HEALTH AND SAFETY PLAN
SAN DIEGO SHIPYARD SEDIMENT SITE

Cleanup and Abatement Order No. R9-2012-0024

Prepared by

Anchor QEA, L.P.

26300 La Alameda, Suite 240

Mission Viejo, California 92691

June 12, 2012

CERTIFICATION PAGE

_____	_____
Project Manager	Field Lead
Date: _____	Date: _____

The information in this Health and Safety Plan has been designed for the scope of work presently contemplated by the San Diego Shipyard Project Team (Project Team). Therefore, this document may not be appropriate if the work is not performed by or using the methods presently contemplated by the Project Team. In addition, as the work is performed, conditions different from those anticipated may be encountered and this document may have to be modified. Therefore, the Project Team only intends this plan to address currently anticipated activities and conditions and makes no representations or warranties as to the adequacy of the Health and Safety Plan for all conditions encountered.

HEALTH AND SAFETY PLAN ACKNOWLEDGEMENT FORM

Project Number: 120981-01.01 Project Name: San Diego Shipyard Sediment Site

My signature below certifies that I have read and understand the policies and procedures specified in this Health and Safety Plan (HASP). For non-Anchor QEA employees, this HASP may include company-specific appendices to this plan developed by entities other than those directly affiliated with the San Diego Shipyard Project Team. Non-affiliated personnel may be required to sign an indemnity form located in Attachment A.

Date	Name (print)	Signature	Company

Date	Name (print)	Signature	Company

SITE EMERGENCY PROCEDURES

Site Maps

The following figure provides an overview of the general site location.

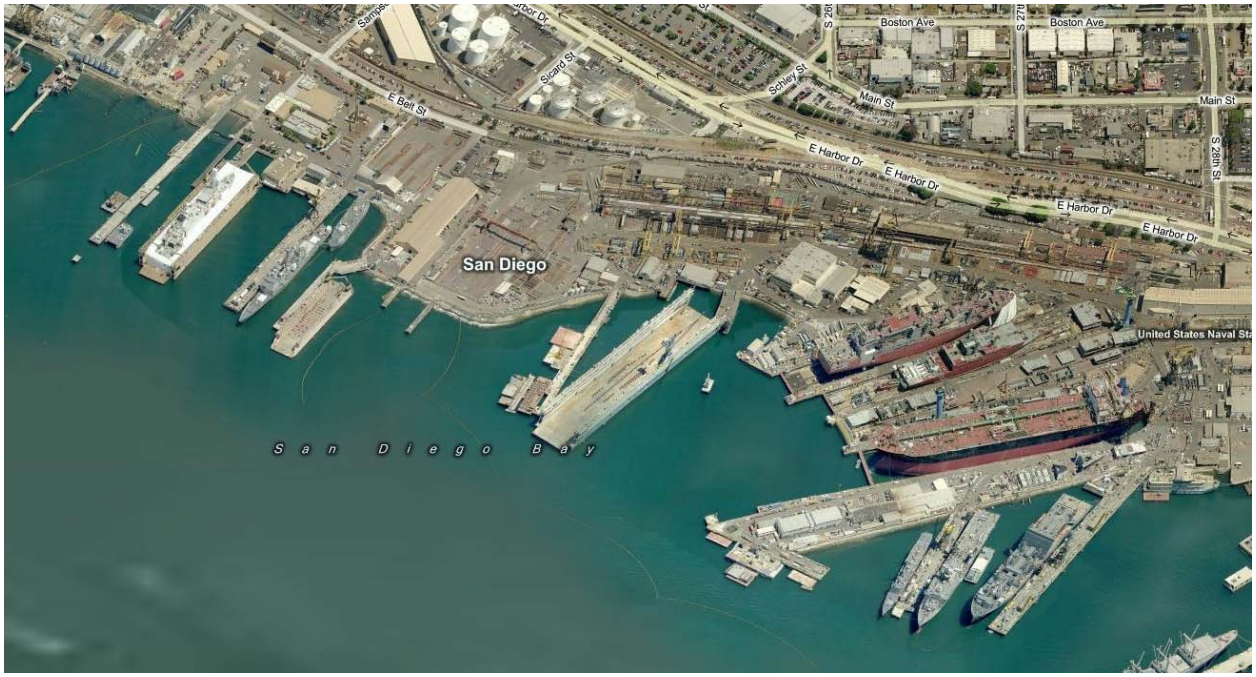

Figure A
General Site Location Overview

Emergency Contact Information

Table A
Site Emergency Form and Emergency Phone Numbers*

Category	Information	
Possible Chemicals of Concern	Copper, mercury, high-molecular-weight polycyclic aromatic hydrocarbons (HPAHs), polychlorinated biphenyls (PCBs), and tributyltin	
Minimum Level of Protection	D	
Site(s) Location Address	Shoreline from Sampson Street Extension to Chollas Creek and out to main shipping channel	
Emergency Phone Numbers		
Ambulance	911	
Fire	911	
Police	911	
Poison Control	1-800-222-1212	
Client Contact	Name (To Be Determined)	Office: Cell:
Project Manager (PM)	Name (To Be Determined)	Office: Cell:
Field Lead (FL)	Name (To Be Determined)	Office: Cell:
Corporate Health and Safety Manager (CHSM)	David Templeton	Office: (206) 287-9130 Cell: (206) 910-4279
National Response Center	1-800-424-8802	
Emergency Response System (San Diego County Office of Emergency Services)	1-858-565-3490	
EPA Environmental Response Team	1-201-321-6600	

* In the event of any emergency contact the PM and FL.

Table B
Hospital Information

Category	Information
Hospital Name	Sharp Coronado Hospital
Address	250 Prospect Place
City, State	Coronado, CA 92118-1943
Phone	619-522-3600
Emergency Phone	911

Hospital Route Map and Driving Directions

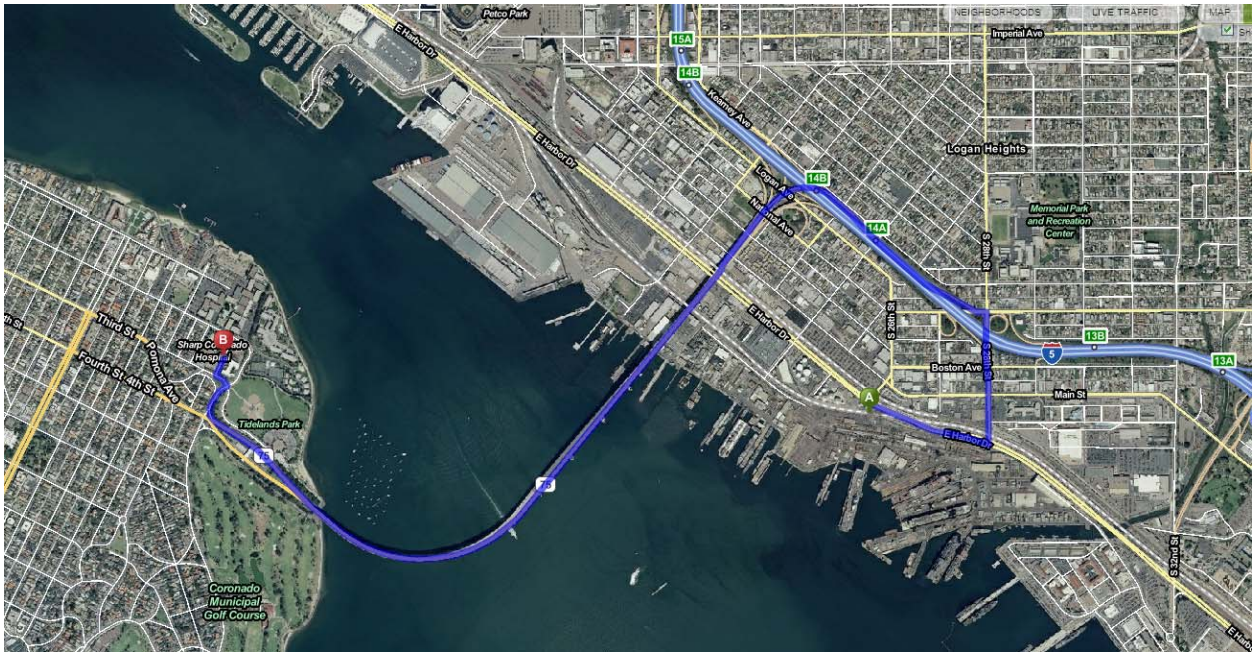

Figure B
Hospital Route Map

1. Start out at Point A, going east on E Harbor Drive toward S 28th Street (0.3 miles).
2. Take the first left onto S 28th Street (0.7 miles).
3. Turn left onto National Avenue (0.7 miles).
4. Merge onto I-5 N (1.0 miles).
5. Merge onto CA-75 S via EXIT 14A toward Coronado (3.3 miles).
6. Turn slight right onto Glorietta Boulevard (3.5 miles).
7. Turn left onto 3rd Street / Third Street (3.5 miles).
8. Take the first right onto Prospect Place (3.6 miles).
9. Arrive at Point B, 250 Prospect Place, on the left.

Key Safety Personnel

The following people share responsibility for health and safety at the site. See Section 4 of this HASP for a description of the role and responsibility of each.

Client Contact: Name (To Be Determined)	Office: (xxx) xxx-xxxx Cell: (xxx) xxx-xxxx
Project Manager (PM): Name (To Be Determined)	Office: (xxx) xxx-xxxx Cell: (xxx) xxx-xxxx
Field Lead (FL): Name (To Be Determined)	Office: (xxx) xxx-xxxx Cell: (xxx) xxx-xxxx
Corporate Health and Safety Manager (CHSM): David Templeton	Office: (206) 287-9130 Cell: (206) 910-4279

Emergency Response Procedures

In the event of an emergency, immediate action must be taken by the first person to recognize the event. Use the following steps as a guideline:

- Survey the situation to ensure that it is safe for you and the victim. Do not endanger your own life. Do not enter an area to rescue someone who has been overcome unless properly equipped and trained. Ensure that all protocols are followed. If applicable, review Material Safety Data Sheets (MSDS) to evaluate response actions for chemical exposures.
- Call the appropriate emergency number (911) or direct someone else to do this immediately (see Table A). Explain the physical injury, chemical exposure, fire, or release and location of the incident.
- Have someone retrieve the nearest first aid kit and Automatic External Defibrillator (AED), if available. Note: Only use an AED if you have been properly trained and are currently certified to do so.
- Decontaminate the victim without delaying life-saving procedures (see Section 8).
- Administer first aid and cardiopulmonary resuscitation (CPR), if properly trained, until emergency responders arrive.
- Notify the Project Manager (PM), Field Lead (FL), and owner.
- Complete the appropriate incident investigation reports.

First Aid and CPR Guidelines

Personnel qualified and current in basic first aid and/or CPR procedures may perform those procedures as necessary. Personnel qualified and current in basic first aid and/or CPR are protected under Good Samaritan policies as long as they only perform the basic tasks that they were taught. Do not perform first aid and/or CPR tasks if you have not been trained in first aid and/or CPR.

Injury Management/Incident Notification

Observe the following injury management/incident notification procedures and practices:

Injury Management

- Once a personal injury incident is discovered, the first action will be to ensure that the injured party receives appropriate medical attention.
- If it is safe to do so, the nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident.
- Render first aid and call 911 or the appropriate emergency number as soon as possible.
- Escort the injured person to the occupational clinic or hospital or arrange for an ambulance.
- Proceed immediately to Notification Requirements, below.

Notification Requirements

- Directly after caring for an injured person, the FL will be summoned. The FL will immediately make contact with the PM or other designated individual to alert them of the medical emergency. The FL will advise them of the following:
  - Location of the victim at the work site
  - Nature of the emergency
  - Whether the victim is conscious
  - Specific conditions contributing to the injury, if known
- Contact the PM (if not contacted previously) immediately.

- The PM will contact upper line management, and client representative(s) including the Corporate Health and Safety Manager (CHSM).
- The CHSM will facilitate the incident investigation.

All client requirements will also be adhered to pertinent to personal injury incident reporting.

Incident Other Than Personal Injury

All incidents including, but not limited to, fire, explosion, property damage, or environmental release will be responded to in accordance with the site-specific Health and Safety Plan. In general, this includes securing the site appropriate to the incident, turning control over to the emergency responders, or securing the site and summoning appropriate remedial personnel or equipment. Anchor QEA will immediately notify the client of any major incident, fire, equipment or property damage, or environmental incident with a preliminary report. A full report will be provided within 72 hours.

Near-Miss Reporting

All near-miss incidents (those that could have reasonably lead to an injury, environmental release, or other incident) must also be reported to the FL and/or PM immediately so they can take action to ensure that such conditions that lead to the near-miss incident can be readily corrected in order to prevent future occurrences.

Spills and Releases of Hazardous Materials

When required, notify the National Response Center and local state agencies. The following information should be provided to the National Response Center:

- Name and telephone number
- Name and address of facility
- Time and type of incident
- Name and quantity of materials involved, if known
- Extent of injuries
- Possible hazards to human health or the environment outside of the facility

The emergency telephone number for the National Response Center is 1-800-424-8802. If hazardous waste has been released or produced through control of the incident, ensure that:

- Waste is collected and contained
- Containers of waste are removed or isolated from the immediate site of the emergency
- Treatment or storage of the recovered waste, contaminated soil or surface water, or any other material that results from the incident or its control is provided
- No waste that is incompatible with released material is treated or stored in the facility until cleanup procedures are completed

Ensure that all emergency equipment used is decontaminated, recharged, and fit for its intended use before operations are resumed.

