Health and Safety Plan (HASP)

Butte Priority Soils Operable Unit

March 2024

Woodard & Curran
COMMITMENT & INTEGRITY DRIVE RESULTS
1015 S Montana, STE C
Butte, MT 59701

TABLE OF CONTENTS

SECTION **PAGE NO.**

LIST OF TABLES

TABLE **PAGE NO.**

LIST OF FIGURES

FIGURE **PAGE NO.**

LIST OF APPENDICES

OBJECTIVE

This *Health and Safety Plan* (HASP) has been prepared to provide general health and safety information and establish the minimum health and safety related procedures and requirements to be followed while implementing investigation, remediation, monitoring, and construction related activities at on-Site and off-Site locations for the Butte Priority Soils Operable Unit (BPSOU) Superfund Site located in Butte, MT.

This HASP is intended to establish the minimum health and safety requirements to be followed by Woodard & Curran (W&C) personnel and persons not otherwise required to prepare their own health and safety plan (e.g., visitors) while engaged in activities at the Site on behalf of bp. These minimum health and safety requirements shall be used by Contractors in conjunction with the requirements set forth in project specifications (Health and Safety Requirements). These requirements shall not relieve any party from compliance with any applicable Federal, State, local, or other health and/or safety requirements and safe construction practices. APPENDIX A contains the name, signature and date of personnel who have read and acknowledged this HASP.

The applicability of this HASP to each person or party is identified below. Discussion regarding the roles and responsibilities of each party is provided in Section 3.

1. INTRODUCTION

Table 1: Emergency Contacts

All Emergency Services - 911	
Emergency/Medical Contacts	
Butte Silver Bow Police Department– (non-emergency line)	406.497.1120
Fire Department - Butte Fire Department	406.497.6481
Butte Silver Bow Animal Control	406.497.6525
St. James Hospital- Butte, MT	406.723.2500
Butte- Silver Bow Heath Department	406.497.5020
Poison Control Center	800.222.1222
Nurse Hotline (for Woodard & Curran employee use if medical attention or medical advice is desired for a work-related, non-emergency injury or illness)	888.449.7787
Disaster and Emergency Services	406.462.4000
Montana Highway Patrol	406.494.3233
MT Department of Highways	406.494.9600
Utilities	
Water Company	406.497.6500
US West Communications/Century Link	800.954.1211
Optimum Repair Services	877.354.9007
Montana 811 Underground Utilities	800.424.5555
Woodard & Curran Project Contacts (See Section 3.6 for Project Roles and Responsibilities	
Marcos Silvestri (Client Manager)	636.231.5457
Scott Bradshaw (Reginal Manager/Project Manager/Area Authority)	406.599.5867
Paddy Stoy (Field Team Leader)	406.578.1447
Nicole Santifer (Program Safety Manager (PSM))/IA)	406.214.0512
Trent Spear (Project Health and Safety Coordinator)	406.552.5838
Caleigh Mullaney (Project Health and Safety Coordinator)	406.560.6567
AR	
Josh Bryson (Liability Manager)	406.565.7164
R.C. Strain (HSSE Advisor)	360.967.9473
Garrick Milkeris (HSSE Advisor)	331.239.9521
Butte Silver Bow	
Eric Hassler (Reclamation & Environmental Services Director)	406.490.0053
Mark Neary (Public Works Director)	406.497.6519
Cynda Seys (Safety and Risk Management)	406.497.6432
EPA	
Emma Rott	406.438.0823
DEQ	
Daryl Reed	406.444.6433

1.1 Emergency Procedures

The nearest hospital is St. James Healthcare located at 400 S Clark St. Butte, MT 59701. A map showing the route and hospital location is included in Figure 1 below.

The designated signal for an on-site emergency is three sustained blasts from an air or car horn or very loud whistle. In the event of an on-site emergency, personnel shall evacuate to the assembly point. It is not possible to identify one muster point that will satisfy every task due to the large area of the Site and variable work locations. The evacuation assembly point locations will be reviewed at each Daily Safety Briefing at the start of a day's work and documented on the FAF. All personnel must be accounted for before leaving the assembly area unless it is too dangerous to remain in the assembly area. At no time should anyone leave the muster point or go back into the affected area. For example, a credible cause for an evacuation during Site work would be a range fire. The location of the assembly points is described on the daily Field Authorization Form (FAF).

1.2 Initial Reporting

Injuries, illnesses, and close calls shall be immediately reported to the Program Safety Manager (PSM) The PSM or designee will report the incident to the W&C Project Manager and Health and Safety Manager. The Organizational Chart for the Site is included in Section 3.6.

In any incident situation, a Stop Work shall be directed by the person controlling work until the incident can be adequately reviewed and the scene verified as safe. This down time will also provide the opportunity to ensure the incident will not be repeated and lessons learned can be communicated. Depending on the incident severity, the decision to lift the Stop Work will be decided by the Program Safety Manger, person controlling work, Site Safety Officer (SSO), Project Manager (PM) and/or bp Health Safety, Security, and Environment (HSSE) manager or the bp Liability Manger (LM) will be consulted.

1.3 Initial Response and Notification

The first step in responding to an emergency is to recognize an emergency. The following is a list of situations when local emergency services should be called:

- Serious illness or injury (See section 1.4.1 below)
- Uncontrolled hazardous material release to the environment
- A serious security event
- Fire or explosion

1.4 Medical Care

1.4.1 Life-Threatening Medical Care

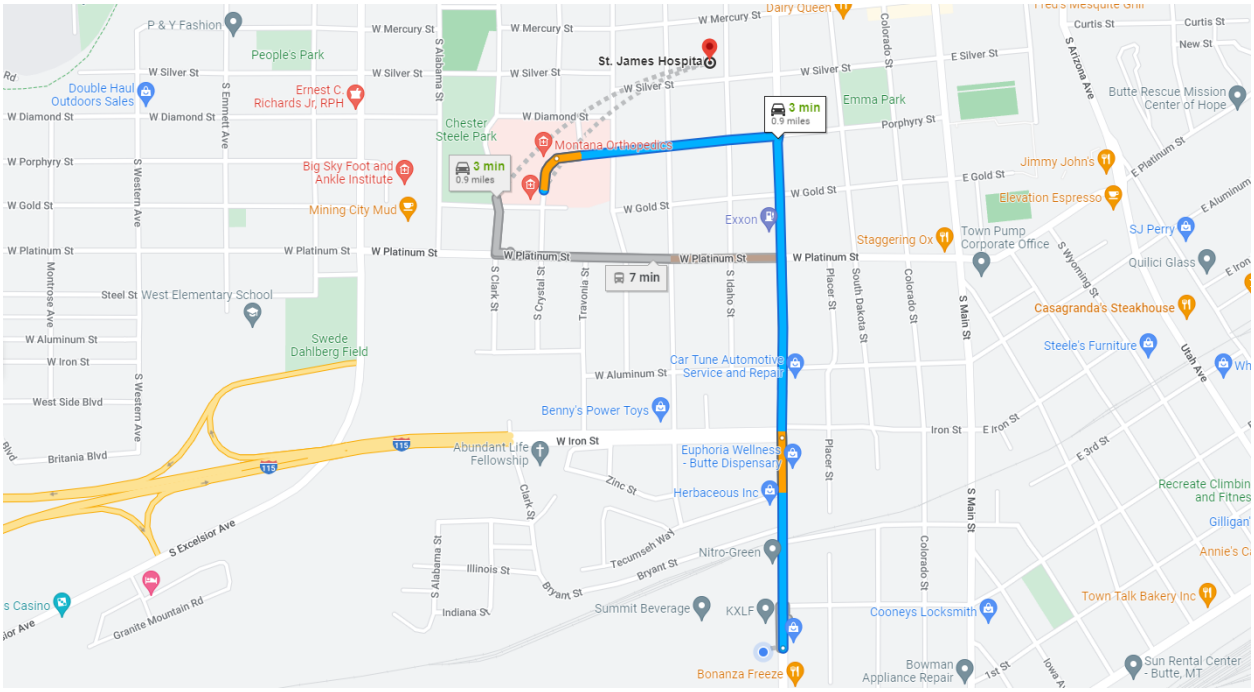
Any incident that threatens life and/or limb and/or loss of consciousness of any on-site personnel will be considered an incident that requires emergency medical care. Emergency Medical Services (EMS) should be called if a victim becomes or is currently exhibiting any of the following symptoms:

- Unconsciousness
- Trouble breathing or is breathing strangely
- Chest pain or pressure
- Severe bleeding
- Continuous abdominal pain or pressure
- Vomiting or passing blood
- Broken bone(s)
- Seizure
- Severe headache
- Slurred speech
- Any injuries to the head, neck, or back

Emergency medical care will be provided by the Butte Silver Bow EMS or Ambulance (911) Fire Dept. (911), Police Dept. (911). A full-service hospital with an emergency room has also been identified below should the facility's medical services be required. If local EMS responds to a situation at the Site, the EMS personnel will decide where the patient will be transported to based on the illness/injury and the capabilities of the facility.

In the event EMS needs to be contacted, Site personnel shall be aware of and communicate the Site Area where they are located.

