety Procedures, Engineering Controls, and Work Practices.....	5
1.8.1 Site Rules and Prohibitions)	5
1.9 Work Permit Requirements.....	5
1.10 Material Handling Procedures	6
1.10.1 Drum, Container, Tank Handling.....	6
1.11 Comprehensive AHA of Treatment Technologies	6
1.12 Site Control Measures - General	6
1.12.1 Work Zone	7
1.12.2 Support Zone.....	8
1.13 Personal Hygiene	8
1.13.1 Personnel and Equipment Decontamination.....	8
1.14 Emergency Equipment and First Aid	8
1.14.1 Emergency Response and Contingency Procedures.....	8
1.14.2 Route Map to Emergency Medical Facilities.....	9
1.14.3 Criteria for Alerting Medical Facilities	9
1.14.4 Responsibilities	9
1.14.5 Training.....	9
1.14.6 Medical Surveillance	9
1.14.7 RCRA TSD Facilities	9
1.14.8 Facility/Construction Project Emergency Response	10

Tables

1-1	Personal Protection Equipment Requirements
1-2	Air Monitoring Requirements
1-3	Air Monitoring Equipment Calibration Requirements

Acronyms and Abbreviations

APP	Accident Prevention Plan
AGVIQ-CH2M HILL	AGVIQ-CH2M HILL Joint Venture III (Small Business Remedial Action Contract)
APP	Accident Prevention Plan
BBLPS	Behavior Based Loss Prevention System
CBRNE	Chemical, Biological, Nuclear, Radiological, Explosive
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
COC	Constituents of Concern
CRZ	Contamination Reduction Zone
DFOW	Definable Feature of Work
DFWP	Drug Free Workplace Program
EMS	Emergency Medical Services
EZ	Exclusion Zone
GDA	Government Designated Authority
HSPA	Health and Safety Program Administrator
LLC	Limited Liability Company
mg/m ³	milligrams per cubic meter
NASWF	Naval Air Station Whiting Field
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PEL	Permissible Exposure Limit (OSHA)
PPE	Personal Protective Equipment
ppm	Parts per million
PTSP	Pre-Task Safety Plan

SBRAC	Small Business Remedial Action Contract
SOH	Safety and Occupational Health
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SZ	Support Zone
TO	Task Order

1.0 Site Safety and Health Plan of HTRW Work

1.1 Occupational Safety and Health Hazards with Site Cleanup

Several occupational physical hazards are associated with the execution of this Task Order (TO) as follows:

- Physical hazards associated with slips, trips and falls or manual lifting.
- Physical hazards associated with construction operations.

All site work shall be performed in accordance with the project Accident Prevention Plan (APP) and this Site Safety and Health Plan (SSHP). In accordance with the allowance of EM 385 1-1, section 28.B.02 *“general information adequately covered in the APP (introduction, site background, SOH organization and lines of authority, general site control and layout and general site safety procedures, logs, reports and inspections) need not be duplicated.”* Health and safety hazard control measures policies and procedures, and means and methods or other information presented throughout this APP that sufficiently addresses the requirements of EM 385 1-1, section 28.B.02 will not be further elaborated upon in this SSHP.

1.2 Site Description and Contamination Characterization

A site description for the project site is provided in section 2.0 “Background Information” of the APP and will not be further elaborated upon in this section of the SSHP.

Although the groundwater below the site is contaminated with Trichloroethene at a maximum concentration of 3.3 micrograms per liter ($\mu\text{g}/\text{L}$), contact with contaminated groundwater is not anticipated for this TO.

1.3 Hazard/Risk Analysis

Hazard/Risk Analysis for this project is provided in section 10.6 “Project Specific Activity Hazard Analyses” of the APP and will not be elaborated upon further in this section.

1.4 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 the APP and will not be elaborated upon further in this section.

Qualifications of key site personnel must be provided to the government designated authority (GDA), under separate cover for review well in advance

1.4.1 Training, General and Project-Specific

General and project specific training is identified in section 6.0 “Training” of the APP and will not be elaborated upon further in this section.

1.5 Medical Surveillance

Site worker medical surveillance requirements is identified in section 6.0 "Training" of the APP and will not be further elaborated upon in this section of the SSHP.

1.6 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 definable features of work (DFOWs) are provided in Tables 1-1 and Table 1-2, respectively, below.