TABLE OF CONTENTS

CERTIFICATION PAGE I

HEALTH AND SAFETY PLAN ACKNOWLEDGEMENT FORM II

SITE EMERGENCY PROCEDURES IV

1 INTRODUCTION 1
1.1 Health and Safety Plan Modifications 2

2 SITE DESCRIPTION 3
2.1 Site Description 3

3 SCOPE OF WORK 4
3.1 Project Scope of Work 4

4 AUTHORITY AND RESPONSIBILITIES OF KEY PERSONNEL 5
4.1 Project Manager 5
4.2 Field Lead 5
4.3 Corporate Health and Safety Manager 7
4.4 Project Field Team 8

5 PROJECT-SPECIFIC REQUIREMENTS 10
5.1 Activity-Specific Level of Protection Requirements 10
5.2 Project Air Monitoring Requirements 10

6 RISK ANALYSIS AND CONTROL 14
6.1 Job Safety Analysis 14
6.1.1 Augmented JSA Process 14
6.2 Exposure Routes 15
6.2.1 Inhalation 15
6.2.2 Dermal Contact 15
6.2.3 Ingestion 15
6.3 Chemicals of Concern Profile 16

7 SITE CONTROL AND COMMUNICATIONS 18
7.1 General Site Control Safety Procedures 18
7.2 Work Area Access Control 19
7.3 Hazardous Waste Site Work Control Procedures 19

7.4 Site-Specific Work Zone Requirements 20
7.4.1 Sediment Sampling Work Zones 20
7.4.2 Working in a Roadway 21
7.5 Field Communications 22

8 DECONTAMINATION PROCEDURES AND PRACTICES 24
8.1 Minimization of Contamination 24
8.2 Decontamination Equipment 24
8.3 Personnel Decontamination 25
8.4 Sampling and Processing Equipment Decontamination 25
8.5 Handling of Investigation-Derived Waste 26
8.5.1 Disposable PPE 26
8.5.2 Non-disposable PPE 26
8.6 Sanitizing of Personal Protective Equipment 27
8.7 Emergency Personnel Decontamination 27
8.8 Containment of Decontamination Fluids 27
8.9 Pressure Washing 27

9 HEALTH AND SAFETY TRAINING AND INFORMATIONAL PROGRAMS 29
9.1 Initial Project Site Orientation 29
9.2 Daily Safety Meetings 29
9.3 Hazardous Waste Operations Training 30
9.4 Transportation Worker Identification Credentials (TWIC) 30
9.5 Hazard Communication Program 30

10 GENERAL PPE REQUIREMENTS 32
10.1 Minimum Requirements – Level D Protection 32
10.1.1 Modified Level D Protection Requirements 32
10.2 Respiratory Protection Requirements 33
10.2.1 Level B and A Protection Requirements 33

11 GENERAL AIR MONITORING REQUIREMENTS 34
11.1 General Requirements 34

12 HEALTH AND SAFETY PROCEDURES AND PRACTICES 35
12.1 Physical Hazards and Controls 35
12.1.1 General Site Activities 35

12.1.2 Slip/Trip/Fall 36
12.1.3 Sediment Core Sampling 36
12.1.4 Underground/Overhead Utility Line Contact Prevention 37
12.1.5 Electric Safety 38
12.1.6 General Falls/Ladders 39
12.1.7 Heavy Equipment Operations 40
12.1.8 Hand and Power Tools 40
12.1.9 Motor Vehicle Operation 41
12.1.10 Vehicular Traffic 42
12.1.11 Boating Operations 43
12.1.12 Working Over or Near Water 45
12.1.13 Noise 47
12.1.14 Lifting and Material Handling 48
12.1.15 Fire Control 49
12.1.16 Static Electricity and Transfer of Flammable Liquids 49
12.1.17 Cleaning Equipment 50
12.2 Environmental Hazards and Controls 50
12.2.1 Heat Stress 50

13 MEDICAL SURVEILLANCE PROGRAM 55
13.1 General Requirements 55
13.2 Crew Self Monitoring 57

List of Tables

Table A Site Emergency Form and Emergency Phone Numbers* v
Table B Hospital Information vi
Table 1 Project Job Tasks and Required PPE 11
Table 2 Chemicals of Concern Profile 16
Table 3 Field Communication Methods 23
Table 4 Overhead Utility Clearance Requirements 38
Table 5 Safety Equipment Specific to In-water Work 45
Table 6 Noise Exposure Action Levels 48
Table 7 Permissible Heat Exposure Threshold Limit Values 53
Table 8 WBGT Correction Factors 54

List of Figures

Figure A General Site Location Overview iv
Figure B Hospital Route Map vi

List of Attachments

Attachment 1 Health and Safety Logs and Forms
Attachment 2 Job Safety Analysis (JSA) Documents
Attachment 3 Material Safety Data Sheets (MSDS)

LIST OF ACRONYMS AND ABBREVIATIONS

° C	degrees Celsius
° F	degrees Fahrenheit
ACGIH	American Conference of Governmental Industrial Hygienists
AED	Automated External Defibrillator
Anchor QEA	Anchor QEA, L.P.
ANSI	American National Standards Institute
APR	Air-Purifying Respirator
ASTM	American Society for Testing and Materials
CAO	Cleanup and Abatement Order
CFR	Code of Federal Regulations
CHSM	Corporate Health and Safety Manager
COC	chemical of concern
CPR	Cardiopulmonary resuscitation
CRZ	Contamination Reduction Zone
dbA	A-weighted decibel
dB	decibel
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
eV	electron volts
EZ	Exclusion Zone/Hot Zone
FL	Field Lead
GFCI	Ground Fault Circuit Interrupter
H:V	horizontal to vertical
HASP	Health and Safety Plan
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High Efficiency Particulate Air
HMIS	Hazardous Material Information System
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
IP	Ionization Potential
JSA	Job Safety Analysis

kV	kilovolts
LEL	Lower Explosive Limit
LO/TO	Lockout/Tagout
mg/m^3	milligrams per cubic meter
MHR	Maximum Heart Rate
MLLW	mean lower low water
MSDS	Material Safety Data Sheets
MUTCD	Manual of Uniform Traffic Control Devices
NEC	National Electrical Code
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NPL	National Priority List
NRR	Noise Reduction Rating
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Act or Administration
OV	Organic Vapor
OVM	Organic Vapor Monitor
PAHs	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PEL	Permissible Exposure Limit
PFD	personal flotation device
PM	Project Manager
PPE	Personal Protective Equipment
Project Team	San Diego Shipyard Project Team
PVC	Polyvinyl Chloride
QLFT	Qualitative Fit Test
RAP	Remedial Action Plan
REL	Recommended Exposure Limits
RCRA	Resource Conservation and Recovery Act
STEL	Short Term Exposure Limit
SZ	Support Zone/Clean Zone
TLV	Threshold Limit Values
TSD	Treatment, Storage, and Disposal Facility
TWA	Time Weighted Average

TWIC	Transportation Worker Identification Credentials
UL	Underwriters Laboratories Inc.
USCG	U.S. Coast Guard
VOC	Volatile Organic Compound
WBGT	Wet Bulb Globe Temperature

1 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared on behalf of the San Diego Shipyard Project Team (Project Team) and presents health and safety requirements and procedures that will be followed by Project Team personnel and at a minimum by its subcontractors during work activities at the San Diego Shipyard Sediment Site (the site). This HASP has been developed in accordance with Title 29 of the Code of Federal Regulations (CFR), Part 1910.120 (b), and will be used in conjunction with Anchor QEA's Corporate Health and Safety Program. See Section 1.1 for HASP modification procedures.

The provisions of this HASP are mandatory for all Project Team personnel assigned to the project. Subcontractors are also expected to follow the provisions of this HASP unless they have their own HASP that covers their specific activities related to this project. Any subcontractor HASPs must include the requirements set forth in this HASP, at a minimum. All visitors to the work site must also abide by the requirements of this HASP and will attend a pre-work briefing where the contents of this HASP will be presented and discussed.

Personnel assigned to work at the project site will be required to read this plan and must sign the Health and Safety Plan Acknowledgement Form to confirm that they understand and agree to abide by the provisions of the HASP.

Subcontractors are ultimately responsible for the health and safety of their employees. Subcontractors may mandate health and safety protection measures for their employees beyond the minimum requirements specified in this HASP.

The objectives of this HASP are to identify potential physical, chemical, and biological hazards associated with field activities; establish safe working conditions and protective measures to control those hazards; define emergency procedures; and describe the responsibilities, training requirements, and medical monitoring requirements for site personnel.

This HASP prescribes the procedures that must be followed during specific site activities. Significant operational changes that could affect the health and safety of personnel, the

community, or the environment will not be made without the prior approval of the Project Manager (PM) and the Corporate Health and Safety Manager (CHSM).

Issuance of this approved plan documents that the workplace has been evaluated for hazards. A hazard assessment has been performed and the adequacy of the personal protective equipment (PPE) selected was evaluated as required by 29 CFR 1910.132(d) - Personal Protective Equipment, General Requirements (general industry), 1910.134 – Respiratory Protection, 1926.28 – Personal Protective Equipment (construction industry), and 1926.55 – Gases, vapors, fumes, dusts and mist, and is duly noted by the signature(s) and date appearing on the certification page of this document.

1.1 Health and Safety Plan Modifications

This HASP will be modified by amendment, if necessary, to address changing field conditions or additional work tasks not already described in this document. Modifications will be proposed by the Field Lead (FL) using the "Modification to Health and Safety Plan" form included in Attachment 1. Modifications will be reviewed by the CHSM or authorized representative and approved by the PM.

2 SITE DESCRIPTION

2.1 Site Description

The study area for the sediment removal project is located along the eastern shore of central San Diego Bay, extending approximately from the Sampson Street Extension on the northwest to Chollas Creek on the southeast, and from the shoreline out to the San Diego Bay main shipping channel to the west. The site comprises approximately 15.2 acres that are subject to dredging and 2.3 acres that are subject to clean sand cover, primarily under piers. The project consists of marine sediments in the bottom bay waters that contain elevated levels of pollutants above San Diego Bay background conditions. This area, combined with the potential upland staging areas are collectively referred to as the "project site."

The principal structural components within the site include the concrete bulkheads, piers, and dry dock facilities associated with the two shipyard facilities. Bathymetry at the site varies substantially due to the presence of shipways, dry docks, and berths, and ranges from -2 mean lower low water (MLLW) along the bulkheads to -70 feet MLLW at the BAE Systems dry dock sump area. The marine habitat within the sediment removal area contains both vegetated and un-vegetated subtidal soft-bottom habitats, pier pilings, and bulkhead walls. The vegetated habitat species include sparse beds of eelgrass (*Zostera marina*). The entire extent of the sediment removal area shoreline is artificially stabilized and generally consists of a vertical sheetpile bulkhead and seawall. The marine habitat types include vertical bulkhead walls and dock structures, vegetated and un-vegetated soft-bottom subtidal habitats, and open water. These habitats support marine plants, invertebrates, and fish.

Additional information regarding the site is presented in the Remedial Action Plan (RAP).

3 SCOPE OF WORK

3.1 Project Scope of Work

Currently, the site is subject to a Cleanup and Abatement Order (CAO) requiring the submittal of a RAP, to which this HASP is appended. As described in the RAP, the planned remedial action consists of mechanical dredging of impacted sediments. As part of the design and implementation of the RAP, the following potential field activities are addressed in concept by this HASP. Upon finalization of specific work tasks, task-specific Job Safety Analyses (JSAs) will be completed and added to the HASP (JSAs are discussed in more detail in Section 6.1).

- Pre-design field activities
- Sediment, surface water, or soil sampling activities
- Non-invasive assessments (bathymetric surveys, habitat inspections)
- Construction observation
- Water quality monitoring activities
- Sediment confirmatory sampling

As stated above, the HASP addresses these potential work tasks in concept and provides information and procedures that assume a general approach to these tasks, based on Anchor QEA experience conducting similar tasks at multiple sediment cleanup sites. Specific data, where available (such as chemicals of concern [COCs]), are included in the HASP.

4 AUTHORITY AND RESPONSIBILITIES OF KEY PERSONNEL

This section describes the authority and responsibilities of key Anchor QEA project personnel. The names and contact information for the following key safety personnel are listed in the Emergency Site Procedures section at the beginning of this HASP. Should key site personnel change during the course of the project, a new list will be established and posted immediately at the site. The emergency phone number for the site is **911**, and should be used for all medical, fire, and police emergencies.

4.1 Project Manager

The PM provides overall direction for the project. The PM is responsible for ensuring that the project meets the client's objectives in a safe and timely manner. The PM is responsible for providing qualified staff for the project and adequate resources and budget for the health and safety staff to carry out their responsibilities during the field work. The PM will be in regular contact with the FL and CHSM to ensure that appropriate health and safety procedures are implemented into each project task.

The PM has authority to direct response operations; the PM assumes total control over project activities but may assign responsibility for aspects of the project to others. In addition, the PM:

- Oversees the preparation and organization of background review of the project, the work plan, and the field team.
- Ensures that the team obtains permission for site access and coordinates activities with appropriate officials.
- Briefs the FL and field personnel on specific assignments.
- Together with the FL, sees that health and safety requirements are met.
- Consults with the CHSM regarding unsafe conditions, incidents, or changes in site conditions or the scope of work.

4.2 Field Lead

The FL reports to the PM, has authority to direct response operations, and assumes control over on-site activities. The FL will direct field activities, coordinate the technical and health and safety components of the field program, and is responsible in general for enforcing this

site-specific HASP and Corporate Health and Safety Program requirements. The FL will be the primary point of contact for all field personnel and visitors and has direct responsibility for implementation and administration of this HASP. The FL and any other member of the field crew have **STOP WORK AUTHORITY**—the authority to stop or suspend work in the event of an emergency, if conditions arise that pose an unacceptable health and safety risk to the field crew or environment, or if conditions arise that warrant revision or amendment of this HASP. The following include, but are not necessarily limited to, the functions of the FL related to this HASP:

- Conduct and document daily safety meetings, or designate an alternate FL in his or her absence.
- Execute the work plan and schedule.
- Conduct periodic field health and safety inspections to ensure compliance with this HASP.
- Oversee implementation of safety procedures.
- Implement worker protection levels.
- Enforce site control measures to ensure that only authorized personnel are allowed on site.
- Notify, when necessary, local public emergency officials (all personnel on site may conduct this task as needed).
- Follow-up on incident reports to the PM.
- Periodically inspect protective clothing and equipment for adequacy and safety compliance.
- Ensure that protective clothing and equipment are properly stored and maintained.
- Perform or oversee air monitoring in accordance with this HASP.
- Maintain and oversee operation of monitoring equipment and interpretation of data from the monitoring equipment.
- Monitor workers for signs of stress, including heat stress, cold exposure, and fatigue.
- Require participants to use the "buddy" system.
- Provide (via implementation of this HASP) emergency procedures, evacuation routes, and telephone numbers of the local hospital, poison control center, fire department, and police department.
- Communicate incidents promptly to the PM.
- Maintain communication with the CHSM on site activities.
- If applicable, ensure that decontamination and disposal procedures are followed.