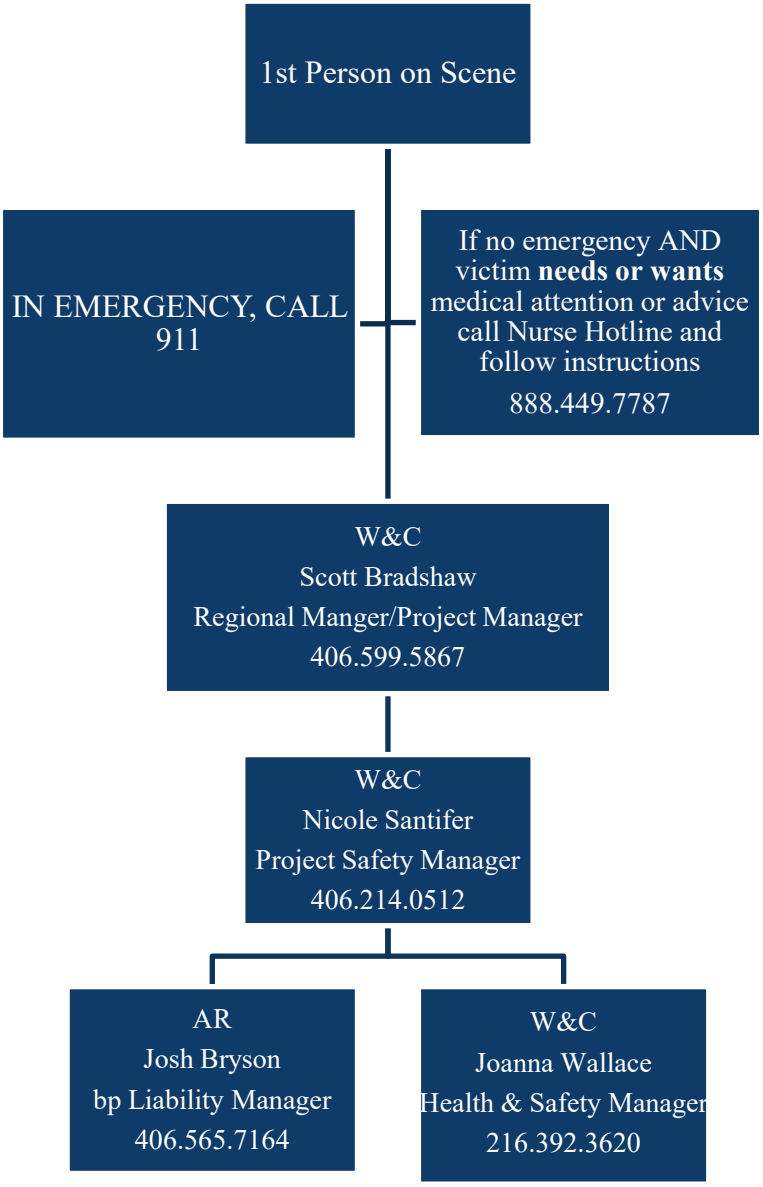
Figure 1: Map to St. James Healthcare



1.4.2 Non-Life-Threatening Medical Care

Typical incidents that require non-life-threatening care are superficial cuts, scrapes, and bruises that can be treated by the SSO or designee with first aid training. A basic first aid kit is located in field vehicles maintained by the SSO or designee on the Site. For non-life-threatening incidents experienced by Woodard & Curran employees that may require medical treatment or advice, notify the Manager then call the Nurse Hotline (888-449-7787) as outlined in Figure 2.

Figure 2 : Incident Management Flowchart



NOTE: While attempting to notify the above personnel, voicemails do not constitute notification. Keep trying until you make contact, or they have responded via email or text, acknowledging receipt of your message.

1.5 First Aid/CPR Trained Personnel

For the BPSOU site the two circumstances in which First Aid/ CPR training is required for W&C employees are Confined Space entry personnel and in the absence of a clinic or hospital in near proximity (three to four minutes for life threatening incidents, and 15-minute response time for non-life-threatening incidents) to the workplace. MSHA trained employees will be offered first aid/CPR training. However, these employees are not required to take the training. Personnel should not exceed their limitations of training when rendering first aid, nor should they administer over the counter or prescription drugs. The following site personnel are first aid/CPR certified:

Table 2: Employee First Aid/CPR Certified

CPR/First Aid Trained	First Aid/CPR	Phone Number
Scott Bradshaw	X	406.551.2294
Nathan Bowman	X	406.384.7305
Mat Erickson	X	406.498.3043
Matt Kilsdonk	X	541.561.1827
Dalen Longfield	X	406.270.6201
Jack Parker	X	406.589.5209
Hailey Madison	X	406.533.5439
Nicole Santifer	X	406.214.0512
Caleigh Mullaney	X	406.560.6567
Paddy Stoy	X	509.570.6571

1.6 Fire or Explosion

In the event of fire or explosion, the incident will be immediately reported to the SSO. The SSO or designee will immediately notify the local Fire Department (911),

Incipient Fire Response: An incipient stage fire is generally defined as a fire in its beginning stage that can be controlled with portable fire extinguishers. Fire extinguishers may then be used for incipient stage fires by **trained personnel only**. Otherwise, evacuate!

1.7 Chemical Spills and Leaks

Personnel must report any chemical spills or leaks to the SSO. Should a spill or leak (e.g., gases, vapors, dusts, liquids, solids, radioactive materials, or any other hazardous materials) occur which is a threat to the environment or human health, the person observing the spill will:

- Evacuate or request evacuation of all people at risk or shelter-in-place (SIP)

- Inform the SSO

The decision as to whether to evacuate or SIP is an important one. Factors affecting the decision include the following (refer to the DOT's Emergency Response Guidebook [ERG] and the chemical MSDSs for more detailed information):

- Hazardous material(s) released (degree of hazard, amount, containment/control, and rate of vapor movement)
- Population Threatened (location, number of persons, available time, ability to control the process, building types and availability, and special institutions/populations [day cares, schools, hospitals, nursing homes, prisons, etc.])
- Weather conditions (effects on vapor and cloud movement, potential for change, and effect on the process)

The SSO or designee will contact the appropriate Federal, State, or Local agencies in the event of a chemical emergency. These typically include the following:

- Local police and fire departments
- State Police
- Sheriff
- State DES
- Local Health Dept.
- National Response Center (NRC) (if reportable above the RQ)
- Others as applicable

1.8 Emergency Equipment

The primary emergency response equipment to be readily available onsite include, at a minimum, the following:

- Class ABC fire extinguisher in each vehicle
- First aid kit in each vehicle
- Cell phones and/or two-way radios

1.8.1 Fire Extinguisher

The potential threat of fire always exists. Personnel shall only attempt to suppress incipient-stage fires if it is safe to do so. Documented inspections shall be performed monthly by person assigned to each vehicle via the Vehicle Inspection Checklist (managed through the Fleetio app or website).

1.8.2 First Aid Kits

An industrial first aid kit with sufficient supplies shall be kept in each vehicle. If cold tablets and other non-prescribed drugs are provided, they should only be self-administered.

1.8.3 Cell Phones and/or Two-Way Radios

In areas with cell phone service the use of cell phones will be the primary communication link used between work groups and outside personnel.

In the event that cell phone service is limited, Two-Way Radios will be used to communicate.

2. INCIDENT REPORTING

All personnel on this site must immediately report injuries and illnesses to the SSO or PSM. If the injury or illness is a result of, or could result in, a chemical exposure, the SSO will report it and take appropriate action to prevent further exposure. The HSM must be contacted as soon as possible for any incident resulting in off-site medical treatment, hospitalization, or fatality.

Following an incident, an Incident Report will be completed and the HSM will be notified of the incident within 24 hours. Incidents are reported using Woodard & Curran's electronic event reporting system, the H&S HUB (APPENDIX D).

Close calls involving W&C personnel will be reported similarly to injuries and illnesses as described above using Woodard & Curran's electronic event reporting system, the H&S HUB.

In the event of a hazardous material spill or chemical release above the reportable quantity, the appropriate federal and state agencies will be notified by the PSM or SSO.

The PM and the HSM/IA shall investigate all incidents and prepare an incident report. Investigations shall occur immediately, and any evidence shall be preserved, should it be needed for investigative purposes. The person controlling work and/or PSM/SSO shall also preserve the scene as applicable for subsequent review/investigation. The PSM/IA will provide written notification to IRIS, as required, and lead the incident evaluation with support from the Corporate HSM as appropriate.

3. SITE COMMUNICATION AND ORGANIZATIONAL STRUCTURE

3.1 General Health and Safety Requirements

All personnel that work at the Site and authorized Site visitors will receive a Site Safety Briefing upon their first visit to the Site as described in Section 6.1. All personnel who enter the Site shall sign in on the Field Authorization Form (FAF) upon each entry to the Site and shall sign out prior to each departure from the Site. Personnel that work at or visit the Site are subject to the requirements of this HASP or a Contractor Health and Safety Plan (CHSP) as described below.

3.2 CHSP Requirements

A CHSP shall incorporate the requirements contained in this HASP and project specifications as applicable and shall describe all actions to be taken to perform the work assigned to that Contractor. All tasks undertaken by the Contractor and associated subcontractors shall be identified and characterized through a hazard analysis, and such identified hazards shall be integrated with all health and safety procedures, support drawings, maps, and plans in the CHSP. The CHSP and any modifications, once incorporated, shall be submitted to the PM for review prior to implementation of the work. The PMs review of the CHSP does not relieve the Contractor of any obligation or liability. The PMs review shall not constitute an approval of the CHSP and shall not relieve the Contractor of full responsibility for the health and safety of its personnel at the Site. Any W&C Contractor who does not operate under their own CHSP is subject to the requirements of this HASP. Stop Work Authority & Communication

Health and safety is affected by the actions of all personnel on the Site. All personnel shall have the authority and responsibility to stop work immediately in the event of unacceptable environmental, health and safety conditions. Stop Work responsibility includes the assurance of no reprisal against the employee based on his/her decision to Stop Work due to the perceived unsafe situation.