**TABLE 1-1
PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS**

Task	Head	Respirator ^b
<ul style="list-style-type: none"> All Site Work 	<ul style="list-style-type: none"> Hardhat^c Safety glasses Hearing protection (as applicable)^d 	None required
<p>Any function identified in this APP where potential dermal site IS limited to the hands only.</p> <ul style="list-style-type: none"> Concrete Work System Start-up <ul style="list-style-type: none"> Loading or removal of carbon GAC Tie-In to AQUA System Start-Up system 	<ul style="list-style-type: none"> Hardhat^c Safety glasses Ear protection (as applicable)^d Face shields and goggles (required when handling acids/bases) Reflective safety vest 	None required.
<p>Any function identified in this APP where potential dermal used on-site NOT limited to the hands only.</p> <ul style="list-style-type: none"> System Start-Up <ul style="list-style-type: none"> Flushing piping and vessels Sterilizing the system Loading or removal of carbon GAC Backwash GAC Vessels 	<ul style="list-style-type: none"> Hardhat^c Ear protection (as applicable)^d Face shields and goggles (required when handling acids/bases) 	None required.
<p>Contact HSPA/CIH prior to implementing Level C PPE upgrade</p> <ul style="list-style-type: none"> System Start-Up <ul style="list-style-type: none"> Flushing piping and vessels Sterilizing the system Loading carbon (fill GAC Vessels) Backwash GAC Vessels 	<ul style="list-style-type: none"> Hardhat^c Ear protection (as applicable)^d Spectacle inserts (as applicable) 	NIOSH approved Full Face APR with P100/ Acid Vapor Cartridge. Contact HSPA/CIH prior to implementing a Level C upgrade.
<p>Reasons for Upgrading or Downgrading Level of Protection Upgrade^f</p>		
<ul style="list-style-type: none"> Request from individual performing tasks. Change in work tasks that will increase contact or potential exposure. Occurrence or likely occurrence of gas or vapor emission. Known or suspected presence of dermal hazards. Instrument action levels exceeded (when implemented). 		
<p>^a Modifications are as indicated. AGVIO-CH2M HILL will provide PPE. ^b No facial hair that would interfere with respirator fit is permitted. ^c Hardhat and splash-shield areas are to be determined by the SSF. ^d Ear protection should be worn when conversations cannot be held. ^e Cartridge change-out schedule is at least every 8 hours (or one week). If encountered conditions are different than those anticipated in this training, receive respiratory protection awareness training. Contact the SSF. ^f Performing a task that requires an upgrade to a higher level of protection.</p>		

**TABLE 1-1
PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS^a**

Task	Level	Body	Head	Respirator ^b
<ul style="list-style-type: none"> All Site Work 	D	<ul style="list-style-type: none"> Designated and appropriate work clothes Hard-toe work boots that provide sufficient ankle support (preferable leather) Work gloves (cut resistant) or liquid resistant for wet work environments Reflective traffic vest 	<ul style="list-style-type: none"> Hardhat^c Safety glasses Hearing protection (as applicable)^d 	None required
<p>Any function identified in this APP where potential dermal contact with site chemicals used on-site IS limited to the hands only.</p> <ul style="list-style-type: none"> Concrete Work System Start-up <ul style="list-style-type: none"> Loading or removal of carbon GAC Tie-In to AQUA System Start-Up system 	Modified D1	<ul style="list-style-type: none"> Designated and appropriate work clothes; Boots: Hard-toe work boots that provide sufficient ankle support (preferable leather); with outer rubber boot covers or hard-toe chemically resistant rubber boots with steel shank for concrete work Work gloves (cut resistant) when handling items that pose a cut hazard Inner surgical-style nitrile chemical resistant nitrile gloves. Acid apron and outer gloves 	<ul style="list-style-type: none"> Hardhat^c Safety glasses Ear protection (as applicable)^d Face shields and goggles (required when handling acids/bases) Reflective safety vest 	None required.
<p>Any function identified in this APP where potential dermal contact with site with site chemicals used on-site NOT limited to the hands only.</p> <ul style="list-style-type: none"> System Start-Up <ul style="list-style-type: none"> Flushing piping and vessels Sterilizing the system Loading or removal of carbon GAC Backwash GAC Vessels 	Modified D2	<ul style="list-style-type: none"> Coveralls: Poly coated (or equivalent) acidresistant disposable coveralls. Boots: Hard-toe work boots that provide sufficient ankle support (preferable leather); with outer rubber boot covers or hard-toe chemically resistant rubber boots with steel shank Gloves: Inner surgical-style nitrile and outer chemical resistant Butyl rubber gloves for handling acid. 	<ul style="list-style-type: none"> Hardhat^c Ear protection (as applicable)^d Face shields and goggles (required when handling acids/bases) 	None required.
<p>Contact HSPA/CIH prior to implementing Level C PPE upgrade.</p> <ul style="list-style-type: none"> System Start-Up <ul style="list-style-type: none"> Flushing piping and vessels Sterilizing the system Loading carbon (fill GAC Vessels) Backwash GAC Vessels 	C	<ul style="list-style-type: none"> Coveralls: Polycoated Tyvek® Boots: Steel-toe, chemical-resistant boots OR steel-toe, leather work boots with outer rubber boot covers Gloves: Inner surgical-style nitrile and outer chemical resistant Butyl rubber gloves. 	<ul style="list-style-type: none"> Hardhat^c Ear protection (as applicable)^d Spectacle inserts (as applicable) 	NIOSH approved Full Face APR with P100/ Acid Vapor Cartridge. Contact HSPA/CIH prior to implementing a Level C upgrade.