- Maintain the availability of required safety equipment.
- Advise appropriate health services and medical personnel of potential exposures.
- Notify emergency response personnel in the event of an emergency and coordinate emergency medical care.

The FL will record health-and-safety-related details of the project in the field logbook. At a minimum, each day's entries must include the following information:

- Project name or location
- Names of all on-site personnel
- Level of PPE worn and any other specifics regarding PPE
- Weather conditions
- Type of field work being performed

The FL will have completed the required Occupational Safety and Health Administration (OSHA) 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training and annual updates, the 8-hour Supervisor training, medical monitoring clearance, and current first aid and cardiopulmonary resuscitation (CPR) training. Other certifications or training may be stipulated based on client or site requirements.

4.3 Corporate Health and Safety Manager

The CHSM (or his/her designee) will be responsible for managing on-site health and safety activities and will provide support to the PM and FL on health and safety issues. The specific duties of the CHSM are to:

- Provide technical input into the design and implementation of this HASP.
- Advise on the potential for occupational exposure to project hazards, along with appropriate methods and/or controls to eliminate site hazards.
- Ensure that a hazard assessment has been performed and that the adequacy of the PPE selected was evaluated as required by 29 CFR 1910.132(d), 1910.134, 1926.25, and 1926.55, and is duly noted by the signatures and date appearing on the Certification Page of this document.
- Consult with the FL on matters relating to suspending site activities in the event of an emergency.

- Verify that all on-site Anchor QEA personnel and subcontractors have read and signed the HASP Acknowledgement Form.
- Verify that corrective actions resulting from deficiencies identified by audit and observations are implemented and effective.

The CHSM or his/her designee will have completed the required OSHA 40-hour HAZWOPER training and annual updates, the 8-hour Supervisor training, and have medical monitoring clearance. In addition, the CHSM or his/her designee will have current training in first aid and CPR.

4.4 Project Field Team

All project field team members will attend a project-specific meeting conducted by the FL concerning safety issues and project work task review before beginning work. All field crew, including subcontractors, must be familiar with and comply with this HASP. The field crew has the responsibility to immediately report any potentially unsafe or hazardous conditions to the FL, and all members of the field crew have **STOP WORK AUTHORITY**—the authority to stop or suspend work if conditions arise that pose an unacceptable health and safety risk to the field crew or environment, or if conditions arise that warrant revision or amendment of this HASP. The field team reports to the FL for on-site activities and is responsible for:

- Reviewing and maintaining a working knowledge of this HASP
- Safe completion of on-site tasks required to fulfill the work plan
- Compliance with the HASP
- Attendance and participation in daily safety meetings
- Notification to the FL of existing or potential safety conditions at the site
- Reporting all incidents to the FL
- Demonstrating safety and health conscious conduct

Per OSHA 1910.120(e)(3)(i)[1], newly assigned HAZWOPER 40-hour trained field team members must have at least 3 days of field work supervised by an experienced FL (preferably

1 "General site workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous

an individual with HAZWOPER Supervisor training). It is the responsibility of the PM to identify such "short service" personnel and ensure that their supervised field experience occurs (or has occurred) and is documented in the project field notes and on the Daily Safety Briefing form (Attachment 1).

---

substances and health hazards shall receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained experienced supervisor."

5 PROJECT-SPECIFIC REQUIREMENTS

This section provides activity-specific levels of protection and air monitoring requirements to be used on this site based on the scope of work and the COCs.

5.1 Activity-Specific Level of Protection Requirements

Refer to Section 10 of this plan for general requirements for PPE. Level D is the minimum acceptable level for most sites. An upgrade to Modified Level D occurs when there is a possibility that contaminated media can come in contact with the skin or work uniform. An upgrade to Level C occurs when there is a potential for exposure to airborne COCs; i.e., if the results of air monitoring reveal that action levels have been exceeded. Hearing protection must be worn when there are high noise levels. Workers must maintain proficiency in the use and care of PPE that is to be worn.

It is assumed at this time that only Level D and Modified Level D will be required for on-site work. If conditions or requirements dictate the need for Level C or higher, this HASP will be amended accordingly.

Table 1, Project Job Tasks and Required PPE, describes the specific means of protection needed for the conceptual work activities.

5.2 Project Air Monitoring Requirements

It is assumed at this time that only Level D and Modified Level D will be required for on-site work and, accordingly, air monitoring is not required. As such, if conditions or requirements dictate the need for air monitoring, this HASP will be amended accordingly.

Table 1

Project Job Tasks and Required PPE

Job Tasks		PPE Requirements
• Construction observation, site visits, activities where proximity to chemicals of concern is unlikely	☐	Standard work uniform/coveralls
	☒	Work boots with safety toe conforming to American Society for Testing and Materials (ASTM) F2412-05/ASTM F2413-05
	☒	Traffic Safety Vest
	☐	Chemical-resistant clothing check appropriate garments: ☐ One-piece coverall ☐ Hooded one- or two-piece chemical splash suit ☐ Disposable chemical coveralls ☐ Chemical-resistant hood and apron ☐ Bib-style overalls and jacket with hood **Fabric Type:**
	☐	Disposable inner gloves (surgical)
	☐	Disposable chemical-resistant outer gloves **Material Type:** Nitrile
	☐	Chemical-resistant boots with safety toe and steel shank conforming to ASTM F2412-05/ASTM F2413-05 or disposable boot covers for safety toe/work boots **Material Type:** Rubber or leather
	☐	Sleeves to be duct-taped over gloves and pants to be duct-taped over boots
	☐	Splash-proof safety goggles
	☒	Safety glasses
	☒	Hard hat
	☐	Hard hat with face shield
	☐	Hearing protectors (**REQUIRED** if site noise levels are greater than 85 decibels [dB] based on an 8-hour time-weighted average [TWA]). **Type:** Fill in
	☐	Two-way radio communication (intrinsically safe, if explosive atmosphere is a potential)
	☐	Long cotton underwear
	☒	Orange, U.S. Coast Guard (USCG)-approved personal flotation device (PFD) (if working on any water vessel or without fall protection within 10 feet of water)
	☐	USCG-approved float coat and bib-overalls (e.g., full two-piece “Mustang” survival suit or similar) or one-piece survival suit if water temperatures are below 50° F
	☐	Half-face Air-Purifying Respirator (APR) (OSHA/NIOSH-approved)

Job Tasks		PPE Requirements
	☐	Full-face APR (OSHA/NIOSH-approved)
	☐	**Type of Cartridges to be Used:** ☐ **OV or** ☐ **OV/HEPA (if samples are dry)**
• Sampling or Survey Activities[2] – sediment coring, surface water sampling, habitat surveys, water quality monitoring, etc.	☐	Standard work uniform/coveralls
	☒	Work boots with safety toe conforming to ASTM F2412-05/ASTM F2413-05
	☒	Traffic Safety Vest
	☒	Chemical-resistant clothing check appropriate garments: ☒ One-piece coverall ☐ Hooded one- or two-piece chemical splash suit ☐ Disposable chemical coveralls ☐ Chemical-resistant hood and apron ☐ Bib-style overalls and jacket with hood **Fabric Type:** Impermeable
	☒	Disposable inner gloves (latex or equivalent "surgical")
	☒	Disposable chemical-resistant outer gloves **Material Type:** Nitrile
	☐	Chemical-resistant boots with safety toe and steel shank conforming to ASTM F2412-05/ASTM F2413-05 or disposable boot covers for safety toe/work boots **Material Type:** Rubber or leather
	☐	Sleeves to be duct-taped over gloves and pants to be duct-taped over boots
	☐	Splash-proof safety goggles
	☒	Safety glasses
	☒	Hard hat
	☐	Hard hat with face shield
	☒	Hearing protectors (**REQUIRED** if site noise levels are greater than 85 dB based on an 8-hour TWA). **Type:**
	☐	Two-way radio communication (intrinsically safe, if explosive atmosphere is a potential)
	☐	Long cotton underwear
	☒	Orange, USCG-approved PFD

[2] Please refer to JSAs for task-specific PPE requirements. The PPE requirements provided in this table are default for potential sampling or survey activities.

Job Tasks		PPE Requirements
	☒	USCG-approved float coat and bib-overalls (e.g., full two-piece "Mustang" survival suit or similar) or one-piece survival suit if water temperatures are below 50° F
	☐	Half-face APR (OSHA/NIOSH-approved)
	☐	Full-face APR (OSHA/NIOSH-approved)
	☐	**Type of Cartridges to be Used:** ☐ **OV or** ☐ **OV/HEPA (if samples are dry)**

6 RISK ANALYSIS AND CONTROL

The following sections discuss the potential worker health and safety hazards associated with potential field tasks for this project. These hazards are addressed through the mechanical and physical control measures, use of PPE, monitoring, training, decontamination, emergency response, and safety procedures.

Significant changes in the scope of work covered by this HASP must be communicated to the PM and CHSM, and an amendment to this HASP must be created as needed (see Section 1.1). Any task conducted beyond those identified in the scope of work and this HASP must be evaluated using the JSA process prior to conducting the work.

6.1 Job Safety Analysis

As specific work tasks are identified and designed, JSA documents will be developed that detail the chemical, physical, and biological hazards associated with these tasks, along with the specific control measures (e.g., engineering controls, administrative controls, and/or PPE) that will be used to ensure that these tasks are conducted in a safe manner.

The PM and FL are responsible for identifying work tasks and project site conditions that are beyond the previously developed JSA documents and for communicating such information to the CHSM. The CHSM will provide support, as needed, to the PM and/or the FL, who will have primary responsibility to develop project-specific JSAs.

The contents of the JSA documents shall be communicated to project personnel during the site orientation meeting and during daily safety meetings when conducting work where the specific JSAs are applicable.

A JSA template document is located in Attachment 2 of this HASP.

6.1.1 Augmented JSA Process

If significant work tasks are identified during the course of the project that were not previously addressed in the current JSA documentation at that time, then a task-specific JSA document must be developed at the project site prior to conducting the work. The PM

and/or FL shall develop this document(s) with input from the CHSM, as needed, and this HASP will be amended to include the document (see Section 1.1 for HASP modification procedures). Project personnel shall be trained on the contents of the developed task-specific JSA prior to its implementation. A copy of the task-specific JSA form used in this process is supplied in Attachment 2 of this HASP.

6.2 Exposure Routes

Possible routes of exposure to the chemicals potentially encountered on this project include inhalation, dermal contact, and ingestion of dust, mist, gas, vapor, or liquid. Exposure will be minimized by using safe work practices and by wearing the appropriate PPE. A further discussion of PPE requirements is presented in Section 10.

6.2.1 Inhalation

Inhalation of particulates, dust, mist, gas, or vapor during field activities is possible. Whenever possible, work activities will be oriented so that personnel are upwind of the sampling location. An organic vapor monitor (OVM) may be used to monitor ambient air and the breathing zone within the work area for organic compounds. The need for and details of task-specific air monitoring will be evaluated during identification and design of specific tasks.

6.2.2 Dermal Contact

Dermal contact with potentially contaminated soil, sediment, or surface water during field activities is possible. Direct contact will be minimized through the use of appropriate PPE and decontamination procedures.

6.2.3 Ingestion

Direct ingestion of contaminants can occur by inhaling airborne dust, mist, or vapors, or by swallowing contaminants trapped in the upper respiratory tract. Indirect ingestion can occur by introducing the contaminants into the mouth by way of food, tobacco, fingers, or other carriers. Although ingestion of contaminants can occur, proper hygiene, decontamination, and contamination reduction procedures should reduce the probability of this route of exposure.

6.3 Chemicals of Concern Profile

Table 2 provides a summary profile for the COCs for this project. As available, this profile is based on recent site history and site characterization information. For more detailed and specific information, always refer to the Material Safety Data Sheet (MSDS) or equivalent information for the chemical (see Attachment 3).