If unsafe conditions or actions are observed, the person observing the unsafe condition or act shall immediately stop work. Work will not resume until the issue is resolved in a manner that satisfactorily addresses the risk, as confirmed by the person controlling work or PSM or IA. Stop Work expectations are communicated in all phases of employee and subcontractor training and re-enforced during Daily Toolbox/Field Authorization Form (DTB/FAF) meetings. Records of all Stop Works will be documented on FAF forms and followed up by H&S HUB submittal, bp notification and IRIS reporting.

Any health and safety concerns shall immediately be communicated by any person to the SSO, PSM, W&C PM or CM as appropriate. The PSM and PM will make all necessary modifications to the HASP in consultation with the HSM if any Site conditions change. Amendments to and reassessment of the HASP are to be conducted and recorded in APPENDIX B.

3.3 Routine Site Communication

Cellular telephone numbers to reach key project contacts are provided on Table 1 of this HASP. Cellular phone communication will be the primary form of communication in and out of the work Site. Adequate cellular phone reception has been verified at the Site. Cellular telephone numbers

for Contractors, W&C Contractors, or visitors will be provided to the SSO or designee at the Site Safety Briefing.

In addition, the following on-site communication system for all workers may also be used during work tasks and shall not be conflicting between the HASP and CHSP or other plans:

- Verbal communication
- Radios/Walkie-Talkies (verify coordination of channels on-site)
- Hand signals as follows:

Under no circumstances will the use of cellular phones or radios occur while driving a vehicle, while operating equipment, while operating power tools, or while performing spotter duties.

Signal	***Definition***
Hands clutching the throat	Out of air/cannot breathe
Thumbs up	OK/I am all right/I understand
Thumbs down	No/Negative/I do not understand
Arms waving upright	Send backup support/need assistance
Grip buddy's wrist	Exit area immediately

3.4 Simultaneous Operations

Simultaneous operations (SIMOPs) include work performed by separate contractors at the same time with the potential to affect one another. The PIC will attend contractor safety meetings and coordinate activities to either eliminate SIMOPs conditions or coordinate simultaneous activities to prevent conflicts. Without proper planning, communication, and coordination these work-space conflicts can result in serious consequences. Elimination shall first be attempted by rescheduling project activities or moving to a different work location until SIMOPs conditions no longer exist. W&C employees should fall under contractors' SIMOPs Plans or develop new SIMOPs plans, as necessary.

The public will not be covered by SIMOPs plans because it is difficult to predict and communicate with untrained persons, which increases the chance for potential incidents to occur. Conflicts with the public will be mitigated by establishing Job Zone Control and/or Traffic Control Plans, worksite monitoring, and avoidance through scheduling/postponement of work.

The Person controlling work, PIC, PSM or IA will develop SIMOPs Plans or coordinate SIMOPs with area contractors in control of the Site. SIMOPs plans shall include, but will not be limited to, the following key points:

- A description of the job, project, operation, or activity to be conducted, including the number of personnel involved, equipment involved, and Site resources required
- Contact details for the selected representatives of each stakeholder operation
- Agreement on Site access and egress

- Expected duration of the work
- Hazard analysis profile for the job and agreed mitigations
- Work permit plan for the given job(s)
- Agreements for security arrangements
- Clear identification and communication of activities that cannot occur simultaneously or that require special controls if they are to take place simultaneously

Completed SIMOPs plans shall be made available on site and maintained in H&S files for one year. A SIMOPs Plan template is provided in APPENDIX G.

3.5 Management of Change

There are three types of change: technical, administrative, and organizational. An MoC shall be performed for any administrative, organizational, and technical change unless otherwise denoted. An MoC can be documented in field logs, project support records, Management of change form or bp's eMoC system (for technical changes). Changes are classified as replacement-in-kind (RIK), permanent, temporary, or emergency modification. In situations where the change is minimal, the MOC can be addressed in the field by evaluating the change and performing a risk assessment, followed by a review of all affected personnel. If the change is significant, work will be stopped until the MOC has been adequately identified, reviewed, verified, approved, and implemented. Any condition that is new and unevaluated may warrant an electronic MOC, which must be reported to PMs for further evaluation. With any type of change in conditions or work scope, the most important step is remembering to Stop Work and contact appropriate personnel so that the change can be adequately reassessed for safety.

The roles needed to participate in and manage the proposed change shall be identified and individuals will be assigned to those roles. An MOC shall be performed for any of the following changes unless otherwise denoted:

- Administrative, for example: changes to, or deviations from, requirements in policies and procedures.
- Organizational, for example: Permanent change in an organizational structure or change in key personnel or personnel involved with Safety and Operational risk critical roles. Examples of Key personnel include Project Managers, Project Safety Managers, Client Managers etc. For all key personnel in non-safety operation risk critical roles the RM Single Point of accountability (SPA) will determine whether a MoC is required.
- Technical, for example: Physical change to an existing facility, operational process change, or deviation from documented design limits or requirements.

MOCs submissions will be submitted electronically as described in Chapter 12- Management of Change of the BP HSSE Addendum.

3.6 Behavior Based Safety

Woodard & Curran's Behavior Based Safety Program (BBSP) compares behaviors of people to specified safe behaviors and then addresses any gaps in a positive way. It can also be used to review processes and equipment performance. The effectiveness of the BBSP depends on the participation of all employees. The purpose is to encourage safe behaviors and discourage unsafe behaviors through peer observation, performance feedback, and participation incentives. The process demonstrates peer support and cultivates working relationships. Even though this BBSP is behavior driven, it is also used to identify quality issues, environmental issues, and the performance of processes and equipment.

The frequency of observations by employees working on bp sites is 4 per year. The H&S HUB (APPENDIX G) is used to record submitted observations. The Health & Safety department tracks participation and sends reminders to ensure personnel keep up with their observation goal.

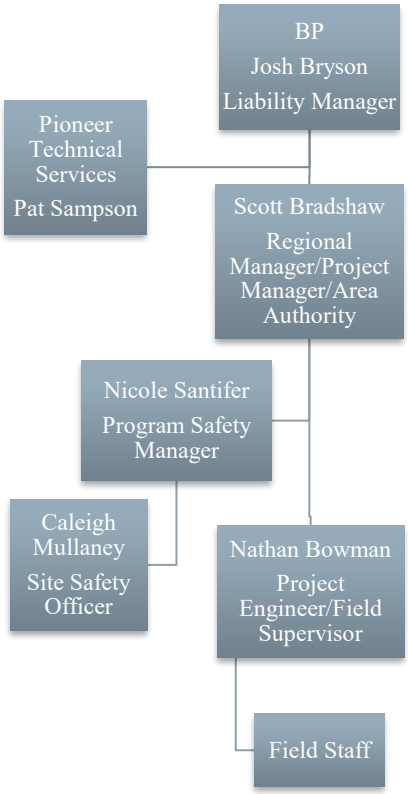
Awards will be presented throughout the year to the best observation based on the criteria below.

- Level of courage to correct an unsafe behavior or condition
- Creativity to problem solve
- Lessons learned applicability

3.7 Organizational Structure

The organizational structure, responsibilities, and lines of communication for Woodard & Curran personnel at the Site are as described below. A Project Organization Chart is provided in Figure 3 below. Contractors must provide their own specific organizational structure, responsibilities, and lines of communication within their CHSPs, which will be utilized in conjunction with this HASP. Contractors' organizational structure, responsibilities, and lines of communication will be reviewed with the SSO or designee at the Site Safety Briefing.

Figure 3: Site Organization and Responsibilities



Key project personnel and their responsibilities with regards to Site activities are discussed below.

3.7.1 bp RM Liability Manager: Josh Bryson

3.7.1.1 RM Liability Manager Authority

- Represents bp RM and their interests as an owner of the BPSOU site and has overall authority.
- Stop Work- can suspend field activities if the health and safety of personnel are endangered.

3.7.2 Area Authority (AA): Scott Bradshaw

3.7.2.1 AA Responsibilities

The AA is the individual responsible for verifying that during planning and completion of all assigned projects all requirements of CoW and supporting procedures are met. The AA for each project assigned is responsible to:

- Understand the scope, performance standards, objectives, and applicable bp requirements for each Project.
- Ensure project staff are aware of the project scope, objectives, and associated performance standards and bp requirements. Where work is to be done by a Contractor, this requirement may be satisfied by providing this information to the Contractor, this responsibility can be satisfied through delivering the information to the contractor and requiring the contractor to provide the needed information to their workforce, including their subcontractors.
- Authorize the start of all work activities within the AA's designated area of responsibility.
- Assign or approve contractor's assignment of a competent IA, PA, PO, and PIC prior to project work commencing.
- Have knowledge of and participate, where necessary, in the development and verification of permits.
- Verify that all work activities for each Project in the AA's portfolio are consistent with this and the supporting procedures.

3.7.2.2 AA Authority

- AA can suspend field activities if the health and safety of personnel are endangered, pending further consideration by the PSM or the PM.
- AA can suspend an individual field activity for infractions of this HASP, pending further consideration by the PSM or PM.
- AA can suspend field activities for infractions of Policies and Procedures in this HASP.

3.7.3 Construction Project Oversight (PO): Pioneer Technical Services - Pat Sampson

3.7.3.1 PO Responsibilities

- Third party oversight on construction projects, as delegated by the LM.
- Verify that the HASP is being implemented on-site, as delegated by the LM.

3.7.3.2 PO Authority

- PO can suspend field activities if the health and safety of personnel are endangered, pending further consideration by the on-site supervisor.
- PO can temporarily suspend an individual field activity for infractions of the HASP, pending further consideration by the on-site supervisor.