Reasons for Upgrading or Downgrading Level of Protection

Upgrade^f

- 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).

Downgrade

- New information indicating that situation is less hazardous than originally thought.
- Change in site conditions that decrease the hazard.
- Change in work task that will reduce contact with hazardous materials.

^a Modifications are as indicated. AGVIQ-CH2M HILL will provide PPE only to AGVIQ-CH2M HILL employees.

^b No facial hair that would interfere with respirator fit is permitted.

^c Hardhat and splash-shield areas are to be determined by the SSHO.

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

^e Cartridge change-out schedule is at least every 8 hours (or one work day), except if relative humidity is > 85%, or if organic vapor measurements are > midpoint of Level C range –then at least every 4 hours.

If encountered conditions are different than those anticipated in this APP, contact the HSPA/CIH. **Where AGVIQ-CH2M HILL personnel are required to use a respirator to provide respiratory protection, AGVIQ-CH2M HILL personnel shall receive respiratory protection awareness training. Contact the 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 1-2
AIR MONITORING EQUIPMENT REQUIREMENTS**

Instrument	Tasks	Action Levels ^a	Level of Protection/ Response Action	Frequency ^b	Calibration
4 gas meter with %O ₂ , %LEL, CO and H ₂ S sensors	Entry into shallow excavations posing CSE hazard	%O ₂ 19.5 – 23.5% %LEL < 1% CO < 25 ppm H ₂ S < 1 ppm %O ₂ <19.5 or >23.5% %LEL > 1% CO > 25 ppm H ₂ S >1 ppm (sustained 5 mins. in worker BZ)	Level D or Modified D1, as identified by Table 1-1 of the SSHP for dermal protection Stop work. Evacuate area for 10 minutes and recheck BZ and work area. If levels persist, consult with the CIH/HSPA for proper engineering and/or administrative controls and PPE requirements or before working in environments where worker exposure conditions are potentially unanticipated conditions.	Initially and periodically during task (see left) to verify readings are below and remain below established action levels.	Daily
Dräger Chip Measurement System (CMS) HCl = Chip # 64 06030	<ul style="list-style-type: none"> System Start-Up <ul style="list-style-type: none"> Flushing piping and vessels Sterilizing the system Loading carbon (fill GAC Vessels) Backwash GAC Vessels 	< 1 ppm 1-2 ppm >2 ppm	Modified Level D1 or D2, as identified by Table 1-1 of the SSHP Upgrade to Level C as identified by Table 1-1 of the SSHP Stop work, consult with the CIH/HSPA for proper engineering and/or administrative controls and PPE requirements or before working in environments where worker exposure conditions are potentially unanticipated conditions.	Initially and periodically during task (see left) to verify readings are below and remain below established action levels.	NA

^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 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.).

^c **Note: Worker breathing zone ambient air monitoring results must be logged on an Air Monitoring Log (See Attachment 3 of APP).**

1.6.1.1 Air Monitoring Equipment Calibration Requirements

Air Monitoring equipment calibration specifications for air monitoring equipment identified in Table 1-2 are listed in Table 1-3, below.

TABLE 1-3

Air Monitoring Equipment Calibration Requirements

Instrument	Gas	Span	Reading	Method
Four Gas Meter	Methane	NA	2.5% (50% LEL)	1.5 lpm reg T-tubing/ tedlar bag
	Oxygen	NA	20.9%	1.5 lpm reg T-tubing/ tedlar bag
	Carbon Monoxide (CO)	NA	25 ppm	1.5 lpm reg T-tubing/ tedlar bag
	Hydrogen Sulfide (H ₂ S)	NA	50 ppm	1.5 lpm reg T-tubing/ tedlar bag

Note: Air monitoring equipment calibration measures must be logged on the Project Air Monitoring Logs (See Attachment 3 of APP) and included in the final project record.

1.7 Heat and Cold Stress

The procedures for heat and cold stress monitoring are presented in section 9.14 "Heat and Cold Stress Monitoring Program" of the APP and will not be further elaborated upon in this section of the SSHP.

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

1.8.1 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 of this SSHP.

Section 8.0 of the APP: Accident Reporting and Investigation

Section 9.2 of the APP: Emergency Response Plans

Section 9.7 of the APP: Health Hazard Control Program

Section 1.2.8.7 of the SSHP: Site Control Measures

Section 10.5 of the APP: Drug Free Work Place Program

1.9 Work Permit Requirements

Any work permit requirements necessary to execute the assigned work is identified in section 7.1 "External Inspections/Certifications" of the APP and will not be further elaborated upon in this section of the SSHP.