Table 2
Chemicals of Concern Profile

Chemical	Exposure Routes, Symptoms, Target Organs[1]	TWA[1]	STEL[1]	Odor Threshold[1]	LEL (%)[1]	IP (eV)[1]
Copper (as Cu dust)	■ Inhalation, ingestion, contact ■ Irritant to eyes, upper respiratory tract, skin, metallic taste ■ Eyes, skin, respiratory system, liver, kidneys, risk of Wilson's Disease	1 mg/m^3	--	--	--	--
Mercury (inorganic)	■ Inhalation, absorption, ingestion, contact ■ Irritant to eyes and skin, cough, chest pain, difficulty breathing, bronchitis, pneumonia, tremors, insomnia, irritability, indecision, headache, lassitude, stomatitis, salivation, gastrointestinal disturbance, anorexia, weight loss, proteinuria ■ Eyes, skin, respiratory system, central nervous system, kidneys	0.025 mg/m^3	--	--	--	--
HPAHs (as benzo (a) pyrene)	■ Inhalation, contact ■ Dermatitis, bronchitis [potential occupational carcinogen] ■ Respiratory system, skin, bladder, kidneys [lung, kidney and skin cancer]	0.1 mg/m^3	--	-- (slightly aromatic)	--	> 10.6

Chemical	Exposure Routes, Symptoms, Target Organs[1]	TWA[1]	STEL[1]	Odor Threshold[1]	LEL (%)[1]	IP (eV)[1]
PCBs (chlorodiphenyl @ 54% chlorine)	■ Inhalation, absorption, ingestion, contact ■ Irritant to eyes, chloracne, liver damage, reproductive effects [potential occupational carcinogen] ■ Skin, eyes, liver, reproductive system	0.001 mg/m^3	--	-- (hydrocarbon odor)	--	Unknown
Tributyltin (as Sn, organic compounds)	■ Inhalation, absorption, ingestion, contact ■ Irritant to eyes, skin, respiratory system, headache, dizziness, psycho-neurological disorders, sore throat, cough, abdominal pain, vomiting, urine retention, paresis, focal anes, skin burns, pruritis ■ Eyes, skin, respiratory and central nervous systems, liver, kidneys, urinary tract, blood	0.1 mg/m^3	0.2 mg/m^3	-- (gasoline-like odor)	--	--

Notes:
1 – *NIOSH Pocket Guide to Chemical Hazards* (NIOSH, September 2007), cross referenced to *TLVs and BEIs* (ACGIH 2012)
eV – electron volts
HPAHs – high-molecular-weight polycyclic aromatic hydrocarbon
IP – Ionization Potential
LEL – Lower Explosive Limit
mg/m^3 – milligrams per cubic meter
OEL – Occupational Exposure Limit (identifies the most restrictive exposure limit, e.g., federal or state OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values (TLV), and/or National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL) for the chemicals of concern.
PCB – polychlorinated biphenyl
STEL – Short-term exposure limit
-- – no value or not applicable

7 SITE CONTROL AND COMMUNICATIONS

The primary purposes for site controls are to establish the hazardous area perimeter, to reduce migration of contaminants into clean areas, and to prevent unauthorized access or exposure to hazardous materials by site personnel and the public. Site control is especially important in emergency situations.

7.1 General Site Control Safety Procedures

The following are standard safe work practices that apply to all Anchor QEA site personnel and subcontractors and shall be discussed in the safety briefing prior to initiating work on the site:

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited on site except in designated areas.
- Hands and faces must be washed upon leaving the work area and before eating, drinking, chewing gum or tobacco, and smoking.
- A buddy system will be used. Radio or hand signals will be established to maintain communication.
- During site operations, each worker will consider him/herself as a safety backup to his/her partner.
- Visual contact will be maintained between buddies on-site when performing hazardous duties.
- No personnel will be admitted to the site without the proper safety equipment, training, and medical surveillance certification.
- All personnel must comply with established safety procedures. Any staff member who does not comply with safety policy, as established in this HASP, will be subject to corrective action, potentially including, but not limited to, reprimanded and immediate dismissal.
- Proper decontamination procedures must be followed before leaving a contaminated work area.

7.2 Work Area Access Control

If work is performed in public areas, the following precautions shall be taken to protect both the workers and the public. Access control to the work area will be accomplished by the use of a combination of the following devices and/or methods:

- Fences and/or barricades
- Traffic control devices and/or use of flaggers
- Caution tape
- Other methods to keep the site secure and provide a visual barrier to help keep unauthorized personnel from entering the site and active work areas

7.3 Hazardous Waste Site Work Control Procedures

To prevent contamination from migrating from personnel and equipment, work areas will be clearly specified as an Exclusion Zone/Hot Zone (EZ), Contaminant Reduction Zone (CRZ), or Support Zone/Clean Zone (SZ) prior to beginning operations. Each work area will be clearly identified using signs or physical barriers. At the end of each workday, the site should be secured and/or guarded to prevent unauthorized entry.

Site work zones will include:

- **Exclusion Zone/Hot Zone (EZ).** The EZ will be the "hot zone" or contaminated area inside the site perimeter (or sample collection area of boat). The EZ is the defined area where potential respiratory and/or health hazards exist. All personnel entering the EZ must use the required PPE, as set forth in this HASP, and meet the appropriate training and medical clearance. Entry to and exit from this zone will be made through a designated point. Appropriate warning signs to identify the EZ should be posted (e.g., DANGER, AUTHORIZED PERSONNEL ONLY, PROTECTIVE EQUIPMENT REQUIRED BEYOND THIS POINT). Personnel and equipment decontamination must be performed upon exiting the EZ.
- **Contaminant Reduction Zone (CRZ).** The CRZ, also known as the "warm zone," is a transitional zone between the EZ and the SZ (also known as the "cold zone" or "clean zone"). The CRZ provides a location for removal and decontamination of PPE and tools leaving the EZ. A separate decontamination area will be established for heavy equipment. All personnel and equipment must exit via the CRZ. If, at anytime, the CRZ is compromised, a new CRZ will be established.

- **Support Zone/Clean Zone (SZ).** This uncontaminated zone will be the area outside the EZ and CRZ and within the geographic perimeters of the site (including boat and processing areas). The SZ is used for support personnel; staging materials; parking vehicles; office, laboratory, and sanitation facilities; and receiving deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, and others who will not necessarily be permitted in the EZ or CRZ.

A log of all personnel visiting, entering, or working on the site shall be maintained by the FL. No visitor will be allowed in the EZ without showing proof of training and medical certification, per 29 CFR 1910.120(e), (f) (and 29 CFR 1926.1101(k)(9), (m) if appropriate). Visitors will attend a site orientation given by the FL and sign the HASP.

7.4 Site-Specific Work Zone Requirements

This section contains guidelines for maintaining safe conditions when working from a boat, in a roadway, or at an excavation site.

7.4.1 Sediment Sampling Work Zones

This subsection contains guidelines concerning health and safety aboard marine sampling vessels. The vessel captain, onshore coring operator, and the FL will delineate the boundaries of the work zones aboard the vessel and will inform the field crews of the arrangement. The purpose of the zones is to limit the migration of sample material out of the zones and to restrict access to active work areas.

Two work zones will be observed aboard the vessel. One will encompass the “moonhole” of the vessel where the samplers will be deployed and recovered. Only the coring crew may enter this zone unless assistance is required by other personnel. The second work zone will be a sample processing area on the vessel. The contractor crew will deliver sediment core tubes to this zone and open them. Anchor QEA personnel will log and process the sediment cores either on the boat or on shore.

Both the collection and processing areas on the vessel and onshore will have a SZ outside the CRZ to stage clean equipment, don PPE, take rest breaks, or perform any other site activities that do not involve potentially contaminated materials.

7.4.1.1 Vessel Decontamination Area

A station will be set up for decontaminating sample processing equipment and personnel gear such as boots or PPE. The station will have the buckets, brushes, soapy water, rinse water, or wipes necessary to perform decontamination operations. Plastic bags will be provided for expendable and disposable materials. The decontamination fluids will be stored in sealable containers and will be properly disposed of.

7.4.1.2 Access Control

Security and control of access to the sampling vessel and onshore area will be the responsibility of the captain and FL. Additional security measures may be placed into effect by the client, or as required by national security threat levels determined by the federal government. Access to the vessel and onshore areas will only be granted to necessary project personnel and authorized visitors. Any security or access control problems will be reported to the client or appropriate authorities.

7.4.1.3 Safety Equipment

In addition to PPE that will be worn by shipboard personnel, basic emergency and first aid equipment will also be provided. Equipment will include:

- U.S. Coast Guard (USCG)-approved personal flotation devices (PFDs)
- First aid kit adequate for the number of personnel
- Emergency eyewash

Anchor QEA and/or subconsultants will provide this equipment, which must be at the location(s) where field activities are being performed. Equipment will be checked daily to ensure its readiness for use.

7.4.2 Working in a Roadway

Work conducted in public streets may require coordination with local city and/or county governments and development and submittal of a traffic control plan in accordance with the U.S. Department of Transportation (DOT) Manual on Uniform Traffic Control Devices

(MUTCD). Use of personnel qualified as Flaggers may also be required to provide temporary traffic control.

Observe the following site control practices and procedures when working in roadways:

- Wear a traffic vest and hardhat when a vehicle hazard exists.
- Use cones, flag-mounted cones, caution tape, and/or barricades.
- Use a vehicle strobe light and block area with truck.
- Develop a traffic flow plan for high-traffic situations (as appropriate):
  - Use a flag person
  - Use a flashing arrow sign
  - Use "MEN WORKING" signs liberally
  - Obtain lane closing permits
  - Engage police details

See Sections 12.1.9 and 12.1.10 for additional information regarding motor vehicle operation and vehicular traffic.

7.5 Field Communications

Communications between all Project Team representatives and subcontractors at the work site can be verbal and/or non-verbal. Verbal communication can be affected by the on-site background noise and various PPE. See Table 3 for a list of the types of communication methods and equipment to use, depending on site conditions. Communication equipment must be checked daily to ensure proper operation. All project personnel must be initially briefed on the communication methods prior to starting work; communication methods should be reviewed in daily safety meetings.

Table 3
Field Communication Methods

Type of Communication	Communication Device	Signal
Emergency notification	On-site Telephone or Cellular Telephone	Initiate phone call using applicable emergency numbers
Emergency notification among site personnel	Two-way Radio	Initiate radio communication with Code Red message
Hailing site personnel for non-emergency	Compressed Air Horn	One long blast, one short blast
Hailing site personnel for emergency evacuation	Compressed Air Horn	Three long, continuous blasts
Hailing site personnel for distress, need help	Visual	Arms waved in circle overhead
Hailing site personnel for emergency evacuation	Visual	Arms waved in criss-cross over head
Contaminated air/strong odor	Visual	Hands clutching throat
Break, lunch, end of day	Visual	Two hands together, break apart

8 DECONTAMINATION PROCEDURES AND PRACTICES

8.1 Minimization of Contamination

The following measures will be observed to prevent or minimize exposure to potentially contaminated materials:

Personnel

- Do not walk through spilled materials
- Do not handle, touch, or smell sample media directly
- Make sure PPE has no cuts or tears prior to use
- Protect and cover any skin injuries
- Stay upwind of airborne dusts and vapors
- Do not eat, drink, chew tobacco, or smoke in the work zones

Sampling Equipment and Vehicles/Vessels

- Use care to avoid getting sampled media on the outside of sample containers
- If necessary, bag sample containers before filling with sampled media
- Place clean equipment on a plastic sheet to avoid direct contact with contaminated media
- Keep contaminated equipment and tools separate from clean equipment and tools
- Fill sample containers over a plastic tub to contain spillage
- Clean up spilled material immediately to avoid tracking around the vehicle/vessel

8.2 Decontamination Equipment

All vehicles, vessels, and equipment that have entered potentially contaminated areas will be visually inspected and, if necessary, decontaminated prior to leaving the area. If the level of vehicle contamination is low, decontamination may be limited to rinsing tires and wheel wells with an appropriate detergent and water. If the vehicle is significantly contaminated, steam cleaning or pressure washing may be required. Tools will be cleaned in the same manner. Rinsate from all decontamination activities will be collected for proper disposal. Decontamination of equipment and tools will take place within the CRZ.

The following supplies will be available to perform decontamination activities (additional or differing decontamination procedures may be identified for specific tasks):

- Wash and rinse buckets
- Tap water and phosphate-free detergent
- Scrub brushes
- Distilled/deionized water
- Deck pump with pressurized freshwater hose (aboard the vessel)
- Pressure washer/steam cleaner, if appropriate
- Paper towels and plastic garbage bags

8.3 Personnel Decontamination

The FL will ensure that all site personnel are familiar with personnel decontamination procedures as listed below. All personnel wearing PPE in a work area (EZ) must undergo decontamination prior to entering the SZ. Personnel will perform the following decontamination procedures:

- Wash and rinse outer gloves and boots in portable buckets to remove gross contamination.
- If suit is heavily soiled, rinse it off.
- Remove outer gloves; inspect and discard if damaged. Leave inner gloves on. Personnel will remove their outer garment and gloves, dispose of them, and properly label container or drum. Personnel will then decontaminate their hard hats and boots with an aqueous solution of detergent or other appropriate cleaning solution. These items then will be hand-carried to the next station. Remove inner gloves.
- Thoroughly wash hands and face before leaving CRZ.
- Sanitize respirators and place in a clean plastic bag.

8.4 Sampling and Processing Equipment Decontamination

To prevent sample cross-contamination, sampling and processing equipment in contact with soil, sediment, or water samples will undergo the following decontamination procedures when work is completed in the CRZ and prior to additional use:

1. Rinse with potable water and wash with scrub brush.
2. Wash with phosphate-free detergent (Alconox®).

3. Visually inspect the sampler and repeat the scrub and rinse step, if necessary. If scrubbing and rinsing with Alconox® is insufficient to remove visually observable tar-related contamination on equipment, the equipment will be scrubbed and rinsed using hexane (or similar type solution) until all visual signs of contamination are absent.
4. Rinse external sampling equipment with potable water three times prior to use. Rinse homogenizing equipment once with potable water and three times with distilled water prior to and between sample processing.

8.5 Handling of Investigation-Derived Waste

All remaining soil or sediment, fluids used for decontamination of sampling equipment, and sample collection disposable wastes (e.g., gloves, paper towels, foil, or others) will be placed into appropriate containers and staged on site for disposal.

8.5.1 Disposable PPE

Disposable PPE may include Tyvek suits, inner latex gloves, and respirator cartridges. Dispose of PPE according to the requirements of the client and state and federal agencies.

8.5.2 Non-disposable PPE

Non-disposable PPE may include respirators and boots and gloves. When decontaminating respirators, observe the following practices and procedures:

- Wipe out the respirator with a disinfecting pad prior to donning.
- Decontaminate the respirator on site at the close of each day with an approved sanitizing solution.

When decontaminating boots and gloves, observe the following practices and procedures:

- Decontaminate the boots or gloves outside with a solution of detergent and water; rinse with water prior to leaving the site.
- Protect the boots or gloves from exposure by covering with disposable covers such as plastic to minimize required decontamination activities.