3.7.4 Project Manager (PM): Scott Bradshaw

3.7.4.1 PM Responsibilities

The PM has responsibility and authority to direct all W&C work operations, is directly responsible for the technical progress of project task elements, and the development of the overall Health and Safety program for the Site. The PM is Scott Bradshaw. The PM, in consultation with the PSM (see below for descriptions of roles) is responsible for approving modifications/addenda to this HASP.

3.7.4.2 PM Authority

- The PM also has final authority to suspend W&C employees and W&C Contractors from field activities/site access for violation of provisions of this HASP.
- Disciplinary action with regard to Contractors will be made in consultation with the LM as required.
- PM can temporarily suspend field activities if the H&S of personnel are endangered, pending further consideration by the SSO.
- PM can temporarily suspend an individual field activity for infractions of the SSHASP, pending further consideration by the SSO.

3.7.5 Program Safety Manager (PSM): Nicole Santifer or Designee

3.7.5.1 PSM Responsibilities

The PSM serves as the PM's designee for implementation, verification, and validation of the Health and Safety program for the Site. The PM is Scott Bradshaw. The PSM is responsible for developing the HASP and required modifications to this HASP. The responsibilities of the PSM include, but are not limited to the following health and safety related items:

- Development of the overall Health and Safety program for the Site with the PM and the HSM
- Coordinating development of HASP and required Addenda for new project tasks
- Overseeing and monitoring the performance of the SSO and bears ultimate responsibility for the proper implementation of this HASP
- Verification and validation that the requirements of this HASP are implemented and effective
- Review of Contractor's and W&C Contractor's CHSPs for compliance with the requirements of this HASP
- Ensuring provision of a copy of each W&C Contractor's CHSP to the SSO or designee
- Verifying the availability, through the SSO or designee, of emergency response personnel and medical support facilities
- Maintaining overall responsibility for response and corrective actions in the event of an emergency, an incident, or identification of a potentially unsafe condition or act

3.7.5.2 PSM Authority

- PSM can temporarily suspend field activities if the health and safety of personnel are endangered, pending further consideration by the PM.
- Recommendation to the PM regarding suspension of employee or W&C Contractor personnel from field activities/site access for violation of provisions of this HASP.

Disciplinary action with regard to Contractors will be made in consultation with the PM and LM as required.

3.7.5.3 Site Safety Officer (SSO): Caleigh Mullaney or designee

3.7.5.4 SSO Responsibilities

The SSO is directly involved with the day-to-day activities at the Site. The SSO work for and under the direction of the PM and are subject to the requirements of this HASP. The SSO is Caleigh Mullaney. The SSO's primary responsibility is to monitor personnel compliance with this HASP or the applicable CHSP, as appropriate. The SSO or designee will assess the compliance of Contractor and W&C Contractor operations with applicable health and safety requirements. If deficiencies are observed and the contractor does not correct them, the SSO will notify the PSM, PM, and LM as appropriate for resolution. All deficiencies and corrective actions will be documented.

The SSO will make recommendations for modifications to the HASP should any Site health and safety conditions change. These changes will be made by the AA, PM or PSM. The SSO reserves the right to stop work if a Contractor's practices are deemed dangerous to human health, public welfare, safety, or the environment.

The responsibilities of the SSO, as they pertain to work being performed by W&C, include the following:

- Coordination of W&C Contractor training and orientation
- Coordination of emergency response personnel and medical support resources
- Coordination of Site control and security
- Coordination of spill response measures
- Initiation of corrective actions in the event of an emergency, an incident, or identification of a potentially unsafe condition or act
- Implementation of corrective actions to control hazards that have been identified in the workplace
- Periodic inspection of general work conditions and implemented hazard controls
- Conduct or arrange for formal hazard assessments as necessary.
- Periodically assess the compliance of W&C Contractor operations with applicable health and safety requirements.

3.7.5.5 SSO Authority

- SSO can temporarily suspend field activities if the health and safety of personnel are endangered, pending further consideration by the PSM and the PM.
- Recommendation to the PM regarding suspension of employee or W&C Contractor personnel from field activities/site access for violation of provisions of this HASP.

Disciplinary action with regard to Contractors will be made in consultation with the PSM, PM and LM as required.

3.7.5.6 Woodard & Curran Field Personnel

W&C field personnel (including subcontractors) are responsible for his/her individual safety and that of his/her coworkers, for complying with this HASP, using the proper PPE, reporting unsafe acts and conditions, and following the work, safety, and health instructions of the SSO.

3.7.6 Short-Service Employees

New employees are considered short-service employees. They will be supervised and mentored by an experienced employee(s) until they have been properly trained in the hazards and hazard mitigation of their job(s) and have demonstrated competency, as determined by the PSM or SSO. Until they have adequately demonstrated competency, short-service employees are required to wear orange hardhats so that they can be easily distinguished as inexperienced site field personnel among the workforce.

3.7.6.1 W&C Corporate Health and Safety Manager (HSM)

The HSM Joanna Wallace. If an incident occurs at the Site that relates to staff health and safety, the HSM will be notified of the incident within 24 hours.

3.7.7 W&C Contractor

A W&C Contractor is an individual, firm, or corporation that has entered into a contractual agreement with W&C to perform work at the Site. Some W&C Contractors may be required to develop and operate under their own CHSP at the discretion of W&C. Any W&C Contractor who does not operate under their own CHSP is subject to the requirements of this HASP. A Site-specific orientation will be conducted by the PSM or SSO during the Site Safety Briefing prior to the onset of work.

W&C Contractors shall comply with all applicable laws and regulations and shall take all necessary precautions for the safety of persons or property, or the protection of persons or property from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. W&C Contractors shall provide competent persons as needed whose duties and responsibilities shall be maintaining and supervising of safety precautions over their specific scope of work. W&C Contractors must maintain documentation of employee training and participation in a medical surveillance program consistent with the requirements of their CHSP; copies of these documents must also be provided to the PSM for project files upon request. Contractor personnel must participate in twice daily safety briefings coordinated by the SSO or designee for their employees.

3.7.8 Visitors

All persons who arrive on Site that are not a part of the project team and/or have not received the site-specific safety orientation and reviewed all applicable TRA's are considered visitors. All visitors must sign in and out of daily FAFs as visitors. All visitors must also receive approval from the SSO, PSM and/or PM prior to accessing work locations. Visitors may not move freely

throughout any Site area unescorted and shall stay out of active work areas. Visitors shall don required PPE and may not perform any physical work. If visitors intend to enter a designated exclusion zone, they must meet all of the training and medical surveillance requirements and have the personal protective equipment required by this HASP according to their task and level of exposure for that work zone. Applicable documentation of visitor training and medical surveillance will be provided by the escort and maintained by the SSO or designee.

4. SITE DESCRIPTION AND SCOPE

This SSHASP describes the HSSE protocols developed for the Site. This SSHASP has been developed to assist field personnel in working safely by communicating known or suspected site hazards and the required procedures/standards to be implemented at the Site. The information herein is intended for use by field personnel and other persons that may be involved with the Site, such as subcontractors, bp RM personnel, visitors, governmental agencies, or the public.

In addition to W&C corporate policies, it is important to continuously emphasize and enforce the following:

- Work will not be conducted without a pre-job task risk assessment and a safety discussion appropriate to the level of risk.
- All persons will be trained and competent in the work they conduct.
- Personal protective equipment will be worn according to the risk assessment and minimum Site requirements which can be found on Table 6 below).
- Emergency action plans will be in place before commencement of work.
- Everyone has the responsibility and expectation to Stop Work that is unsafe or unassessed.

This document presents the site-specific health and safety processes and requirements for Remedial Investigation and Feasibility Study (RI/FS) activities that will be conducted at the Site. Task Risk Assessments (TRAs) for anticipated RI/FS tasks will be provided to field personnel electronically and as part of specific project workplans.

This document presents the Site-Specific health and safety processes and requirements for the above tasks within the Butte Priority Soils Operable Unit (BPSOU). Task Risk Assessments (TRAs) for the above tasks will be provided in project binders and/or electronically.

4.1 Site Background

Site Name: Butte Priority Soils Operable Unit

Site Location: The BPSOU covers an area of approximately five square miles and encompasses the part of Butte, Montana north of Silver Bow Creek (SBC), west of the Berkeley Pit, and east of the Montana Tech campus; the town of Walkerville; and extends south from SBC to Timber Butte. Blacktail Creek flows into the BPSOU, where it combines with the Metro Storm Drain (MSD), to form SBC. Grove Gulch is a drainage area that contributes perennial flow to Blacktail Creek prior to its confluence with the MSD. SBC flows for approximately one mile through the western portion of Butte, and eventually exits the BPSOU through its western boundary.

4.2 General Site Characteristics

Site personnel should be aware that the following physical, biological, or chemical characteristics may be present:

- Ponds
- Small and Large Creeks

- Above and below ground private and public utilities (gas, electric, sewer, water, phone, septic)
- Varying degrees of heavy metals (primarily aluminum, arsenic, cadmium, copper, iron, mercury, silver and zinc
- Active and inactive railroad tracks
- Active and inactive bridges
- Public and private maintained roads
- Public and private non-maintained roads
- Single and double track trails
- Light to heavy private and public traffic
- Heavy mobile equipment travel
- Heavy construction areas
- A variety of fauna and flora:
    - Fauna may include, but not be limited to deer, mountain lion, goats, and domestic cattle
    - Flora may include, but not be limited to a variety of weeds, grasses, and shrubs
        - Sparse to dense cottonwood, aspen, juniper, and willow stands
        - Sparse to dense stands of conifers
- Domestic animals of varying species
- Uneven terrain
- Steep embankments
- Rural to dense residential areas
- Insects, mostly in the form of ticks, ants, bees, wasps, and hornets and spiders
- Non-venomous snakes (to date, no rattle snakes identified in BPSOU)

4.3 Site Meteorology

The average annual maximum temperature is 53.9 degrees Fahrenheit (F) and the annual average minimum temperature is 25.8 F. The highest monthly average maximum temperature occurs in July with an average of 81 F and the lowest monthly average minimum temperature has occurred in December with an average of 5 F. The area yearly rainfall is 12.75 inches. The average yearly precipitation as snowfall is 62 inches (WorldClimate.com).