1.10 Material Handling Procedures

Hazard Control Measures for excavation operations, haul truck activities, rigging and working around material handling equipment are included in section 9.7 "Health and Safety Hazard Control Program" of the APP and will not be further elaborated upon in this SSHP.

1.10.1 Drum, Container, Tank Handling

(Reserved)

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

1.11 Comprehensive AHA of Treatment Technologies

(Reserved)

No treatment technologies will be executed during this TO.

1.12 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 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 could be occurring in or adjacent to any AGVIQ-CH2MHILL work areas that may jeopardize worker health and safety and
 - 3) Reschedule field activities when potentially dangerous activities are not occurring adjacent to AGVIQ-CH2MHILL work locations. Ensure proper two-way 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 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 the 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 behavior based loss prevention system (BBLPS) training.
- Be aware of any potential for hazardous chemical exposure and know what precautions/training are required.
- Establish support and work zones. Delineate with flags or cones as appropriate. Support zone should be in an area absent of construction hazards. 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 Emergency Medical System (EMS)/Fire Dispatch.
- Have readily available copy of the Hospital Route Map.
- Establish onsite communication consisting of the following:
 1. Line-of-sight and hand signals
 2. Air horn
 3. 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 Certified Industrial Hygienist (CIH) or health and safety program administrator (HSPA). The project team shall develop and implement corrective action procedures in a timely manner.

1.12.1 Work Zone

Where it is necessary to establish an Work Zone (WZ) at the site, it will be constructed to surround the entire construction area where the greatest potential for worker exposure to identified site hazards may exist. For this TO the WZ may need to be transient as the work progresses. The WEZ may also incorporate any available "permanent" perimeter fencing or other established physical barriers (curbing, fencing, etc). Other temporary barriers (i.e. caution tape, cones), maybe used to supplement existing permanent barriers to demarcate the WZ to identify the restricted access. To prevent exposure of unprotected personnel work areas and personal protective equipment requirements should be clearly identified/delineated. Access to the WZ will be restricted to personnel wearing the prescribed level of protective equipment and meeting the training and medical criteria of this plan

1.12.2 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.

1.13 Personal Hygiene

Even though we do not anticipate exposure to site COCs, it is important for personnel to adhere 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.

1.13.1 Personnel and Equipment Decontamination

(Reserved)

There are not any require decontamination requirements for this TO.

1.14 Emergency Equipment and First Aid

The requirements for emergency preparedness, equipment and supplies is provided in section 9.2 "Emergency Response Plans" of the APP and will not be elaborated upon further in this SSHP.

1.14.1 Emergency Response and Contingency Procedures

The requirements for emergency preparedness, equipment and supplies is provided in section 9.2 "Emergency Response Plans" of the APP and will not be elaborated upon further in this SSHP.

1.14.1.1 Pre-Emergency Planning

The requirements for emergency response and contingency procedures are provided in section 9.2 "Emergency Response Plans" of the APP and will not be elaborated upon The

requirements for pre-emergency planning are provided in section 9.2 "Emergency Response Plans" of the APP and will not be elaborated upon further in this SSHP.

1.14.1.2 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" of the APP and will not be elaborated upon further in this SSHP.

1.14.1.3 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 the APP and will not be elaborated upon further in this SSHP.

1.14.1.4 Decontamination and Medical Treatment of Injured Personnel

(Reserved)

There are not any require decontamination requirements for this TO.

1.14.2 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 the APP and need not be reproduced in this SSHP.

1.14.3 Criteria for Alerting Medical Facilities

There are no specific or unusual hazards [i.e. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)] that requires notification to area responders prior to the start of site operations. Any unanticipated medical, fire or security issue that may result during the execution of this

1.14.4 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" of the APP and will not be further elaborated upon in this SSHP.

1.14.5 Training

All training requirements for this project are discussed in section 6.0 "Training" of the APP and will not be elaborated upon further in this SSHP.

1.14.6 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 SSHP.

1.14.7 RCRA TSD Facilities

Not Applicable. The criteria of EM 385 1-1, section 28 are not applicable to the site operations nor are Treatment, Storage and Disposal (TSD) facility conditions under the requirements of 40 CFR 264/265 applicable to this project.

1.14.8 Facility/Construction Project Emergency Response

Facility/construction project emergency response emergency procedures is outlined in section 9.2 "Emergency Response Plans" of the APP and will not be elaborated upon further in this SSHP.