8.6 Sanitizing of Personal Protective Equipment

Respirators, reusable protective clothing, and other personal articles must not only be decontaminated before being reused, but also sanitized. The insides of masks and clothing become soiled due to exhalation, body oils, and perspiration. Manufacturer's instructions should be used to sanitize respirator masks. If practical, reusable protective clothing should be machine-washed after a thorough decontamination; otherwise, it must be cleaned by hand.

8.7 Emergency Personnel Decontamination

Personnel with medical problems or injuries may also require decontamination. There is the possibility that the decontamination may aggravate or cause more serious health effects. If prompt lifesaving, first aid, and medical treatment are required, decontamination procedures will be omitted. In either case, a member of the site management team will accompany contaminated personnel to the medical facility to advise on matters involving decontamination.

8.8 Containment of Decontamination Fluids

As necessary, spill control measures will be used to contain contaminated runoff that may enter into clean areas. Use plastic sheeting, hay bales, or install a spill control system to prevent spills and contain contaminated water.

8.9 Pressure Washing

The following procedure is required when using high-pressure washing equipment for decontamination purposes:

- Wear modified Level D protection, including a face shield and safety goggles.
- Ensure that other personnel are out of the area prior to decontamination.
- Secure the area around the decontamination pad with cones, caution tape, or barricades.
- Ensure that safe work practices and precautions are taken to minimize the potential for physical injury from high-pressure water spray. Follow the manufacturer's operating instructions.
- The pressure washer wand must be equipped with a safety release handle.

- Ensure that the area is clean after equipment is decontaminated. Barricades, cones, or caution tape must be left in place and secured at all times.

9 HEALTH AND SAFETY TRAINING AND INFORMATIONAL PROGRAMS

This section describes the health and safety training and informational programs that Anchor QEA project site personnel must comply with.

9.1 Initial Project Site Orientation

Work on the project site will require participation in an initial health and safety orientation presented by the PM or FL that will consist of, at a minimum, the following topics:

- A review of the contents of this HASP, including the scope of work and associated site hazards and control methods and procedures.
- Provisions of this plan are mandatory for all personnel assigned to the project.
- Subcontractors are also expected to follow the provisions of this plan unless they have their own HASP that covers their specific activities related to this project and includes the minimum requirements of this HASP.
- Visitors to the work site may be required to abide by the requirements of this plan.
- Personnel assigned to perform work at the project site, working under the provisions of this HASP, will be required to read the plan and must sign the Health and Safety Plan Acknowledgement Form to confirm that they understand and agree to abide by the provisions of this plan. Personnel not directly affiliated with the project (i.e., visitors) may also be required to sign an indemnity form.

9.2 Daily Safety Meetings

Daily safety meetings ("tailgate meetings") make accident prevention a top priority for everyone and reinforce awareness of important accident-prevention techniques. The following daily safety meeting procedures and practices are required:

- Daily safety meetings will be held each morning prior to conducting site activities.
- The Daily Safety Briefing form in Attachment 1 will be used to document each meeting.
- Copies of the completed Daily Safety Briefing forms will be maintained on-site during the course of the project.

9.3 Hazardous Waste Operations Training

Personnel working on project sites that present a potential exposure to hazardous wastes or other hazardous substances shall be trained in accordance with the requirements of the 29 CFR 1910.120 (HAZWOPER) regulation. Training requirements will consist of the following:

- Field personnel must complete a minimum of 40 hours of hazardous waste activity instruction.
- Field personnel must complete a minimum of 3 days of supervised field instruction.
- Field personnel assigned to the site will also have received 8 hours of refresher training if the time lapse since their previous training has exceeded 1 year.
- On-site managers and supervisors directly responsible for employees engaged in hazardous waste operations will receive an additional 8 hours of supervisory training.
- Field personnel shall be current in first aid/CPR training.
- Other training may be required depending on the task to be performed (e.g., confined space, excavation/trenching, underground storage tank removal, fall protection, respiratory protection, and hazard communication).

9.4 Transportation Worker Identification Credentials (TWIC)

All Anchor QEA field personnel will maintain current TWIC status, pursuant to the Maritime Transportation Security Act of 2002, unless this requirement is waived specifically in writing by relevant property owners.

9.5 Hazard Communication Program

The purpose of hazard communication (Employee Right-to-Know) is to ensure that the hazards of all chemicals located at the field project site are communicated to all Anchor QEA personnel and subcontractors according to 29 CFR 1926.59.

Every container of hazardous materials must be labeled by the manufacturer, who must also provide a MSDS upon initial order of the product and upon request thereafter. The actual format may differ from company to company (e.g., National Fire Protection Association [NFPA], Hazardous Material Information System [HMIS], or other), but the labels must

contain similar types of information. Maintain manufacturer labels if at all possible. The label may use words or symbols to communicate the following:

- The name of the chemical
- The name, address, and emergency telephone number of the company that made or imported the chemical
- The physical hazards (Will it explode or catch fire? Is it reactive? Is it radioactive?)
- Any important storage or handling instruction
- The health hazards (Is it toxic? Could it cause cancer? Is it an irritant? What is the target organ?)
- The basic protective clothing, equipment, and procedures that are recommended when working with the chemical

Upon identification and design of specific work tasks, MSDS for all chemicals brought onto the site or anticipated to be encountered on site shall be appended in Attachment 3 of this HASP. These MSDS shall be readily available for reference by site personnel and emergency response personnel.

Hazardous materials received without proper labels shall be set aside and not distributed for use until properly labeled.

If a hazardous chemical is transferred into a portable container (approved safety can), even if it is for immediate use only, the contents of the portable container (for example, acetone, gasoline, etc.) must be identified.

10 GENERAL PPE REQUIREMENTS

The minimum level of PPE should be selected according to the hazards that may be encountered during site activities in accordance with established U.S. Environmental Protection Agency (EPA) levels of protection (D and C). Only PPE that meets American National Standards Institute (ANSI) standards shall be worn. Workers must maintain proficiency in the use and care of PPE.

Refer to Section 5 of this plan for site-specific job task and level-of-protection requirements.

10.1 Minimum Requirements – Level D Protection

The minimum level of protection on project sites will be Level D protection, which consists of the following equipment:

- Standard work uniform/coveralls
- Work boots with safety toe conforming to American Society for Testing and Materials (ASTM) F2412-05/ASTM F2413-05
- Approved safety glasses or goggles (meets ANSI Z87.1 – 1989 requirements for eye protection)
- Hard hat (meets ANSI Z89.1 – 1986 requirements for head protection)
- Traffic safety vest
- Hearing protection when there are high noise levels

Level D protection will be used only when:

- The atmosphere contains no known hazards
- Work functions preclude splashes, immersions, or the potential for unexpected inhalation of, or contact with, hazardous concentrations of chemicals
- Atmospheric concentrations of contaminants are less than the Permissible Exposure Limit (PEL) and/or Threshold Limit Value (TLV)

10.1.1 Modified Level D Protection Requirements

Depending on the future field tasks and the potential hazards to be encountered, Level D protection shall be modified to include additional protective equipment such as USCG-approved PFDs, face shields/goggles, chemical-resistant clothing, and disposable gloves of

varying materials depending on the chemical substances involved. An upgrade to Modified Level D occurs when there is a possibility that contaminated media can contact the skin or work uniform.

10.2 Respiratory Protection Requirements

Respiratory protection is not anticipated at this time for field tasks on this project.

10.2.1 Level B and A Protection Requirements

An upgrade to Level B protection occurs when the results of air monitoring reveal that action levels have been exceeded (site personnel must meet training requirements). Prior to upgrading to Level B, stop work and contact the PM and/or FL and CHSM if air monitoring results exceed the Level C protection levels.

11 GENERAL AIR MONITORING REQUIREMENTS

11.1 General Requirements

Air monitoring is not anticipated at this time for field tasks on this project. However, in the event that air monitoring is deemed necessary, this section provides reference information. Specific air monitoring procedures and action levels will be determined at that time.

In general, air monitoring shall be conducted when the possibility of hazardous atmospheres, chemical volatilization, or contaminated airborne dust exists (e.g., from intrusive activities involving contaminated soils and/or groundwater, developing new monitoring wells, wells containing known COCs, confined space entry, or others).

12 HEALTH AND SAFETY PROCEDURES AND PRACTICES

In addition to the task-specific JSAs that would be created, listed in Section 6.1, and presented in Attachment 2 of this HASP, this section lists the health and safety procedures and practices applicable to the tasks reasonably foreseen for this project. For additional information, consult with the PM.

12.1 Physical Hazards and Controls

12.1.1 General Site Activities

Observe the following general procedures and practices to prevent physical hazards:

- Legible and understandable precautionary labels shall be affixed prominently to containers of potentially contaminated soil, sediment, water, and clothing.
- No food or beverages shall be present or consumed in areas that have the potential to contain COCs and/or contaminated materials or equipment.
- No tobacco products or cosmetics shall be present or used in areas that have the potential to contain COCs and/or contaminated materials or equipment.
- An emergency eyewash unit shall be located immediately adjacent to employees who handle hazardous or corrosive materials, including decontamination fluids. All operations involving the potential for eye injury or splash must have approved eyewash units locally available capable of delivering at least 0.4 gallons per minute for at least 15 minutes.
- On a project-specific basis, personnel working on or near bodies of water shall wear USCG-approved PFDs.
- Certain project sites may have newly finished work (e.g., concrete, paving, framing, habitat reconstruction, or sediment caps) that may be damaged by unnecessary contact, or that could cause dangerous conditions for personnel (e.g., slipping, sinking, or tripping). Personnel working in or around these areas shall communicate with the PM, FL, and property owner as needed to prevent damaging new work or entering dangerous conditions.
- Generally, all on-site activities will be conducted during daylight hours. If work after dusk is planned or becomes necessary due to an emergency, adequate lighting must be provided.

- Hazardous work, such as handling hazardous materials and heavy loads and equipment operation, should not be conducted during severe storms.
- All temporary electrical power must have a ground fault circuit interrupter (GFCI) as part of its circuit if the circuit is not part of permanent wiring. All equipment must be suitable and approved for the class of hazard present.

12.1.2 Slip/Trip/Fall

Observe the following procedures and practices to prevent slips, trips, and falls:

- Inspect each work area for slip/trip/fall potential prior to each work task.
- Slip/trip/fall hazards identified must be communicated to all personnel. Hazards identified shall be corrected or labeled with warning signs to be avoided.
- All personnel must be aware of their surroundings and maintain constant communication with each other at all times.

12.1.3 Sediment Core Sampling

Sediment samples will be collected using a "Mud Mole" or vibracore sampling equipment operated from a boat. Please see Section 12.1.12 for additional safety information regarding working on or near the water.

All operations involving the use of powered sediment coring rigs will follow generally accepted drilling/coring practices. One person will be assigned the responsibility of Lead Driller/Corer. Additional personnel will assist with equipment as needed. The Lead Driller/Corer will be responsible for operating the drilling/coring rig and ensuring safety.

General rules associated with drilling/coring rig operations will be as follows:

- While drilling, all non-essential personnel shall remain at a distance that is past the radius of any moving parts.
- All operators and crew members will be familiar with the rig operations and will have received practical training.
- All personnel will be instructed in the use of the emergency kill switch/shutdown on the drill rig.

- No loose-fitting clothing, jewelry, or free long hair is permitted near the drilling rig or moving machinery parts.
- A first aid kit and fire extinguisher will be available at all times.
- No drilling will occur during impending electrical storms or tornadoes, or when rain, ice, snow, or wind conditions create undue potential hazards.
- Never allow "horsing around" within the vicinity of the drill rig and tool and supply storage areas, even when the drill rig is shut down.

12.1.4 Underground/Overhead Utility Line Contact Prevention

Observe the following underground/overhead utility line contact prevention procedures and practices:

- Prior to conducting work, the PM or FL shall ensure that all existing underground or overhead utilities in the work area are located per the state or local mark-out methods. Documentation of utility mark-out shall be completed using the Utility Contact Prevention Checklist form (see Attachment 1). No excavation work is to be performed until all utility mark-outs are verified.
- The PM or FL shall conduct a site survey to search for signs of other buried or overhead utilities. The results of such surveys shall be documented on the Utility Mark-out documentation form.
- The property owner or facility operator shall be consulted on the issue of underground utilities. As-built drawings shall be reviewed, when available, to verify that underground utility locations are consistent with the utility location mark-outs. All knowledge of past and present utilities must be evaluated prior to conducting work.
- If on-site subsurface utility locations are in question, a private locating service shall be contacted to verify locations. If the investigation calls for boreholes in an area not covered by the municipal One-Call system, then a private utility locate firm shall be contacted to determine the location of other underground utilities.
- The PM shall have documented verbal contact and an agreement with the fiber optic company for all work within 50 feet of any fiber optic cables.
- **Only hand digging is permitted within 3 feet of underground high voltage, product, or gas lines.** Once the line is exposed, heavy equipment can be used, but must remain at least 3 feet from the exposed line.

- Elevated superstructures (e.g., drill rig, backhoe, scaffolding, ladders, and cranes) shall remain a distance of 10 feet away from utility lines and 20 feet away from power lines. Distance from utility lines may be adjusted by the FL depending on actual voltage of the lines.
- Overhead utility locations shall be marked with warning tape or flags where equipment has the potential for contacting overhead utilities.

Table 4 shows the minimum clearances required for energized overhead electrical lines.

Table 4
Overhead Utility Clearance Requirements

Minimum Clearance from Energized Overhead Electric Lines	
Nominal System Voltage	**Minimum Required Clearance**
0 to 50 kV	10 feet
51 to 100 kV	12 feet
101 to 200 kV	15 feet
201 to 300 kV	20 feet
301 to 500 kV	25 feet
501 to 750 kV	35 feet
751 to 1000 kV	45 feet

Notes:
kV – kilovolts
Whenever equipment operations must be performed closer than 20 feet from overhead power lines, the Field Leader (FL) must be notified. When clearance to proceed is received from the FL, the electric utility company must be contacted to turn the power off or physically insulate (protect) the lines if the operation must be performed closer to the power line than is allowed in this table. For voltages not listed on this table, add 0.4 inches per kV to obtain the safe distance between equipment and power lines.