4.4 Scope of Work

The scope of work for BPSOU include, but are not limited to:

- Surface water sample collection
- Surface water flow measurement
- Sample collection of run-offs within storm drains
- Flow measurement of water within storm drains
- Ground water sample collection and transportation
- Ground water level measurement
- Operation and maintenance of continual ground water level recorders
- Removal of small debris in creek (excluding beaver dams)
- Operation and maintenance of continual surface water stage recorders
- Operation and maintenance of flow measurement devices within storm drains
- Operation and maintenance of storm drain automatic samplers
- Operation and maintenance of surface water automatic and mechanical samplers.
- Drilling wells/piezometers
- Soil sampling using hand tools
- Surveying
- Driving on public roads and within construction zones
- Overseeing subcontractors
- Personal air monitoring
- Perimeter air monitoring

5. MEDICAL SURVEILLANCE AND TRAINING REQUIREMENTS

5.1 Medical Surveillance

Medical Surveillance for W&C employees is performed in adherence with OSHA's HAZWOPER medical surveillance regulations under 29 CFR 1910.120, and 29 CFR 1910.1020 covering access to employee exposure and medical records and W&C Corporate Policy. All W&C employees working in contaminated or potentially contaminated areas have had medical surveillance examinations. Medical surveillance clearance records are kept at the W&C corporate office in Portland and are available upon request and authorization of the employee. W&C personnel are required to have had a physical examination within the last 12 or 24 months depending on field assignment and exposure potential.

Employees required to use respiratory protection receive medical monitoring per 29 CFR 1910.134.

Other personnel working at or visiting the Site who will work in contaminated or potentially contaminated areas or who will come into contact with impacted or potentially impacted materials will also be required to comply with the training and medical surveillance requirements of 29 CFR 1910.120.

5.2 Training Requirements and Documentation

Training required of all personnel working in or visiting the exclusion and contamination reduction zones includes:

- Initial HAZWOPER Training 24- or 40- hour as appropriate.
- Three days of supervised field experience after initial HAZWOPER training
- Annual HAZWOPER refresher training
- Site Safety Briefing as described in Section 6.1

Other health and safety related training includes HAZWOPER 8-hour Supervisory Training for the PSM, SSO, PM, or anyone with on-Site supervisory or management responsibility related to health and safety as specified in this HASP or a Contractor's CHSP.

Table 3 summarizes the training requirements for W&C field personnel in addition to the training listed above.

Table 3: Training Requirements

Task/Position/Topic	Workforce
BPSOU HASP	X
Short Service employees (supervised, on-the-job training)	X
CPR/First Aid/Blood-Borne Pathogens	X[a]
Hazard Communication	X
Fire Extinguisher	X
Smith System Defensive Driver	X
Hazard Identification Task Risk Assessment (HITRA)	X[b]
Control of Work (CoW)	X

a: For employees working on MSHA sites or Confined Space Attendants.
b: Level 1 Assessors and Level 2 Leaders only.

Documentation of W&C training for hazardous waste site work is kept at the Site and maintained by the PSM or SSO.

5.3 Reassessment of HASP

When a significant change occurs, the hazards will be reassessed. Some indicators of the need for reassessment include:

- The commencement of a new work phase not previously identified in this HASP.
- Chemical compounds discovered other than those previously identified.
- A change in the scope of work that affects the degree of contact with the chemical.
- Review contacts and emergency information at least annually if the scope of work associated with this HASP extends beyond one year and none of the indicators listed above have triggered reassessment in the prior one-year period.

When changes to any aspect of this HASP occur, such changes will be written in the Amendments to Site Safety Plan, APPENDIX B to this HASP and the amendments will be communicated to all Site workers at the next Daily Safety Briefing unless deemed otherwise by the SSO.

6. SAFETY BRIEFINGS AND INSPECTIONS

6.1 Site Safety Briefing

The PSM, SSO, or designee will provide a Site Safety Briefing to all personnel that work at the Site and authorized Site visitors. This training will be provided to each person upon their first visit to the Site, and should include the following topics as applicable:

- Names of personnel responsible for Site safety and health
- Safety, health, and other hazards at the Sit.
- PPE to be used at the Site
- Necessary training as applicable to tasks
- Work practices to be used at the Site to reduce risks from identified hazard.
- Emergency procedures (e.g. evacuation, incident reporting, spill response.
- Decontamination procedures
- Review of TRAs as necessary and as applicabl.

All personnel required to follow this HASP are required to sign and date the Review Acknowledgement Form in APPENDIX A prior to Site work to indicate they are aware and familiar with the general requirements of the HASP presented during the Site Safety Briefing by the SSO or designee.

6.2 Daily Safety Briefings

The Field Team Leader, PSM or SSO will lead/facilitate the daily safety meeting to discuss:

- SIMOPs applicability
- Planned work for the day
- Safety items from the previous day
- Applicable TRA(s)
- Stop Work expectations
- Standard Operating Procedures (SOPs)
- Required permit(s)
- Muster point(s)
- Submitted Safety Observation and Conversation Cards
- Any safety topic(s) applicable for the day (weather, slips and falls, etc.)

All field team members will participate in the daily safety briefing and sign the FAF as being fit for duty and sign out at the end of the day, indicating that they are leaving in the same condition as they arrived. Anyone not fit for duty shall notify the Field Team Leader, PSM, or SSO for

further evaluation and case management. The person responsible for work that day will be identified on the FAF and sign out of the FAF at the end of each day, indicating approval of its content and closure. The person responsible for work will also be responsible for implementing the controls on all Task Risk Assessment associated with tasks performed that day. A template FAF can be found in APPENDIX G and is available electronically.

6.3 Site/Equipment/Task Inspections

Project personnel will inspect their work areas and equipment at the start of each day and perform a 360◦ walk around of their vehicle each time before putting it into gear. Employees will then log any pertinent information on the TRA and/or FAF for that day. If there are any unsafe conditions, steps shall be immediately taken to correct the condition or isolate it to ensure there is no risk to project personnel, the public, or the environment.

No equipment will be allowed on site that has fluid leaks or seeps. Once equipment arrives on Site, owners/operators will perform daily inspections to ensure equipment remains in safe condition. The equipment shall be removed from service for any deficiencies that could impact safety or cause equipment damage. Site equipment may include, but is not limited to, pickup trucks, heavy equipment (haul trucks, drilling equipment), and hand/power tools. Any repairs on mobile equipment requires that equipment be removed from the Site or taken to a designated on-site staging area until repairs are completed.

Over-the-road, light duty vehicle operators shall complete driver training within six months of being hired. Subcontractors operating heavy mobile equipment shall submit proof of task training and shall demonstrate proficiency in inspection and operation of their assigned equipment.

Manger field visits shall be conducted once per quarter when field work is occurring. Mangers are to make quality and safety observations on site and document their findings and discussions on the Manager Field Visit From.

7. SITE CONTROL

7.1 Site Map and Work Zones

Work zones shall be established to prevent entry by other working groups and/or the public. 42-inch candles and vehicles with yellow strobe lights (Level 1) will be used as the primary means to prevent unauthorized personnel from entering active work areas, accessible by others. Vehicles equipped with yellow warning lights may be sufficient to prevent unauthorized persons from entering work areas that only involve the use of hand tools. Level 2 and 3 controls may be warranted for work areas involving the use of heavy equipment. When work is conducted near residential areas and public roads, written Traffic Control Plans will be prepared. Traffic Control Plans can be handwritten or more formally prepared. All controls and effectiveness will be continuously assessed by field staff throughout the day. Barrier tape and candles can be used to mark utilities (e.g., fire hydrant, telephone box, guy wires) and/or to encircle hazard locations (e.g., holes, shafts, grounds hazards) that personnel should be aware of. Red and yellow barrier will convey the following:

- Red barrier tape: DANGER - Do not enter
- Yellow barrier tape: CAUTION when entering zone

Cones shall not be used, given their low profile. Barrier tape should be inspected daily to ensure it remains in place. When the hazard is eliminated, the barrier tape should only be removed by the person who installed it initially, or a designee.

***Exclusion Zone*:** The Exclusion Zone (sometimes also referred to as the "hot zone" or "dirty zone") at the subject Site will be designated by the PSM or designee and will generally consist of an area within 15 feet of the work area (but may vary widely depending on equipment operation radius needs, wind, weather, topography, buildings, chemicals, contamination, size and scope of project task, etc.). Proper decontamination procedures must be followed when exiting the Exclusion Zone. **Please note:** Only authorized personnel who meet the training and medical surveillance requirements may enter this zone.

Contamination Reduction Zone (CRZ): The CRZ (sometimes also referred to as the "warm zone" or "decontamination" or "decon" zone) will be identified by the PSM or designee. The CRZ will be determined daily and be located between the exclusion and support zones. The access or "*contamination reduction corridor*" or *CRZ* (often also referred to as the "decon area") for the exclusion zone will be marked with traffic cones or yellow tape. The CRZ will be located upwind of the exclusion zone, which will be determined daily and communicated at daily safety briefings by the SSO or designee. Site workers must enter and leave the exclusion zone using this corridor. Workers will sign in and out of the Site. Logbooks will be kept at the site office or SSO or designee project vehicle for signing in and out. Section12 of this HASP contains information about decontamination supplies and procedures.