Attachment 2
Accident Prevention Plan & Site Specific Health
and Safety Plan Acknowledgement Form

Attachment 3
Subcontractor H&S Tracking Form

Attachment 4
Project H&S Forms/Permits

EQUIPMENT INSPECTION FORM

This form will be used to document AGVIQ-CH2MHILL 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 5
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>Medical, Fire, Security: 911</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>Project Manager (overall) Jim Nicotri : (617) 626-7042/ (339) 832-4555 (cell)</p>	<p>AGVIQ-CH2M HILL SBRAC Deputy Program Manager Name: Michael Halil CH2M HILL – (JXO) Phone: (904) 777-4812 x 233/(904) 219-6277 (cell)</p>
<p>AGVIQ-CH2M HILL Site Superintendent Name: Randy Grogan Phone: TBD Cell Phone:TBD</p> <p>AGVIQ-CH2M HILL Joint Venture Program SSHO Name: TBD Phone: TBD</p>	<p>AGVIQ-CH2M HILL Program CIH Name: Angelo Liberatore Phone: (678) 530-4210/(770) 335-2076 (cell)</p> <p>AGVIQ-CH2M HILL HSPA Name: Mark Orman Phone: (414) 847-0597/ (414) 712-4138 (Cell)</p> <p>AGVIQ-CH2M HILL HSPA Name: Josh Painter Cell Phone: (303) 993-9274</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 South Nassau Communities Hospital (See Figure 9-2 of this APP) 1 Healthy Way, Oceanside, NY 11572 (516) 632-3000</p>	

Attachment 6
Material Safety Data Sheets (provided on-site)

Attachment 7
Chemical Specific Training Form and
Project Specific Chemical Product Hazard
Communication Form

CHEMICAL-SPECIFIC TRAINING FORM

Location:	Task Order:
SSHO:	Trainer:

TRAINING PARTICIPANTS:

NAME	SIGNATURE	NAME	SIGNATURE

REGULATED PRODUCTS/TASKS COVERED BY THIS TRAINING:

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

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

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

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

Attachment 8
Pre-Task Safety Plan

DAILY PRE-TASK SAFETY PLAN (PTSP)

Project: _____	Location: _____	Date: _____
Site Safety & Health Officer: _____	Job Activity: _____	Site #: _____

Task Personnel:

List Tasks:

Tools/Equipment/Materials required (ladders, scaffolds, fall protection, cranes/rigging, heavy equipment, power tools, cords, generators, compressed gases, regulated chemical products, etc.):

Potential H&S Hazards, including chemical, physical, safety, biological and environmental (Check all that apply):

<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):

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

Field Notes:

Additional Space for Project Specific Hazard Awareness (if necessary):

- 1) Observe government/military facility posted speed limits.
- 2) Wear seat belts in vehicles while on government/military facilities.
- 3) Do not use cell phones or two way radios while driving or actively operating equipment on government/military facilities.
- 4) Failure to do so may result in loss of driving privileges on government/military facilities.
- 5) Report all accidents/injuries and property damage to the Project Manager and Program CIH immediately.
- 6) Maintain hospital route maps in site vehicles. Know facility EMS, Fire and Security dispatch #s.
- 7) Secure any loads to hauling vehicle (pick-up truck) with appropriate rated tie down straps.
- 8) Use reflective vests/ high visibility clothing in high traffic areas or in areas where material handling operations are occurring.

Attendees:

Name (Printed):

Signature:

Meeting Conducted By:

Name Printed

Signature

Attachment 9
Loss Prevention Observation Form

Loss Prevention Observation Form



Project:

Observer:

Position/Title of worker observed:

Background Information/comments:

Task/Observation Observed:

Date:

- Identify and reinforce safe work practices/behaviors
- Identify and improve on at-risk practices/acts
- Identify and improve on practices, conditions, controls, and compliance that eliminate or reduce hazards
- Proactive PM/Site Manager support facilitates eliminating/reducing hazards (material/personnel resources)
- Positive, corrective, cooperative, collaborative feedback/recommendations

Actions & Behaviors	Consistent w/ H&S Program	Not Consistent w/ H&S Program	Observations/Comments
Current & accurate Pre-Task Planning/Briefing (Project safety plan, AHA, PTSP, tailgate briefing, c., as needed)			Positive Work Practices Observed:
Personnel properly trained/qualified/experienced			
Tools/equipment available and adequate			
Proper use of tools			Questionable Activity/Condition Observed:
Barricades/work zone control			
Housekeeping			
Communication			
Work Approach/Habits			
Attitude			
Focus/attentiveness			Actions/Comments:
Pace			
Uncomfortable position			
Inconvenient location			
Position/Line of fire			Observed Worker's Corrective Actions/Comments:
Apparel (hair, loose clothing, jewelry)			
Repetitive motion			
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 10
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"/> Construction Mgmt- Haz Waste | <input type="checkbox"/> Facility Walk Through | <input type="checkbox"/> Process Safety Management |
| <input type="checkbox"/> Construction Mgmt - Non-Haz Waste | <input type="checkbox"/> General Office Work | <input type="checkbox"/> Tunneling |
| <input type="checkbox"/> Demolition | <input type="checkbox"/> Keyboard Work | <input type="checkbox"/> Welding |
| <input type="checkbox"/> Drilling-Haz Waste | <input type="checkbox"/> Laboratory | <input type="checkbox"/> Wetlands Survey |
| <input type="checkbox"/> Drilling-Non Haz Waste | <input type="checkbox"/> Lead Abatement | <input type="checkbox"/> Working from Heights |
| <input type="checkbox"/> Drum Handling | <input type="checkbox"/> Motor Vehicle Operation | <input type="checkbox"/> Working in Roadways |
| <input type="checkbox"/> Electrical Work | <input type="checkbox"/> Moving Heavy Object | <input type="checkbox"/> WWTP Operation |