12.1.5 Electric Safety

Observe the following procedures and practices to prevent electric shock:

- General
  - Use only appropriately trained and certified electricians to perform tasks related to electrical equipment. A good rule of thumb is to defer any task that would not normally and reasonably be completed by the average public consumer.
  - Ensure that all equipment is grounded with either an appropriate plug (i.e., "three-pronged") or by using a GFCI.

  - Test all GFCIs prior to use.
  - Use only extension cords that are in good condition—if in doubt, throw it out.
  - Use only 16-gauge, heavy duty, three-wire, Underwriters Laboratories Inc. (UL)-approved three-pronged extension cords
  - Be sure to locate extension cords out of traffic areas or, if this is unavoidable, flag cords and protect workers from tripping over them (i.e., use barricades, tape the cord down, etc.)
  - Do not stage extension cords or powered equipment in wet areas, to the degree possible. Elevate cords and equipment out of puddles.

- Specific
  - If unsure if a task requires specific electrical training, err on the side of caution and contact the PM and FL prior to proceeding.
  - If subsurface work is to be performed, follow the guidelines in Section 12.1.4 and conduct utility locating prior to work and in accordance with local ordinances.
  - If lock out/tag out (LO/TO) procedures are required (i.e., de-energizing machinery or equipment so work may be performed), the equipment owner must provide LO/TO procedures and training. By default, the equipment owner should perform any LO/TO. If it becomes necessary for Anchor QEA personnel to perform LO/TO tasks, contact the PM and FL prior to doing so.
  - Maintain appropriate distance from overhead utilities (see Table 4).
  - If unexpected electrical equipment is encountered (i.e., buried wire) assume it is live, stop work, and contact the PM and FL immediately.

12.1.6 General Falls/Ladders

Observe the following general falls/ladders procedures and practices:

- Assess work areas for fall hazards. A fall protection system that meets OSHA and ANSI Z3591 standards must be used if work is conducted 6 feet or more above the surface.
- Use Type 1A rated ladders.
- Make sure ladder rungs are sturdy and free of cracks.
- Use ladders with secure safety feet.
- Pitch ladders at a 4 horizontal to 1 vertical (4H:1V) ratio.
- Secure ladders at the top or have another person at the bottom to help stabilize it.

- Ladders used to access an upper landing surface shall extend at least 3 feet above the upper landing surface.
- Use non-conductive ladders near electrical wires.
- The top rung of a ladder should not be used as a step.
- Do not carry any object or load that could cause a loss of balance or a fall.

12.1.7 Heavy Equipment Operations

Observe the following heavy equipment operations procedures and practices:

- Wear leather gloves while attaching support members to protect against pinching injuries.
- While working from elevated levels greater than 6 feet, ensure that all employees have fall protection that meets OSHA and ANSI Z3591 standards.
- Do not stand under loads that are being raised or lowered with cranes or aerial lifts.
- The subcontractor or Anchor QEA equipment operator must conduct pre-operational inspections of all equipment. In addition, daily inspections will be conducted on the equipment prior to site activities.
- Maintain the appropriate distance from overhead utilities (see Table 4).
- Always stay out of the swing radius of all heavy equipment. Always use a spotter during movement of equipment. The spotter and others, as appropriate, shall maintain constant communication with the operator.
- All operators must have adequate training and be qualified to operate the particular heavy equipment unit.
- Conduct a site evaluation to determine proper positioning for the unit. Make sure the surface is level. Cordon off holes, drop-offs, bumps, or weak ground surfaces.
- When using a crane, do not use hands when the load is being lifted or lowered. Use non-conductive tag line to help direct and position the load.
- Never climb a raised platform or stand on the mid-rail or top-rail.
- Tools should always be hung or put into a belt whenever possible

12.1.8 Hand and Power Tools

Observe the following procedures and practices when working with hand and power tools:

- Keep hand tools sharp, clean, oiled, dressed, and not abused.

- Worn tools are dangerous. For example, the "teeth" in a pipe wrench can slip if worn smooth, an adjustable wrench will slip if the jaws are sprung, and hammerheads can fly off loose handles.
- Tools subject to impact (e.g., chisels, star drills, and caulking irons) tend to "mushroom." Keep them dressed to avoid flying spalls. Use tool holders.
- Do not force tools beyond their capacity.
- Flying objects can result from operating almost any power tool, so always warn people in the vicinity and use proper eye protection.
- Each power tool should be examined before use for damaged parts, loose fittings, and frayed or cut electric cords. Tag and return defective tools for repairs. Also inspect for adequate lighting, proper lubrication, and abandoned tools or material that could "vibrate into trouble."
- Compressed air must be shut off or the electric cord unplugged before making tool adjustments. Air must be "bled down" before replacement or disconnection.
- Proper guards or shields must be installed on all power tools before issue. Do not use improper tools or tools without guards in place.
- Replace all guards before start-up. Remove cranks, keys, or wrenches used in service work.

12.1.9 Motor Vehicle Operation

All drivers are required to have a valid driver's license, and all vehicles must have appropriate state vehicle registration and inspection stickers. The use of hand-held wireless devices is prohibited by Anchor QEA while driving any vehicle for business use at any time, for personal use during business hours, and as defined by law. Additionally, site-specific motor vehicle requirements must be followed, if any.

When driving to, from, and within the job site, be aware of potential hazards including:

- Vehicle accidents
- Distractions
- Fatigue
- Weather and road conditions

To mitigate these hazards, observe the following procedures and practices regarding motor vehicle operation:

- Wear a seat belt at all times and make sure that clothing will not interfere with driving.
- Inspect fluid levels and air pressure in tires, adjust mirrors and seat positions appropriately, watch the fuel level, and fill up when the fuel level is low.
- Plan your travel route and check maps for directions or discuss with colleagues.
- Clean windows and mirrors as needed throughout the trip.
- Wear sunglasses as needed.
- Follow a vehicle maintenance schedule to reduce the possibility of a breakdown while driving.
- Stop driving the vehicle, regardless of the speed (i.e., even 5 mph) or location (i.e., a private road), when the potential of being distracted by conversation exists.
- Drivers are prohibited from using hand-held communication devices (e.g., cell phones) while operating any motor vehicle.
- Get adequate rest prior to driving.
- Periodically change your seat position, stretch, open the window, or turn on the radio to stay alert.
- Pull over and rest if you are experiencing drowsiness.
- Check road and weather conditions prior to driving.
- Be prepared to adjust your driving plans if conditions change.
- Travel in daylight hours, if possible.
- Give yourself plenty of time to allow for slowdowns due to construction, accidents, or other unforeseen circumstances.
- Use lights at night and lights and wipers during inclement weather.

12.1.10 Vehicular Traffic

Observe the following procedures and practices regarding vehicular traffic:

- Wear a traffic safety vest when vehicle hazards exist.
- Use cones, flags, barricades, and caution tape to define the work area.
- Use a vehicle to block work area.
- Engage a police detail for high-traffic situations.
- Always use a spotter in tight or congested areas for material deliveries.

- As necessary, develop traffic control plans and train personnel as flaggers in accordance with the DOT MUTCD and/or local requirements.

See Section 7.4.2 for additional information regarding work in roadways.

12.1.11 Boating Operations

The following precautions shall be followed when conducting boating trailer and launch activities:

- Follow the trailer and boat manufacturers' instructions for securing the boat to the trailer.
- Follow the trailer manufacturer's instructions for securing the trailer to the towing vehicle.
- Prohibit workers from moving into trailer/vehicle pinch points without advising the vehicle operator.
- Use experienced operators when backing trailers on boat ramps.
- Wear proper work gloves when the possibility of pinching or other injury may be caused by moving or handling large or heavy objects.
- Maintain all equipment in a safe condition.
- Launch boats one at a time to avoid collisions.
- Use a spotter for vehicles backing boats to the launch area.
- Understand and review hand signals.
- Wear boots with non-slip soles when launching boats.
- Wear USCG-approved PFDs when working on or near the water.
- Keep ropes and lines coiled and stowed to eliminate trip hazards.
- Maintain three-point contact on dock/pier or boat ladders.
- Ensure that drain plugs are in place, as present.

The following precautions shall be followed when conducting boating operations:

- Maintain a current boater's license(s) as required.
- Wear USCG-approved PFDs for work activities on or near the water.
- Obtain and review information regarding dams that may be present in work areas, particularly with regard to "no boating" zones and safety buoys, cables, and warning signage.

- Maintain boat anchorage devices commensurate with anticipate currents, distance to shore, and water depths.
- Provide a floating ring buoy with at least 90 feet of line in the immediate boat launch/landing areas.
- Step into the center of the boat.
- Keep your weight low when moving on the boat.
- Move slowly and deliberately.
- Steer directly across other boat wakes at a 90-degree angle to avoid capsizing.
- Steer the boat facing forward.
- Watch for floating objects in the water.
- Right-of-way is yielded to vessels on your boat's right, or starboard, and vessels with limited ability to maneuver such as any wind-propelled vessel.

The following precautions shall be followed when working on a boat:

- Observe proper lifting techniques.
- Obey lifting limits (see Section 12.1.14)
- Use mechanical lifting equipment (i.e., pulleys or winches) to move large or awkward loads.
- Wear USCG-approved PFDs for work activities on or near the water.

The safety-related items listed in Table 5 shall be available when conducting boating operations:

Table 5
Safety Equipment Specific to In-water Work

Additional Safety Equipment for Sampling Vessel per U.S. Coast Guard (USCG) Requirements:	
• Proper vessel registration, numbering, and documentation (registered with state, certificate of vessel registration number displayed, and carrying a valid certificate of number) • USCG-approved personal flotation devices (PFDs; or life jackets) for every person on the sampling vessel (Type II PFD required, Type I PFD preferred as it will turn most unconscious wearers face up in the water) • Appropriate, non-expired, visual distress devices for day and night use from the following: - Three hand-held red flares (day and night), or - One hand-held red flare and two parachute flares (day and night), or - One hand-held orange smoke signal, two floating orange smoke signals (day), and one electric distress light (night only) • Alternate means of propulsion (oars or paddles) • Dewatering device (pump or bailer) • Properly maintained and inspected USCG-approved fire extinguishers (no fixed system = (2) B-1 or (1) B-2 type extinguishers; fixed system = (1) B-1 type extinguisher) • Proper ventilation of gasoline-powered vessels • Sound-producing device (whistle, bell, or horn) • VHF 2-way radio • Proper navigational light display • Throwable life ring with attached line (any vessel larger than 16 feet is required to carry one Type IV [throwable] PFD)	
Additional USCG Recommended Equipment Includes:	
• Extra visual distress signals • Primary and spare anchor • Heaving line • Fenders • First aid kit • Flashlight • Mirror • Searchlight • Sunburn lotion • Tool kit • Spare fuel	• Boat hook • Spare propeller • Mooring line • Food and water • Binoculars • Spare batteries • Sunglasses • Marine hardware • Extra clothing • Spare parts • Pertinent navigational chart(s) and compass

12.1.12 Working Over or Near Water

12.1.12.1 Personal Flotation Devices

PFDs are not required where employees are continuously protected from the hazard of drowning by railings, nets, safety belts, or other applicable provisions.

Type III, Type V, or better USCG-approved International Orange PFD shall be provided and properly worn by all personnel in the following circumstances:

1. On floating pipelines, pontoons, rafts, or stages.
2. On structures extending over or next to the water, except where guard rails or safety nets are provided for employees.
3. Working alone at night where there are drowning hazards, regardless of other safeguards provided.
4. In skiffs, small boats, or launches, unless in an enclosed cabin or cockpit.
5. Whenever there is a drowning hazard.

The following precautions shall be followed when using PFDs:

- Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects that would alter their strength or buoyancy. Defective devices or devices with less than 13 pounds buoyancy shall be removed from service.
- All PFDs shall be equipped with reflective tape as specified in 46 CFR 25.25-15.
- Thirty-inch USCG-approved ring buoys with at least 150 feet of 600-pound capacity line shall be provided and readily available for emergency rescue operations. The distance between ring buoys shall not exceed 200 feet.
- PFD lights conforming to 46 CFR 161.012 shall be required whenever there is a potential need for life rings to be used after dark. On shore installations, at least one life ring, and every third one thereafter, shall have a PFD light attached. PFD lights on life rings are required only in locations where adequate general lighting (e.g., floodlights or light stanchions) is not provided.

12.1.12.2 Cold Water Work

When the water temperature is below 50° F, field personnel working on or near water shall wear either a float coat and bib-overalls (e.g., a full two-piece "Mustang" survival suit or similar), or a one-piece survival suit. Suits or float coats shall be USCG approved. If extremely cold or severe weather conditions are forecast, work activities should be postponed. Work activities will be continually reviewed and adjustments made if wearing a survival suit during work activities potentially poses a hazard due to warm air temperatures, or limited mobility or agility. In addition, proximity of water work to shore and scope/duration/timing of work activities will be considered when stipulating the above

requirement. Overall, if water craft will be used during work, or work will be conducted near water, it is imperative that site specific conditions are considered and evaluated so that proper safeguards and procedures are in place prior to beginning work.

In addition to considering the use of apparel appropriate for anticipated air, weather, and water conditions, field teams shall identify any procedures necessary for cold-water "man-overboard" scenarios. These procedures should be identified in the site-specific HASP, described in the JSA used for boating activities and, if prudent, practiced before work.

12.1.13 Noise

Excessive noise is hazardous not only because of its potential to damage hearing, but also because of its potential to disrupt communications and instructions. The following procedures and practices shall be followed to prevent noise-related hazards:

- All employees will have access to disposable ear plugs with a Noise Reduction Rating of not less than 30.
- Ear plugs must be worn in any environment where workers must raise their voices to be heard while standing at a distance of 3 feet or less.
- Ear plugs must be worn by any personnel operating concrete cutting or sawing equipment.