***Support Zone*:** The support zone (sometimes also referred to as the "cold zone" or "clean zone") functions as the clean area and is the outermost zone beyond the Contamination Reduction Zone. This is where support and administrative personnel remain. The support zone is also where the

project vehicle, phone, meeting area, and command post are located. Normal work uniforms are appropriate clothing for this zone. The support zone will be located upwind of the high hazard areas (the exclusion zone) as appropriate.

There should be clear delineation of the three work zones to ensure unauthorized personnel do not inadvertently enter the exclusion zone and to ensure contaminated equipment or clothing does not enter the support zone without following adequate decontamination procedures.

7.2 Use of Buddy System

The buddy-system ensures that no person works in or visits an area with high hazard conditions as established by the PSM. "High hazard conditions" could include temperature extremes, higher chemical concentrations, dangerous wildlife, dangerous topography or walking conditions, working in, on or around water, and severe weather. When working in a "buddy-system required" area, persons are paired and must always be in close proximity of each other. If one person has to leave the high hazard work area for any reason, both persons must leave. The SSO or designee will coordinate the implementation of the buddy system at the Site. Tasks requiring the use of the buddy system are identified in the respective JSA.

7.3 General Site Security and Workplace Violence Prevention

The Site is in a combination of residential, private, and city-owned areas. Some areas that are city- or client-owned are fenced and have signs that state; No Unauthorized Access, Keep Out, Authorized personnel Only and Warning, Hazardous Work Area Do Not Enter Unless Authorized.

W&C Field Personnel are expected to:

- Act in accordance with Woodard & Curran's values and standards of conduct, including being sensitive to any situation that may develop into a risk of workplace threats or violence.
- Know the procedure for reporting any prohibited conduct and report any violation or suspected violation.
- Notify Human Resources upon application for or receipt of a protective order or a restraining order that would pertain to or include the workplace.
- Maintain awareness of their surroundings and all people in proximity to where they are working.
- Do not enter any private property without first obtaining written landowner access agreements.
- When approached by parties not authorized in the work zone or by members of the public if a clearly defined work zone is not present then employees are to maintain a distance of four feet or more from that person unless impractical.
- If an employee feels threatened or uncomfortable with a person in proximity to them the employee is to increase distance and, if possible, place a barrier between them and that

person. If necessary, the employee is to leave the work area and not return until safe to do so.

- During field operations employees are to notify a Manager and/or law enforcement as necessary upon encounter with person they feel is a risk to their safety.
- Hazard Identification & Task Risk Assessment (HITRA) shall be used at projects to systematically identify security hazards, assess risk, and implement security reduction measures, as necessary to manage identified risk. HITRA is the documented process to identify worksite security hazards/risks that may include:
    - Criminal conduct
    - Intimidation
    - Violence
    - Sabotage
    - Unauthorized access or damage to property.

PSM, SSO and/or PMs are expected to:

- Take immediate action to address reported, observed, or suspected violations of this policy. In cases of imminent danger, notify local law enforcement. In all other cases, consult with Human Resources. Keep records of all reports made and actions taken.

8. HAZARDOUS MATERIALS / HAZARD COMMUNICATION

Contact with contaminated soil, dust, surface water, or ground water represent the most likely exposure routes for the current scope of work at the Site. PPE and proper personal hygiene will mitigate that potential exposure. Should airborne dust levels exceed the action levels or applicable TRA, a Stop Work shall be initiated until dust can be controlled and proper PPE is obtained. Decontamination will include removal of impervious gloves and hand washing before eating, drinking or smoking. Safety data sheets (SDSs) for chemicals used or stored for Site work shall be maintained in their vehicles, on computers/tablets, in this SSHASP (APPENDIX D), or by the construction contractor.

8.1 Materials Expected to be Encountered

By wearing standard personal protective equipment (PPE) and practicing good hygiene, personnel will greatly reduce their chance for exposure. More specifically, impervious gloves and required safety glasses are adequate protection against contaminated soils and against equipment that has been in contact with contaminated soils. The primary constituents of concern (CoC) during activities at the Site include:

- Soils/dust/water/sediment contaminated with heavy metals
- Surface water contaminated with sewage
- Surface water contaminated with Pentachlorophenol (PCP)
- Airborne dusts containing silica or metals
- Water preservatives (acids)
- Caustic lime
- Engine exhaust (carbon monoxide) from mobile equipment; and portable generators
- Equipment fuels (gasoline and diesel)
- Hydraulic fluids from equipment
- Herbicides and fertilizer
- Marking Paint

Of the listed CoC; field personnel primarily use water preservatives, gasoline and marking paint, however, personnel do work in close proximity to the other CoCs listed, and therefore, have potential exposure if controls and practices are not followed. Hazards and mitigation are summarized below:

8.1.1 Heavy Metals

Exposure to heavy metals can occur when working with soils and/or water on site. The heavy metals found on Site in varying locations may include aluminum, arsenic, cadmium, copper, iron, lead, mercury, silver, and zinc. The toxicity and concentrations of these substances vary. Personnel are exposed to low levels (levels well below established exposure limits) over a long period of time (chronic exposure). Acute exposure (exposure to levels exceeding the established exposure limits

during a short duration) is not likely while working on Site. The long-term (chronic) signs and symptoms of exposure for each chemical are listed below.

- Chronic exposure to organic arsenic compounds may result in dermatitis, anemia, leukocytopenia, or the effects associated with several forms of cancer.
- The most serious consequence of chronic cadmium poisoning is cancer (lung and prostate). The first observed chronic effect is generally kidney damage, manifested by excretion of excessive (low molecular weight) protein in the urine. Cadmium is also believed to cause pulmonary emphysema and bone disease (osteomalcia and osteoporosis).
- Chronic exposure to copper may cause sensitization.

Chronic exposure to lead in humans can affect the blood. Lead also affects the nervous system. Other effects from chronic lead exposure in humans include effects on blood pressure and kidney function, and interference with vitamin D metabolism.

Minimize exposure to heavy metals by practicing good hygiene (always wash hands before eating, smoking, or using the rest room; eat in designated areas only; avoid finger food when performing field work). There is a chance of exposure to heavy metals through dust. Consequently, ensure local weather conditions are monitored daily and stay upwind of generated dust. Exposure to heavy metals is minimized by always wearing impervious gloves and safety glasses.

8.1.2 Pentachlorophenol (PCP)

Exposure to PCP may occur when working with surface and ground water in the Lower Area One and Montana Pole and Treatment Plant Areas. Personnel are exposed to low levels (levels well below established exposure limits) over a long period of time (chronic exposure). Acute exposure (exposure to levels exceeding the established exposure limits during a short duration) is not likely while working on site. The long-term (chronic) signs and symptoms of exposure to PCP are listed below.

- Chronic exposure to PCP may cause chloracne, a skin rash characterized by persistent blackheads, whiteheads, and yellow cysts.
- Chronic exposure to PCP may cause bronchitis with coughing and phlegm production.
- Chronic exposure to PCP may result in damage to liver and kidneys, reproductive effects, weight loss, weakness, excessive sweating, damage to the nervous system, or damage to the blood. Pentachlorophenol has been shown to cause cancer (targeting liver and kidneys) and reproductive damage in laboratory animals.

Exposure to PCP is minimized by practicing good hygiene (always wash hands before eating, smoking, or using the rest room, eat in designated areas only, avoid finger food when performing field work`). Respiratory exposure is possible with PCP, but very unlikely with the concentrations expected to be encountered on site. Ingestion and skin contact are more likely exposure routes. Exposure to PCP in surface or ground water is minimized, even eliminated, by always wearing impervious gloves and safety glasses when working with surface water, ground water, and equipment which has been in contact with surface and ground water.

8.1.3 Commonly Used Chemicals

8.1.4 Acids

Nitric and sulfuric acids are used to preserve ground water and surface water samples. Acid burns to the skin and/or eyes are potential hazards when working with acids. Impervious gloves and safety glasses with side shields should be worn at all times when using acids. In addition, stay up wind when pouring acids and if possible, add acids to water. The majority of sample bottles used at the BPSOU are received pre-acidified; thus, water must be added to the acid. Use care doing so and avoid overfilling the bottles. Furthermore, in temperatures exceeding 50º Fahrenheit, empty pre-acidified sample bottles should be stored on ice when in the field. When opening pre-preserved sample bottles, always open the bottles with the mouth of the bottle facing away from all personnel. If skin or eye contact does occur, flush skin and/or eyes with copious amounts of water. Eye wash bottles must be carried with field gear.

8.1.5 pH Buffers

pH buffers (4.00, 7.00, and 10.00 standard units (S.U.) are used when calibrating water quality meters. Skin and/or eye irritation are potential hazards when working with pH buffers. Impervious gloves and safety glasses with side shields should be worn at all times when working with pH buffers. It is normally possible, and far more practical, to use pH buffers in the office prior to entering the field. This practice should be maintained whenever possible.

8.1.6 Conductivity Standards

Conductivity standards (0.447, 1.500, 2.765 mmhos/cm) are used when calibrating water quality meters. Slight skin and/or eye irritation are potential hazards when working with conductivity standards. Impervious gloves and safety glasses with side shields should be worn at all times when working with conductivity standards. It is normally possible, and far more practical, to use conductivity standards in the office prior to entering the field. This practice should be maintained whenever possible.

8.1.7 ORP Solutions (Zobell's Solution)

ORP solutions (approximately 270 mV) are used when calibrating water quality meters. Slight eye irritation is the potential hazard when working with ORP solution. Skin irritation is not anticipated, however, caution should be exercised to prevent skin contact. Impervious gloves and safety glasses with side shields should be worn at all times when working with ORP solutions. It is normally possible, and far more practical, to use ORP solutions in the office prior to entering the field. This practice should be maintained whenever possible.