Location of Incident (Select one)

- Company Premises (JVI Office: _____)
- Field (Project #: _____ Project/Site Name: _____ Client: _____)
- In Transit (Traveling from: _____ Traveling to: _____)
- At Home

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

- | | | |
|------------------------------------|------------------------------------|---|
| <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-CH2MHILL subcontractor was involved in the incident, provide their company name and phone number:

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

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

If AGVIQ-CH2M HILL employee injured

Employee Name: _____ Employee Number: _____

If AGVIQ-CH2M HILL Subcontractor employee injured

Employee Name: _____ Company: _____

Injury Type

- Allergic Reaction
- Amputation
- Asphyxia
- Bruise/Contusion/Abrasion
- Burn (Chemical)
- Burn/Scald (Heat)
- Cancer
- Carpal Tunnel
- Concussion
- Cut/Laceration
- Dermatitis
- Dislocation

- Electric Shock
- Foreign Body in eye
- Fracture
- Freezing/Frost Bite
- Headache
- Hearing Loss
- Heat Exhaustion
- Hernia
- Infection
- Irritation to eye
- Ligament Damage

- Multiple (Specify) _____
- Muscle Spasms
- Other (Specify) _____
- Poisoning (Systemic)
- Puncture
- Radiation Effects
- Strain/Sprain
- Tendonitis
- Wrist Pain

Part of Body Injured

- Abdomen
- Ankle(s)
- Arms (Multiple)
- Back
- Blood
- Body System
- Buttocks
- Chest/Ribs
- Ear(s)
- Elbow(s)
- Eye(s)
- Face
- Finger(s)

- Foot/Feet
- Hand(s)
- Head
- Hip(s)
- Kidney
- Knee(s)
- Leg(s)
- Liver
- Lower (arms)
- Lower (legs)
- Lung
- Mind

- Multiple (Specify) _____
- Neck
- Nervous System
- Nose
- Other (Specify) _____
- Reproductive System
- Shoulder(s)
- Throat
- Toe(s)
- Upper Arm(s)
- Upper Leg(s)
- Wrist(s)

Nature of Injury

- Absorption
- Bite/Sting/Scratch
- Cardio-Vascular/Respiratory System Failure
- Caught In or Between
- Fall (From Elevation)
- Fall (Same Level)
- Ingestion

- Inhalation
- Lifting
- Mental Stress
- Motor Vehicle Accident
- Multiple (Specify) _____
- Other (Specify) _____

- Overexertion
- Repeated Motion/Pressure
- Rubbed/Abraded
- Shock
- Struck Against
- Struck By
- Work Place Violence

• Initial Diagnosis/Treatment Date: _____

Type of Treatment

- Admission to hospital/medical facility
- Application of bandages
- Cold/Heat Compression/Multiple Treatment
- Cold/Heat Compression/One Treatment
- First Degree Burn Treatment
- Heat Therapy/Multiple treatment
- Multiple (Specify) _____

- Heat Therapy/One Treatment
- Non-Prescriptive medicine
- None
- Observation
- Other (Specify) _____

- Prescription- Multiple dose
- Prescription- Single dose
- Removal of foreign bodies
- Skin Removal
- Soaking therapy- Multiple Treatment
- Soaking Therapy- One Treatment
- Stitches/Sutures

- Tetanus
- Treatment for infection
- Treatment of 2nd /3rd degree burns
- Use of Antiseptics - multiple treatment
- Use of Antiseptics - single treatment
- Whirlpool bath therapy/multiple treatment
- Whirlpool bath therapy/single treatment
- X-rays negative
- X-rays positive/treatment of fracture

Number of days doctor required employee to be off work: _____
Number of days doctor restricted employee's work activity: _____
Equipment Malfunction: Yes No Activity was a Routine Task: Yes No
Describe how you may have prevented this injury:

Physician Information

Name: _____
Address: _____
City: _____
Zip Code: _____
Phone: _____

Hospital Information

Name: _____
Address: _____
City: _____
Zip Code: _____
Phone: _____

Property Damage (Complete for Property Damage incidents only)

Property Damaged: _____ Property Owner: _____
Damage Description: _____
Estimated Amount: \$ _____