Hearing protection is required for workers operating or working near noisy equipment or operations, where the noise level is greater than 85 A-weighted decibels (dbA) (Time Weighted Average [TWA]), as well as personnel working around heavy equipment. The FL will determine the need and appropriate testing procedures, (i.e., sound level meter and/or dosimeter) for noise measurement.

When needed, a sound level meter will be used to measure noise levels at selected locations in the work area and on the site perimeter. When used, noise monitoring equipment must be calibrated before and after each shift.

If continuous noise levels are found to exceed 85 dbA at any location within the work area, warning signs will be posted. Workers and visitors will be notified that hearing protection is required. Appropriate hearing protection (i.e., ear plugs or ear muffs) will be worn

whenever personnel or visitors are working in that location. A supply of ear plugs will be maintained on site.

Action levels in Table 6 will trigger the use of appropriate hearing protection (plugs or muffs). Hearing protection must be able to attenuate noise below 90 dbA (8-hour TWA). Each hearing protection or device has a Noise Reduction Rating (NRR) assigned by EPA. The calculation for a hearing protection device's effectiveness is:

$$\text{Noise reading dbA} - (\text{NRR} - 7\text{ dB}) < 90\text{ dbA}$$

Table 6
Noise Exposure Action Levels

Instrument	Measurement	Action
Type I or Type II Sound Level Meter or Dosimeter	> 80 dbA to 85 dbA	Hearing protection recommended. Limit work duration to 8-hour shifts.
	> 85 dbA to 90 dbA	Hearing protection required. Limit work duration to 8-hour shifts.
	> 90 dbA to 115 dbA	Hearing protection required. Investigate use of engineering controls. Limit work duration to 8-hour shifts.
	> 115 dbA	Stop work. Consult CHSM.

12.1.14 Lifting and Material Handling

Observe the following procedures and practices for lifting and material handling:

- Use leather gloves when handling metal, wire rope, sharp debris, or transporting materials (e.g., wood, piping, drums, etc.).
- The size, shape, and weight of the object to be lifted must first be considered. No individual employee is permitted to lift any object that weighs over 60 pounds. Multiple employees or mechanical lifting devices are required for objects over the 60-pound limit.
- Plan a lift before doing it. Bend at the knees and lift with the legs; keep the natural curves of the back; do not use back muscles.
- Check the planned route for clearance.
- Use the buddy system when lifting heavy or awkward objects.
- Do not twist your body while lifting.

- Know the capacity of any handling device (e.g., crane, forklift, chain fall, or come-along) that you intend to use.
- Use tag lines to control loads.
- Ensure that your body, material, tools, and equipment are safe from such unexpected movement as falling, slipping, rolling, tripping, bowing, or any other uncontrolled motion.
- Trucks (i.e., flat beds) hauling equipment or materials must not be moved once rigging has been released.
- Chock all material and equipment (such as pipe, drums, tanks, reels, trailers, and wagons) as necessary to prevent rolling.
- Tie down all light, large-surface-area material that might be moved by the wind.
- When working at heights, secure tools, equipment, and wrenches against falling.
- Do not store materials or tools on ducts, lighting fixtures, beam flanges, hung ceilings, or similar elevated locations.
- Fuel-powered tools used inside buildings or enclosures shall be vented and checked for excessive noise.

12.1.15 Fire Control

Observe the following fire control procedures and practices:

- Smoke only in designated areas.
- Keep flammable liquids in closed containers.
- Keep the work site clean; avoid accumulating combustible debris such as paper.
- Obtain and follow property owner hot work safety procedures when welding or performing other activities requiring an open flame.
- Isolate flammable and combustible materials from ignition sources.
- Ensure fire safety integrity of equipment installations according to National Electrical Code (NEC) specifications.

12.1.16 Static Electricity and Transfer of Flammable Liquids

Observe the following procedures and practices regarding static electricity when transferring flammable liquids:

- Electrically bond and ground pumps, transfer vessels, tanks, drums, bailers, and probes when moving flammable liquids.
- Electrically bond and ground vacuum trucks and the tanks they are emptying.
- Do not splash fill containers with flammable liquids.
- Pour flammable liquids slowly and carefully.
- Two fire extinguishers (2A20:BC) must be available, charged, inspected, and readily accessible.

12.1.17 Cleaning Equipment

Observe the following procedures and practices when cleaning equipment:

- Wear appropriate PPE to avoid skin and eye contact with isopropyl alcohol, Alconox®, or other cleaning materials.
- Stand upwind to minimize any potential inhalation exposure.
- Dispose of spent cleaning solutions and rinses accordingly.

12.2 Environmental Hazards and Controls

12.2.1 Heat Stress

Observe the following general procedures and practices regarding heat stress:

- Increase the number of rest breaks and/or rotate workers in shorter work shifts.
- Watch for signs and symptoms of heat stress and fatigue (see Section 12.2.1.1).
- During hot months, plan work for early morning or evening.
- Use ice vests when necessary.
- Rest in cool, dry areas.

12.2.1.1 Signs, Symptoms, and Treatment

Adverse climatic conditions are important considerations in planning and conducting site operations. High ambient temperature can result in health effects ranging from transient heat fatigue, physical discomfort, reduced efficiency, personal illness, and increased accident probability to serious illness or death. Heat stress is of particular concern when chemical protective garments are worn since they prevent evaporative body cooling. Wearing PPE places employees at considerable risk of developing heat stress.

Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, and the individual characteristics of the worker. Because heat stress is probably one of the most common (and potentially serious) illnesses, regular monitoring and other preventive precautions are vital.

Heat Rash. Heat rash can be caused by continuous exposure to hot and humid air and skin abrasion from sweat-soaked clothing, rubber boots, or impermeable waders. The condition is characterized by a localized red skin rash and reduced sweating. Heat rash reduces the ability to tolerate heat. To treat, keep skin hygienically clean and allow it to dry thoroughly after using chemical protective clothing. Take measures to prevent heat rash by changing clothes often to maximize use of dry garments, or taking frequent breaks to allow doffing of equipment and drying of skin.

Heat Cramps. Heat cramps are caused by profuse perspiration with inadequate electrolytic fluid replacement. This often robs the larger muscle groups (stomach and quadriceps) of blood, which can cause painful muscle spasms and pain in the extremities and abdomen. To treat, remove the employee to a cool place and give sips of water or an electrolytic drink. Watch for signs of heat exhaustion or heat stroke.

Heat Exhaustion. Heat exhaustion is a mild form of shock caused by increased stress on various organs to meet increased demand to cool the body. Onset is gradual and symptoms should subside within 1 hour. Symptoms include a weak pulse; shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; and fatigue. To treat, remove the employee to a cool place and remove as much clothing as possible. Give sips of water or electrolytic solution and fan the person continuously to remove heat by convection. Do not allow the affected person to become chilled. Treat for shock if necessary.

Heat Stroke. Heat stroke is the most severe form of heat stress; the body must be cooled immediately to prevent severe injury and/or death. ***This is a medical emergency!*** Symptoms include red, hot, dry skin; a body temperature of 105° F or higher; no perspiration; nausea; dizziness and confusion; and a strong, rapid pulse. Since heat stroke is a true medical emergency, transport the patient to a medical facility immediately. Prior to transport, remove as much clothing as possible and wrap the patient in a sheet soaked with water. Fan the patient vigorously while transporting to help reduce body temperature. If available,

apply cold packs under the arms, around the neck, or any other place where they can cool large surface blood vessels. If transportation to a medical facility is delayed, reduce body temperature by immersing the patient in a cool-water bath (however, be careful not to over-chill the patient once body temperature is reduced below 102° F). If this is not possible, keep the patient wrapped in a sheet and continuously douse with water and fan.

12.2.1.2 Prevention

The implementation of preventative measures is the most effective way to limit the effects of heat-related illnesses. During periods of high heat, adequate liquids must be provided to replace lost body fluids. Replacement fluids can be a 0.1% saltwater solution, a commercial mix such as Gatorade, or a combination of these with fresh water. The replacement fluid temperature should be kept cool, 50° F to 60° F, and should be placed close to the work area. Employees must be encouraged to drink more than the amount required to satisfy thirst. Employees should also be encouraged to salt their foods more heavily during hot times of the year.

Cooling devices such as vortex tubes or cooling vests can be worn beneath impermeable clothing. If cooling devices are worn, only physiological monitoring will be used to determine work activity.

All workers are to rest when any symptoms of heat stress are noticed. Rest breaks are to be taken in a cool, shaded rest area. Employees shall remove chemical protective garments during rest periods and will not be assigned other tasks.

All employees shall be informed of the importance of adequate rest and proper diet, including the harmful effects of excessive alcohol and caffeine consumption.

12.2.1.3 Monitoring

Heat stress monitoring should be performed when employees are working in environments exceeding 90° F ambient air temperature. If employees are wearing impermeable clothing, this monitoring should begin at 77° F. There are two general types of monitoring that the health and safety representative can designate to be used: wet bulb globe temperature

(WBGT), and physiological. The Heat Stress Monitoring Record form (see Attachment 1) will be used to record the results of heat stress monitoring.

Note that some states such as Washington and California have specific regulatory standards for protection of employees from heat stress-related injuries.

Wet Bulb Globe Temperature (WBGT). The WBGT index is the simplest and most suitable technique to measure the environmental factors that most nearly correlate with core body temperature and other physiological responses to heat. When WBGT exceeds 25° C (77° F), the work regiment in Table 7 should be followed.

Table 7
Permissible Heat Exposure Threshold Limit Values

Work/Rest Regimen	Workload		
	Light	Moderate	Heavy
Continuous work	86° F (30.0° C)	80° F (26.7° C)	77° F (25.0° C)
75% work, 25% rest each hour	87° F (30.6° C)	82° F (28.0° C)	78° F (25.9° C)
50% work, 50% rest, each hour	89° F (31.4° C)	85° F (29.4° C)	82° F (27.9° C)
25% work, 75% rest, each hour	90° F (32.2° C)	88° F (31.1° C)	86° F (30.0° C)
These TLVs are based on the assumption that nearly all acclimated, fully-clothed workers with adequate water and salt intake should be able to function effectively under the given working conditions without exceeding a deep body temperature of 100.4° F (38° C).			

(From OSHA Technical Manual, Section III: Chapter 4 - Heat Stress)

The TLVs denoted in Table 8 apply to physically fit and acclimatized individuals wearing light, summer clothing. If heavier clothing that impedes sweat or has a higher insulation value is required, the permissible heat exposure TLVs should be adjusted based on the WBGT Correction Factors in Table 8.

Table 8
WBGT Correction Factors

Clothing Type	WBGT Correction
Summer lightweight working clothing	32° F (0° C)
Cotton coveralls	28° F (-2° C)
Winter work clothing	25° F (-4° C)
Water barrier, permeable	86° F (-6° C)
Fully encapsulating	14° F (-10° C)

Physiological. Physiological monitoring can be used in lieu of, or in addition to, WBGT. This monitoring can be self-performed once the health and safety representative demonstrates appropriate techniques to affected employees. Since individuals vary in their susceptibility to heat, this type of monitoring has its advantages. The two parameters that are to be monitored at the beginning of each rest period are:

- **Heart Rate** – The maximum heart rate (MHR) is the amount of work (beats) per minute a healthy person's heart can be expected to safely deliver. Each individual will count his/her radial (wrist) pulse for 1 minute as early as possible during each rest period. If the heart rate of any individual exceeds 75% of their calculated MHR (MHR = 200 - age) at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work until his/her sustained heart rate is below 75% of their calculated MHR.
- **Temperature** – Each individual will measure his/her temperature with a thermometer for 1 minute as early as possible in the first rest period. If the temperature exceeds 99.6° F at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work if his/her temperature exceeds 100.4° F

12.2.1.4 Training

Employees potentially exposed to heat stress conditions will be instructed on the contents of this procedure. This training can be conducted during daily tailgate safety meetings.

13 MEDICAL SURVEILLANCE PROGRAM

This section describes the medical surveillance program that Anchor QEA field personnel must comply with when working on sites where there is a potential for exposure to hazardous wastes or other hazardous substances.

13.1 General Requirements

Anchor QEA employees shall be enrolled in a medical surveillance program in compliance with OSHA standards (29 CFR 1910.120(f)) under the following circumstances:

If they are involved with any of the following operations:

- *Cleanup operations* required by a governmental body, whether federal, state, local, or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the EPA's National Priority List [NPL] sites, state priority list sites, sites recommended for the EPA NPL, and initial investigation of government-identified sites that are conducted before the presence or absence of hazardous substances has been ascertained).
- *Corrective actions* involving cleanup operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 U.S.C. 6901 et seq)
- *Voluntary cleanup operations* at sites recognized by federal, state, local, or other governmental bodies as uncontrolled hazardous waste sites.
- *Operations involving hazardous wastes* that are conducted at treatment, storage, and disposal (TSD) facilities regulated by 40 CFR Parts 264 and 265 pursuant to RCRA or by agencies under agreement with the EPA to implement RCRA regulations.
- *Emergency response operations* for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.

And, if the employee(s) meets the following criteria:

- Are or may be exposed to hazardous substances or health hazards at or above the established PEL, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more per year.

In addition, employees are required to be enrolled in the medical surveillance program if they meet any of the following conditions:

- Wear a respirator for 30 days or more per year
- Are injured, become ill, or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operations
- Are members of a Hazardous Materials (HAZMAT) team

Anchor QEA employees required to be enrolled in a medical surveillance program under 29 CFR 1910.120(f) shall have medical examinations and consultations made available to them by Anchor QEA on the following schedule:

- Prior to assignment
- At least once every 12 months unless the attending physician believes a longer interval (not greater than biennially) is appropriate
- At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last 6 months
- As soon as possible upon notification that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the PEL or published exposure levels in an emergency situation
- At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary

The content of medical examinations or consultations made available to employees shall be determined by the attending physician but shall include, at a minimum, a medical and work history with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the work site.