8.2 Raw Sewage

Biological hazards may be present in water bodies due to contributions from storm sewers that drain a metropolitan area, from possible contribution of sewage from direct discharge of old homes in the area, and from discharge from the MSTP. Storm sewers have a higher potential than surface water sites of containing raw sewage. When working in storm drains employees should practice good hygiene (always wash hands before eating, smoking, or using the rest room, eat in designated areas only, avoid finger food when performing field work) and wear impervious gloves and safety glasses.

8.3 Caustic Materials (Lime)

Workers may be exposed to lime dust while on site. Exposure to lime can cause skin and eye irritation and/or burns. Employees are not anticipated to be working directly with lime at the BPSOU, however lime may be encountered at the Butte Treatment Lagoons (BTL). Lime is delivered on a regular basis to the BTL silo, and significant lime dust is present inside the BTL control building. When inside the BTL control building avoid contact with surfaces and wear gloves if surfaces must be contacted. After leaving the control building, do not touch eyes/face until gloves have been removed. Stay up wind while lime is being delivered. If contact with skin and/or eyes does occur, flush the skin and/or eyes with copious amounts of water. Eye wash bottles are readily available inside the BTL control building.

8.4 Spray Paint

Personnel may be exposed to spray paint while surveying or marking wells. Spray paint is a respiratory tract and eye irritant. Personnel should use spray paint in a well-ventilated area. Eye protection should be worn at all times. Cans should be treated as compressed gas. Closed containers may rupture due to pressure buildup from extreme temperatures. Keep cans away from heat and flame. Always spray paint from an upwind position to avoid unnecessary exposure. Safely store spray cans in vehicles, with their caps in place and away from the vehicle controls (gas and brake pedals).

8.5 Chemical Hazard Analysis

Table 4 below provides a summary of predominant COCs and other contaminants/air hazards and symptoms of overexposure with contaminant specific action levels that may be utilized by the SSO or designee if Site monitoring results or observed work conditions suggest that a specific contaminant needs to be measured independently to quantify a specific exposure. Should this occur, a COC specific monitoring protocol will be developed by the SSO and appended to this HASP. A summary of the Hazard Communication Plan for the Site is included in APPENDIX C.

Table 4: Chemical Contaminants of Concern

Contaminant	Exposure Limits (TWA unless noted)[a]	IDLH	Symptoms of Exposure	Ionization Potential	Contaminant Specific Action Level	Special Designations
Aluminum, Metal	NIOSH REL 10 mg/m^3 (total) 5 mg/m^3 (respirable) OSHA PEL 15 mg/m^3 (total) 5 mg/m^3(Respirable) ACGIH TLV 1 mg/m^3(Respirable)	N.D.	Irritation eyes, skin, respiratory system	NA	7.5 mg/m^3	
Arsenic, inorganic	NIOSH REL 0.002 mg/m^3 ceiling 15 min OSHA PEL 0.01 mg/m^3 ACGIH TLV 0.01 mg/m^3	5 mg/m^3	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin	N/A	0.005mg/m^3 29 C.F.R. 1910.1018	Carcinogen
Asbestos	NIOSH REL 0.1 fiber/cc OSHA PEL 0.1 fiber/cc 1 fiber/cc (averaged over 30 min) ACGIH TLV 0.1 f/cc (respirable fibers)		Asbestosis (chronic exposure): dyspnea (breathing difficulty), interstitial fibrosis, restricted pulmonary function, finger clubbing; irritation eyes	N/A	0.05 fiber/cc	Carcinogen
Cadmium	NIOSH REL LFC OSHA PEL 0.005 mg/m^3 ACGIH TLV 0.01 mg/m^3 0.002 mg/m^3 (r)	9 mg/m^3	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, sub-sternal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia	N/A	0.0025 mg/m^3 29 C.F.R. 1910.1027	Carcinogen
Carbon monoxide	NIOSH REL 35 ppm 200 ppm ceiling OSHA PEL 50 ppm	1200 ppm	Headache, tachypnea, nausea, lassitude (weakness, exhaustion), dizziness, confusion,	14.01eV	25 ppm	Potential Landfill Gases

Contaminant	Exposure Limits (TWA unless noted)[a]	IDLH	Symptoms of Exposure	Ionization Potential	Contaminant Specific Action Level	Special Designations
	ACGIH TLV 25 ppm		hallucinations; cyanosis; depressed S-T segment of electrocardiogram, angina, syncope			
Copper, Dusts and Mists, as Cu *Note: copper fume has lower exposure limits than those listed here*	NIOSH REL 1 mg/m^3 OSHA PEL 1 mg/m^3 ACGIH TLV 1 mg/m^3	100 mg/m^3	Eye irritation, respiratory irritation, including coughing, sneezing, thoracic pain, and runny nose	N/A	0.5 mg/m^3	
Gasoline	NIOSH REL Ca N.D. OSHA PEL None	Ca [N.D.}	Irritation eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid); possible liver, kidney damage; [potential occupational carcinogen]	NA	NA	
Hydrogen Sulfide	NIOSH REL 10 ppm ceiling (10 min) OSHA PEL 20 ppm ceiling 50 ppm 10 min once only if no other meas. exp. occurs ACGIH TLV 1 ppm 5 ppm STEL	100 ppm	Irritation to eyes and respiratory system, apnea, dizziness, headache, fatigue, eye pain, irritability	10.46 eV	5 ppm	Potential Landfill Gas
Lead	NIOSH REL 0.050 mg/m^3 OSHA PEL 0.05 mg/m^3 ACGIH TLV 0.05 mg/m^3	100 mg/m^3	Lassitude (weakness, exhaustion), insomnia; facial pallor; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension	N/A	0.025 mg/m^3 29 C.F.R. 1910.1025	

Contaminant	Exposure Limits (TWA unless noted)[a]	IDLH	Symptoms of Exposure	Ionization Potential	Contaminant Specific Action Level	Special Designations
Methane	Methane can form an *explosive* mixture in air at levels as low as 5 percent.	5,000 ppm	Methane is a "simple asphyxiant," so it can displace available oxygen. Immediately or shortly after exposure to oxygen levels of less than 15 percent in air, a person may feel tired, dizzy, and have a headache.	N/A	< 5% in air	Explosive
Mercury	NIOSH REL Hg Vapor: TWA 0.05 mg/m^3 [skin] NIOSH REL Other: C 0.1 mg/m^3 [skin] OSHA PEL TWA 0.1 mg/m^3	10 mg/m^3 (as Hg)	Irritation to eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria		0.05 mg/m^3	
Nitric Acid	NIOSH REL TWA 2 ppm (5 mg/m3) ST 4 ppm (10 mg/m^3) OSHA PEL TWA 2 ppm (5 mg/m^3)	25 ppm	Irritation eyes, skin, mucous membrane; delayed pulmonary edema, pneumonitis, bronchitis; dental erosion	11.95 eV	2.5 mg/m^3	
Pentachlorophenol	NIOSH REL TWA 0.5 mg/m^3 [skin] OSHA PEL TWA 0.5 mg/m^3 [skin]	2.5 mg/m^3	Irritation to eyes, nose, throat; sneezing, cough; lassitude (weakness, exhaustion), anorexia, weight loss; sweating; headache, dizziness; nausea, vomiting; dyspnea (breathing difficulty), chest pain; high fever; dermatitis	NA	0.25 mg/m^3	
Silica, crystalline	NIOSH REL 0.05 mg/m^3 (r) OSHA PEL 0.05 mg/m^3 (r)			N/A	0.025 mg/m^3	Carcinogen

Contaminant	Exposure Limits (TWA unless noted)[a]	IDLH	Symptoms of Exposure	Ionization Potential	Contaminant Specific Action Level	Special Designations
	ACGIH TLV 0.025 mg/m^3 (respirable cristobalite, quartz)	25 mg/m^3 (cristobalite, tridymite) 50 mg/m^3 (quartz, tripoli)	Cough, dyspnea (breathing difficulty), wheezing; decreased pulmonary function, progressive respiratory symptoms (silicosis); irritation eyes			
Silver	NIOSH REL TWA 0.01 mg/m^3 OSHA PEL TWA 0.01 mg/m^3	10 mg/m^3 (as Ag)	Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	NA	0.005 mg/m^3	
Sulfuric Acid	NIOSH REL TWA 1 mg/m^3 OSHA PEL TWA 1 mg/m^3	15 mg/m^3	Irritation to eyes, skin, nose, throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatis; dental erosion; eye, skin burns; dermatitis	?	0.5 mg/m^3	
Zinc	NIOSH REL 15 mg/m^3 (total) 5 mg/m^3 (resp) OSHA PEL 15 mg/m^3 (total) 5 mg/m^3 (resp)		Stomach cramps, nausea, and vomiting. Can cause anemia and metal fume fever		**NA**	

Note [a]: If project work takes place in California, contact Health & Safety to determine if exposure limits need to be adjusted.

REL: NIOSH Recommended Exposure Limit
PEL: OSHA Permissible Exposure Limit
STEL: Short Term Exposure Limit
TLV: ACGIH Threshold Limit Value
TWA: Time Weighted Average
LFC: Lowest Feasible Concentration
N/A: Not applicable
f/cc: fibers per cubic centimeter
ppm: parts per million
mg/m^3: milligrams per cubic meter
r: respirable fraction

9. PHYSICAL HAZARD ANALYSIS

Precautions will be taken to abate physical hazards identified for this project as well as chemical hazards as described in Section 8.1 above. The following physical hazards have been identified and will be minimized through a Task Risk Assessment described in Section 9.1 below.