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

Substance (attach MSDS): _____ Estimated Quantity: _____
Facility Name, Address, Phone No.: _____

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

Spill/Release From: _____ Spill/Release To: _____

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

Describe Environmental or Permit Issue:

Permit Type: _____

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

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

Substance and Estimated Quantity: _____

Duration of Permit Exceedance: _____

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

AGVIQ-CH2M HILL Personnel Notified: _____
Client Notified: _____

Root Cause Investigation

This attachment is provided to assist in accessing, completing, and reviewing an incident investigation. It is important to remember the following when conducting an investigation:

Gather relevant facts, focusing on fact-finding, not fault-finding.
Draw conclusions, pitting facts together into a probable scenario.
Determine incident root cause(s), the basic causes why an unsafe act/condition existed.
Develop and implement solutions, matching all identified root causes with solutions.

Documentation

The following should be included in the Incident Report Form (IRF) to document the incident.

Description

Provide a description of the event and the sequence of events and actions that took place prior to the incident. Start with the incident event and work backwards in time through all of the preceding events that directly contributed to the incident. The information should identify why the event took place as well as who was involved, when and where the event took place, and what actions were taken.

Cause Analysis

Using the form and flowchart in this attachment the root cause of the incident will be determined. This form must be retained in the project and/or regional HS&E files.

Immediate Causes—List the substandard actions or conditions that directly affected the incident. The following are examples of immediate causes:

Substandard Actions: Operating equipment without authority; failure to warn; failure to secure; operating at improper speed; making safety device inoperable; using defective equipment; failing to use PPE; improper loading; improper lifting; improper position for task; under influence of alcohol or drugs; horseplay.

Substandard Conditions: Exposure to hazardous materials; exposure to extreme temperatures; improper lighting; improper ventilation; congestion; exposure to fire and explosive hazard; defective tools, equipment or materials; exposure to extreme noise; poor ventilation; poor visibility; poor housekeeping.

Basic Causes—List the personal and job factors that caused the incident. The following are examples of basic causes:

Personal Factors: Capability; knowledge; skill; stress; motivation.

Job Factors: Abuse or misuse; engineering; maintenance; purchasing; supervision; tools and equipment; wear and tear; work standards.

Corrective Action Plan

Include all corrective actions taken or those that should be taken to prevent recurrence of the incident. Include the specific actions to be taken, the employer and personnel responsible for implementing the actions, and a time frame for completion. Be sure the corrective actions address the causes. For example, training may prevent recurrence of an incident caused by a lack of knowledge, but it may not help an incident caused by improper motivation.

The following are examples of management programs that may be used to control future incidents. These programs should be considered when determining specific corrective actions.

Management Programs: Accident/incident analysis; emergency preparedness; engineering controls; general promotion; group meetings; health control; hiring and placement; leadership and administration; management training; organizational rules; personal protective equipment; planned inspections; program audits; program controls; purchasing controls; task analysis and procedures; task observation.

Loss/Near-Loss Investigation Report Form

Employer Information

Company Name: _____

Project Name: _____ Task Order: _____

Project Location: _____

Task Location: _____

Job Assignment: _____

Preparer's Name: _____ Preparer's Employee Number: _____

Incident Specific Information

Date of Incident: _____ Time of Incident: _____ a.m./p.m.

Location of incident:

Company premises

Field

In Transit

Other: _____

Address where the incident occurred: _____

Equipment Malfunction: Yes No

Activity was a Routine Task: Yes No

Describe any property damage: _____

Specific activity the employee was engaged in when the incident occurred:

All equipment, materials, or chemicals the employee was using when the incident occurred:

Describe the specific incident and how it occurred:

Describe how this incident may have been prevented:

Contributing Factors (Describe in detail why incident occurred):

Date employer notified of incident: _____ To whom reported: _____

Witness Information (First Witness)

Name: _____
Employee Number _____
Address: _____
City: _____
Zip Code : _____
Phone: _____

Witness Information (Second Witness)

Name: _____
Employee Number _____
Address: _____
City: _____
Zip Code : _____
Phone: _____

Additional information or comments: _____

A ROOT CAUSE ANALYSIS FORM MUST BE COMPLETED FOR ALL INJURIES AND ILLNESSES OR ACTUAL LOSSES.

COMPLETION OF THE ROOT CAUSE ANALYSIS FORM FOR NEAR LOSSES IS OPTIONAL, AT THE DISCRETION OF THE HEALTH AND SAFETY MANAGER.

Determination of Root Cause(s)

For losses or near losses the information may be gathered by the supervisor or other personnel immediately following the loss or near loss. Based on the complexity of the situation, this information may be all that is necessary to enable the investigation team to analyze the loss, to determine the root cause, and to develop recommendations. More complex situations may require the investigation team to revisit the loss site or re-interview key witnesses to obtain answers to questions that may arise during the investigation process.