The attending physician shall provide Anchor QEA with a written opinion for each examined employee that contains the following information:

- Whether the employee has any detected medical conditions that would place the employee at an increased risk of impairment of the employee's health from hazardous waste operations work, emergency response, or respirator use
- Any recommended limitations on the employee's assigned work
- A statement that the employee has been informed of the results of the medical examination and any medical conditions that require further examination or treatment

The written opinion obtained by Anchor QEA shall not reveal specific findings or diagnoses unrelated to occupational exposures. Medical surveillance and other employee-related medical records shall be retained for at least the duration of employment plus 30 years.

13.2 Crew Self Monitoring

All personnel will be instructed to look for and inform each other of any deleterious changes in their physical or mental condition during the performance of all field activities. Examples of such changes are as follows:

- Headaches
- Dizziness
- Nausea
- Blurred vision
- Cramps
- Irritation of eyes, skin, or respiratory system
- Changes in complexion or skin color
- Changes in apparent motor coordination
- Increased frequency of minor mistakes
- Excessive salivation or changes in papillary response
- Changes in speech ability or speech pattern
- Symptoms of heat stress or heat exhaustion
- Symptoms of hypothermia

If any of these conditions develop, the affected person will be moved from the immediate work location and evaluated. If further assistance is needed, personnel at the local hospital will be notified, and an ambulance will be summoned if the condition is thought to be

serious. If the condition is the result of sample collection or processing activities, procedures and/or PPE will be modified to address the problem.

ATTACHMENT 1
HEALTH AND SAFETY LOGS AND FORMS

Anchor QEA

Release from Liability, Waiver of Claims, and Indemnification
READ CAREFULLY BEFORE SIGNING
*** This liability release, waiver, and indemnification is required for participation in our field trips and site tours****
*** Each participant must sign his/her own form ***

In return for receiving permission from **Anchor QEA, LLC**, a Washington State limited liability corporation ("**Anchor QEA**") to participate in the field trip which is to take place at _____ (location) on _____ (date) (collectively, the "**Activities**"), the undersigned participant ("**Participant**"), acting through and/or with the consent of his/her parent or legal guardian (if Participant is a minor or the subject of a guardianship), hereby agrees as follows:

1. I fully recognize the dangers of participating in the Activities, and I voluntarily assume all risks associated with my participation in the Activities. I understand that the dangers which I may encounter at the site(s) where the Activities take place (in each case, a "**Site**") include, by way of example only and without limitation: exposure to contaminants; exposure to aerosol vapors; wild animals, poisonous snakes and harmful insects; poisonous vegetation; drowning, sea sickness and boating accidents; falling from steep slopes, cliffs or narrow trails; landslides; rough terrain; lightning; wildfire; extremes of temperatures; and storms. I realize that there is also a risk of my becoming seriously ill or injured in an area remote from medical care and that Anchor QEA cannot guarantee the availability of emergency medical services or emergency transportation to medical facilities.

2. I agree that neither Anchor QEA nor any of its agents, representatives, partners, contractors, consultants or employees: (a) shall have any liability for any defect or dangerous natural or artificial condition relating to any Site or any of the Activities; or (b) have made or are making any representation or warranty, expressed or implied, regarding: (i) the conditions of any Site; (ii) the safety of the Activities or any of the equipment to be used in connection with the Activities; (iii) any means of transportation to or from any Site; or (iv) any other aspect of any Site or any of the Activities.

3. I agree to take the responsibility to familiarize myself with the rules and regulations applicable to the Sites and the Activities, and to ensure that I have been properly instructed in and understand the use of any equipment I am to use in the Activities. I realize that my participation in the Activities may require sustained strenuous physical activity. I am in good health, and am not aware of any physical or medical condition that might endanger myself or other participants in the Activities.

4. Acting for myself and my heirs, executors, personal representatives and assigns, I forever release and discharge Anchor QEA and its owners, employees, agents, officers, and directors, and the successors and assigns of each of them (in each case, a "**Released Party**"), of and from all claims, losses, damages, costs, expenses and other liabilities, including (but not limited to) reasonable attorneys' fees (in each case, a "**Claim**"), whether known or unknown, foreseen or unforeseen, relating to property damage or the death, injury, pain or mental trauma of myself or any other person, and resulting, directly or indirectly, from my participation in the Activities or my travel to or from any Site. Without limiting the above, I agree not to sue any of the Released Parties for any such Claims, to waive any such Claims which I may have at any time against any of the Released Parties, and to indemnify and defend each of the Released Parties against, and to hold each of the Released Parties harmless of and from any Claims resulting from my acts or omissions during the Activities or while at any Site.

5. I have read and understand the policies and procedures specified in the Health and Safety Plan (HASP) for this site. This HASP may include company-specific appendices developed by entities other than Anchor QEA.

The undersigned Participant acknowledges and agrees that he/she has carefully read this Release from Liability, Waiver of Claims, and Indemnification and fully understands all of its contents, and their legal effect, and agrees that this Release from Liability, Waiver of Claims, and Indemnification (of which I have been given a copy to keep, with any attachments) is contractually binding, and is being signed by the undersigned Participant of his/her own free will.

Signature: _____ Date: _____

Printed Name: _____ Email: _____

Address: _____

(street address – no PO Boxes)

City: _____ State: _____ ZIP: _____

Phone Number: _____

Emergency Contact: _____

Contact's Phone Number: _____

Consent and Release for Publications of Photographs

I, the undersigned, hereby grant Anchor QEA permission to take photographs of me, and irrevocably consent to and authorize the use and reproduction by Anchor QEA, or anyone duly authorized by Anchor QEA, of any and all such photographs, for any legitimate purposes, including for advertising, trade, and editorial purposes, at any time in the future in all media now known or hereafter developed, throughout the world. I also consent to the use of my name in connection with such photos.

I hereby release, indemnify, and hold harmless Anchor QEA and its owners, officers, directors, agents, and employees from any and all claims which may result at any time by reason of the use of my image and name, including, without limitation, claims of privacy. My heirs, executors, administrators, and assigns shall be bound by this consent and release.
I am over the age of 18.

Signature: _____ Date: _____

Printed Name: _____

Consent and Signature of Parent or Guardian

(if Participant is under 18 years of age or the subject of a guardianship)

As the parent or guardian of _____, the Participant described in the foregoing Release from Liability, Waiver of Claims, and Indemnification with respect to taking part in the Activities which are described above, I hereby acknowledge that I have read and understood such Release from Liability, Waiver of Claims, and Indemnification, and Consent for Release for Publications and Photography, and I hereby agree, individually and on behalf of my child or ward, to all of the terms of such Release from Liability, Waiver of Claims, and Indemnification, and Consent for Release for Publications and Photography; and hereby give my permission to my child or ward to participate in such Activities.

Signature: _____ Date: _____

Printed Name: _____ Email: _____

Address: _____

(street address – no PO Boxes)

City: _____ State: _____ ZIP: _____

Phone Number: _____

ANCHOR QEA

DATE: _____

PROJECT NAME: _____

PROJECT NUMBER: _____

LOCATION: _____

HEAT STRESS MONITORING RECORD

Employee Name	Monitoring Results												
	Initial Reading Time:	First Work Period Time:		Second Work Period Time:		Third Work Period Time:		Fourth Work Period Time:		Fifth Work Period Time:		Sixth Work Period Time:	
	WBGT (°F):	WBGT (°F):		WBGT (°F):		WBGT (°F):		WBGT (°F):		WBGT (°F):		WBGT (°F):	
	Air Temp (°F):	Air Temp (°F):		Air Temp (°F):		Air Temp (°F):		Air Temp (°F):		Air Temp (°F):		Air Temp (°F):	
	Initial Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:
	Initial H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:
	Initial Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:
	Initial H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:
	Initial Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:
	Initial H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:
	Initial Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:
	Initial H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:
	Initial Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:	Initial Temp:	Final Temp:
	Initial H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:	Initial H.R.:	Final H.R.:

Notes:

Completed by:

_____ _____ _____

Printed Name Signature Date

UTILITY CONTACT PREVENTION CHECKLIST

NOTE: Utility mark-out requirements vary from state to state; consult state authorities before work.

Purpose: This form is intended to help the Field Lead confirm that underground or overhead utilities are identified to the extent practicable and consistent with applicable regulations prior to site work.

PROJECT NAME/NO: _____ **DATE:** _____

FIELD LEAD: _____ **STATE:** _____

PROJECT MANAGER: _____ **HEALTH & SAFETY OFFICER:** _____

EMERGENCY CONTACT INFORMATION FOR ONE-CALL: _____

DURATION/SUMMARY OF WORK TO BE PERFORMED: _____

_____

_____

Consideration	Check		Explanation	Initial
Has the state one-call been contacted?	☐ Yes	☐ No		
Has the property owner or client been contacted for local knowledge of utilities, as applicable?	☐ Yes	☐ No		
Are any as-built drawings available? If so, do they show any utilities?	☐ Yes	☐ No		
Has a visual inspection of the work area(s) been completed?	☐ Yes	☐ No		
Has a private locating service been contacted?	☐ Yes	☐ No		
Were any utilities identified and marked out through private locating service? If so, duplicate mark outs on site drawings.	☐ Yes	☐ No		
Are there any fiber optic cables, fuel lines, or high pressure lines within 50 feet of hole locations?	☐ Yes	☐ No		
If fiber optic cables, fuel lines, or high pressure lines are within 50 feet has an agreement with the utility owner been established, if applicable?	☐ Yes	☐ No		
Can a test borehole be advanced by hand digging, probing, post hole digging, and/or air knifed to 5 feet below ground surface (bgs)?	☐ Yes	☐ No		
If hand digging, probing, post hole digging, and or air knifing to 5 feet bgs is not possible, can a non-invasive geophysical investigation be conducted? If not, why?	☐ Yes	☐ No		
Other considerations:				

NOTE: Please fill in second page and attach additional reports, drawings, or other information as necessary.

UTILITY CONTACT PREVENTION CHECKLIST

NOTE: Utility mark-out requirements vary from state to state; consult state authorities before work.

CONFIRMATION NUMBER: _____

CONTACT NAME: _____ **ORGANIZATION:** _____

CONTACT DATE: _____ **CONTACT TIME:** _____

RESPONSE: _____

_____

_____

_____

_____

_____

Completed by:

Printed Name	Signature	Date

Contractor:

Printed Name	Signature	Date

ANCHOR QEA

DATE: _____

PROJECT NAME: _____

PROJECT NO: _____

MODIFICATION TO HEALTH AND SAFETY PLAN

MODIFICATION: _____

_____

_____

_____

_____

REASON FOR MODIFICATION: _____

_____

_____

_____

_____

_____

_____

SITE PERSONNEL BRIEFED

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

NAME: _____ **DATE:** _____

APPROVALS

FIELD LEAD: _____ _____ _____

Printed Name Signature Date

PROJECT MANAGER: _____ _____ _____

Printed Name Signature Date

ANCHOR QEA

DATE: _____

PROJECT NAME: _____

PROJECT NO: _____

DAILY SAFETY BRIEFING

PERSON CONDUCTING MEETING: _____ **HEALTH & SAFETY OFFICER:** _____ **PROJECT MANAGER:** _____

TOPICS COVERED:

- ☐ Emergency Procedures and Evacuation Route
- ☐ Directions to Hospital
- ☐ HASP Review and Location
- ☐ Safety Equipment Location
- ☐ Proper Safety Equipment Use
- ☐ Employee Right-to-Know/MSDS Location
- ☐ Fire Extinguisher Location
- ☐ Eye Wash Station Location
- ☐ Buddy System
- ☐ Self and Coworker Monitoring
- ☐ Lines of Authority
- ☐ Communication
- ☐ Site Security
- ☐ Vessel Safety Protocols
- ☐ Work Zones
- ☐ Vehicle Safety and Driving/Road Conditions
- ☐ Equipment Safety and Operation
- ☐ Proper Use of PPE
- ☐ Decontamination Procedures
- ☐ Other:
- ☐ Lifting Techniques
- ☐ Slips, Trips, and Falls
- ☐ Hazard Exposure Routes
- ☐ Heat and Cold Stress
- ☐ Overhead and Underfoot Hazards
- ☐ Chemical Hazards
- ☐ Flammable Hazards
- ☐ Biological Hazards
- ☐ Eating/Drinking/Smoking

WEATHER CONDITIONS: _____

DAILY WORK SCOPE: _____

SITE-SPECIFIC HAZARDS: _____

SAFETY COMMENTS: _____

ATTENDEES

PRINTED NAME	SIGNATURE

DAILY AIR MONITORING RECORD

PROJECT NAME: _____ **DATE:** _____

PROJECT NUMBER: _____ **LOCATION:** _____

TEMPERATURE: _____

CONDITIONS: _____

_____

_____

_____

COC	Instrument	S/N	Calibration Date	Calibration Gas/Method	Calibration by
Organic vapors					
Particulates					
O_2					
Other:					
Other:					
Other:	Draeger				

Time	Location/Description	Organic Vapor (ppm)	O_2%	CG %LEL	Other	Other

Notes:

Completed by:

_____ _____ _____

Printed Name Signature Date

ATTACHMENT 2
JOB SAFETY ANALYSIS (JSA) DOCUMENTS

Job Safety Analysis

Activity X

JSA00X

Project Name & Number:	**JSA No.**	**Date:**	**New:**
Location:	**Contractor:**	**Analysis by:**	**Date:**
Required Personal Protective Equipment:		**Revised by:**	**Revised:**
Work Operation:	**Competent Person:**	**Reviewed by:**	**Date:**
		Approved by:	**Date:**

Work Activity	Potential Hazards	Preventive or Corrective Measures	Inspection Requirements

Training Requirements:

All personnel working on hazardous waste sites must receive appropriate training as required by 29 CFR 1910.120(e), including, but not limited to initial 40-hour and annual 8-hour refresher training. All boat operators must have successfully completed the <insert state or regulatory agency> Safe Boating Course.

All assigned employees are required to familiarize themselves with the contents of this JSA before starting a work activity and review it with their Supervisor during their Daily Safety Meeting.

ATTACHMENT 3
MATERIAL SAFETY DATA SHEETS (MSDS)