Photographs or videotapes of the scene and damaged equipment should be taken from all sides and from various distances. This point is especially important when the investigation team will not be able to review the loss scene.

The investigation team must use the Root Cause Analysis Flow Chart to assist in identifying the root cause(s) of a loss. Any loss may have one or more "root causes" and "contributing factors". The "root cause" is the primary or immediate cause of the incident, while a "contributing factor" is a condition or event that contributes to the incident happening, but is not the primary cause of the incident. Root causes and contributing factors that relate to the *person* involved in the loss, his or her peers, or the supervisor should be referred to as "personal factors". Causes that pertain to the *system* within which the loss or injury occurred should be referred to as "job factors".

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

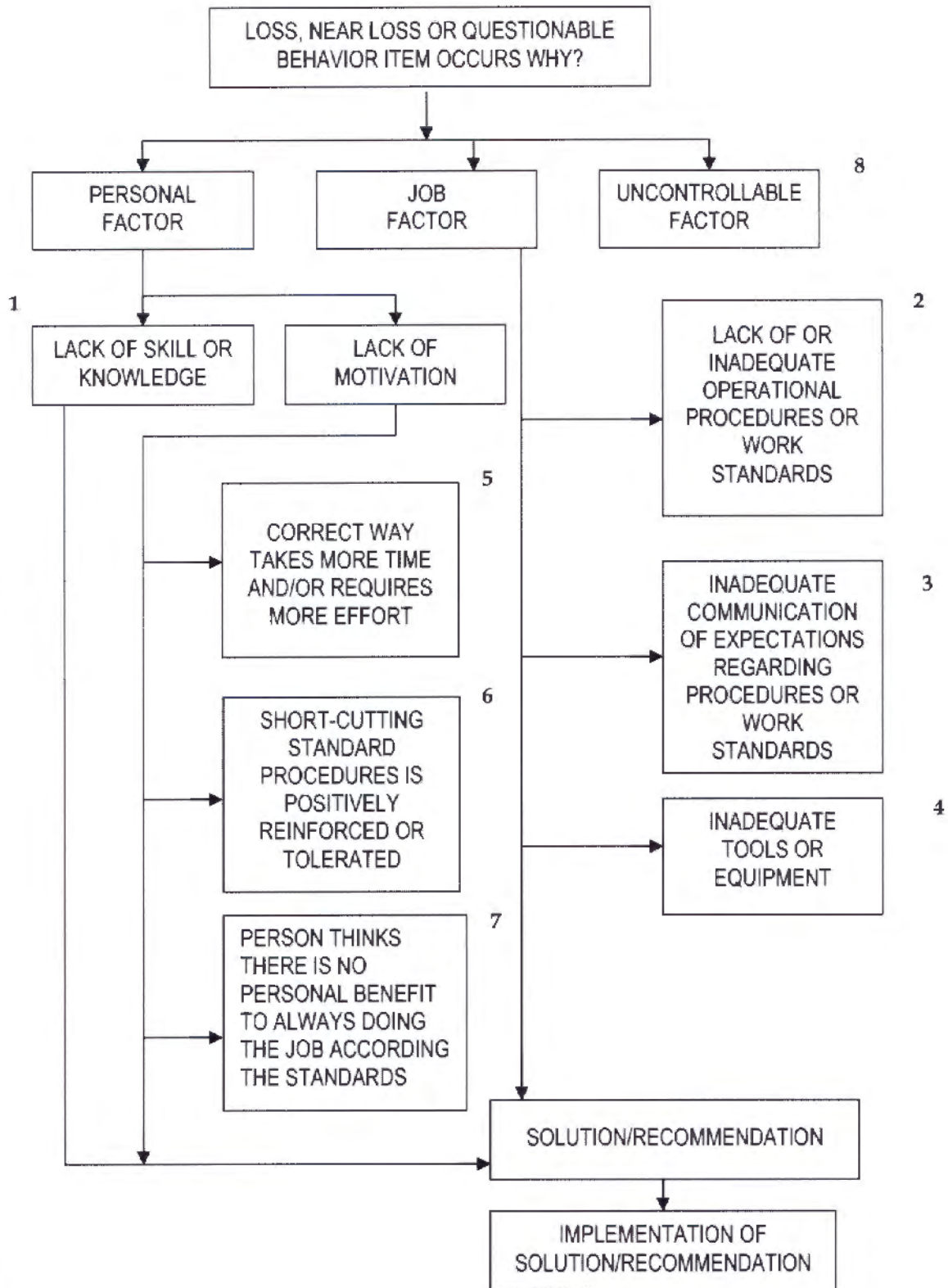
Name	Job Title	Date

Results of Solution Verification and Validation

Reviewed By

Name	Job Title	Date

Root Cause Analysis Flow Chart



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 12
Hurricane Preparedness Plan

(RESERVED)