- Uneven Walking Surfaces/Terrain
- Heavy Equipment Operation
- Inclement Weather
- Heat Stress
- Heavy Traffic Areas
- Power Tool Operation
- High Noise Environment
- Corrosives Handling/Exposure
- Underground Utilities
- Overhead Utilities
- Slips, Trips, Falls
- Lifting
- Unnatural Postures (twisting, static movement)
- Repetitive Motions
- Fauna & Flora Hazards
- Cold Stress
- Working on or Near Water
- Compressed Gases
- Driving
- Drilling
- Confined Space

9.1 Hazard Identification and Task Risk Assessment (HITRA)

9.1.1 Task Risk Assessment

Task risk assessments (TRAs) will be conducted for all field tasks. Level 1 TRAs are qualitative assessments performed for low to moderate risk tasks, while Level 2 risk assessments are conducted for moderate to high-risk tasks, like permitted work or work around water. The AA, PM and/or PSM determines the TRA level, based on reviewing the TRA Table (TRAT). HITRA-trained personnel lead the TRAs, while anyone can participate in the reviews. The TRA review team shall include a representative from those performing the work, and the Issuing Authority (IA) and Performing Authority (PA) for permitted work. The team can also include safety, engineering, geology, hydrology, industrial hygiene personnel, as warranted. TRAs for Site work are provided electronically via the H&S HUB which can be accessed on tablets/phones or will be printed and kept at the job site or in the vehicle.

The hierarchy of controls shall be used to mitigate hazards and reduce risks to acceptable levels (low to moderate). Work will not be authorized to proceed with risks above moderate. Controls shall be evaluated starting with elimination and working down to PPE. The hierarchy of controls are:

- Elimination
- Substitution
- Engineering

- Isolation
- Administrative
- Personal Protective Equipment (PPE)

10. AIR MONITORING PLAN

The air monitoring plan presented in this section of the HASP is a plan to be implemented during certain activities conducted by W&C or W&C Contractors to identify and quantify airborne contaminants such as volatile organic vapors, dust, and combustible gas.

The types of real time field monitoring instrumentation to be used on the Site are summarized below in Section 10.1. The air monitoring protocol to be implemented during this scope is summarized in Section 10.2 and 10.3.

10.1 Monitoring Instrumentation

All instruments must be validated to calibration standards at least daily or more frequently if required by the manufacturer and must be in good working order. The following direct measurement field monitoring instruments may be utilized at the Site for continual and periodic monitoring:

- Photo Ionization Detector (PID): Minirae 3000 or equivalent for the monitoring and direct read of volatile organic vapors during certain work activities
- Dust Level Meter: Dust MiniRam(s) instruments or equivalent will be implemented for continuous monitoring during drilling and other ground disturbance activities around the perimeter of certain work activities.
- Multi-Gas Meter: Ventis MX4 Multigas Detector or equivalent for detection of oxygen and combustible gas to be used for continuous monitoring of potential gas intrusion during certain work activities.

10.2 Monitoring Instrumentation

Planned activities are not expected to cause off-Site migration of contamination (via volatile or dust emissions, for example) or result in field personnel's exposure to significant concentrations of Site contaminants. The most likely route of exposure to hazardous chemicals on this Site is direct contact or inhalation of contaminated dust. USEPA has established a National Ambient Air Quality Standard for PM-10 (particles less than 10 micrometers in diameter) of 0.150 milligrams per cubic meter (mg/m^3) over a 24-hour period. If dust generating activities are to occur in areas of known contaminant impacts, a more conservative action level will be established based on the OSHA PEL or other established threshold limits (e.g. NIOSH REL or ACGIH TLV) for the primary contaminant of concern within that area.

When feasible, soil borings will be completed utilizing a direct push drilling rig, which will limit the potential for dust generation. A light water spray may be used to keep dust down (as weather conditions require) in certain sections of the Site, as determined by the SSO. The spray will reduce the possibility of contaminated dust drifting off-Site. Weather and soil conditions will be evaluated daily by the SSO. Dust controls are implemented at the discretion of the SSO. Dust monitoring with an aerosol monitor may be conducted at the discretion of the SSO or as specified in a project work plan during activities such as drilling, test pitting, and soil/sediment sampling that may cause excessive dust levels. A PID may be used to monitor for VOCs during certain investigation

activities at the discretion of the SSO or as specified in a project work plan. Background levels of VOCs and particulate dust will be measured and recorded prior to the commencement of work activities during which VOC and particulate dust monitoring will be performed throughout the work activity. Action levels provided in Table 4 will be measured against these background levels so long as background does not exceed OSHA permissible exposure limits.

If continuous uncontrolled visible dust is observed being generated from work activities, or an established monitoring action level (see Table 5) is exceeded in the worker's breathing zone, affected Site work should cease and engineering controls (e.g., dust suppression methods, ventilation for VOCs, source removal, etc.) will be implemented. After the engineering control measures have been implemented, another reading and observation should be taken in the breathing zone to see if levels have decreased before proceeding. If the engineering control measures are not successful in reducing concentrations below the applicable action level work will cease and the PSM and PM will be notified.

Atmospheric monitoring for oxygen and combustible gas (lower explosive limit) may be conducted during drilling and excavation (including test pitting) activities at the discretion of the SSO or as specified in a project work plan. Atmospheric monitoring will be conducted in accordance with OSHA standards for excavations.

10.3 Personal Air Monitoring

In the majority of activities outlined in this Health and Safety Plan (HASP), the necessity for personal air monitoring to safeguard the health of workers and contractors is not anticipated, considering the expected level of contaminants. However, task-specific personal air monitoring may be deemed necessary should hazard analysis or air sampling within work zones indicate the potential presence of contaminants nearing Permissible Exposure Limits (PELs). In the event of chemical hazards or conditions arising during construction, necessitating personal air monitoring, an appropriate plan for sampling and analysis will be promptly developed.

Table 5: Air Monitoring

Instrument	Frequency	Concentration Expected	COC & Action Level	Action
PID (with 11.7 eV lamp)	As required by the project work plan or at a minimum of once every 30 minutes during direct push and drilling activities, test pitting, and excavation activities within known source areas or within the limits of the landfill. An initial background reading will be recorded daily prior to starting the activity. Increase frequency of readings if levels above background are observed.	Background readings below action level	All VOCs PID > 5 ppm sustained for more than 2 minutes average	Back-off and ventilate until readings have reached background or zero.
			If > 5 ppm sustained average cannot be reduced.	Stop work and back off to a safe upwind location. Assess for implementation of controls (cover source, ventilate, remove source, etc.). Contact PSM and PM for direction.
Multi-gas Meter (O_2, LEL)	As required by the project work plan or at a minimum of once every 30 minutes during direct push, drilling, test pitting, or excavation activities within known source areas or within the limits of the landfill area. An initial background reading will be recorded daily prior to starting the activity. Increase frequency of readings if levels above background are observed.	Background readings below action level	Oxygen < 19.5% - >23.5% LEL < 5 %	Stop work and back off to a safe upwind location. Do not commence work until atmospheric levels are controlled to within safe limits. Assess for implementation of controls (cover source, ventilate, remove source, etc.). If action levels cannot be met, cease work and notify the PSM and PM for direction.
Dust Level Meter	As needed during any construction operations generating visible excess dust in the work zone and along the perimeter.	Background	> 0.150 mg/m^3 above background levels or as determined by the project work plan for areas of known contamination	Stop work and implement dust control measures such as wet methods. If action level cannot be met or if continuous visible dust is observed regardless of the reading, the work will cease and the PSM and PM contacted for direction.
Personal Air Samplers	As needed	Readings below the action level	TBD	TBD

11. PERSONAL PROTECTIVE EQUIPMENT

While PPE can be vitally important and useful, it should ***not*** be the first form of hazard control implemented. Engineering and administrative controls should be implemented first. OSHA has several regulations on PPE (29 CFR 1910.132-139) that will be followed by personnel covered by this HASP. This section also doubles as the OSHA-required written certification of PPE hazard assessment. See the HASP approval page for required date and the name of certifier.

Table 6: PPE Requirements

PPE Required	Applicable Work Activities
Level D Work Uniform:	
• Long-sleeved shirts and long pants • Composite or Steel Toed Boots with socks (must have at least 4 inch upper and a distinctive heel) • Hard Hats Choose the right hard hat for the task (Class G, E or C) • Safety glasses with side eye protection • Reflective safety/traffic vest and/or long sleeved-high visibility shirt • Protective gloves (blister-preventive, impervious, cut resistant, etc.)	All Site work activities

• Eyewear and Face Protection
  o Permanently mounted side shields
  o Mirror like lenses are prohibited.
• Steel-toed boots/anti-slip footwear
  o Leather or leather-like upper.
  o Sturdy no-leather sole that will resist puncture.
  o 3/8 to 1-inch defined instep.
  o Above ankle (5-inch height as measured from inside boot).
  o Minimum ASTM F2412-05, ASTM F2413-5 - 75-pound impact and compression class toe.
  o Lace-up
  o Employees will wear anti-slip winter footwear when working in icy and or snowy conditions.
• Hard Hat
  o ANSI standard Z89.1, Choose the right hard hat for the task (Class G, E or C)
• Hearing Protection
  o Required in situations where the noise requires an employee to raise their voice during normal conversation at a distance of 3 feet.
• Gloves/Hand protection
  o Must be worn when performing work.
• High-Visibility Work Wear
  o Orange in color, retro, reflective striping, ANSI Class II
	BNSF Railroad Locations See Section 15.5.

Level D Modifications: will be identified and required per project-specific TRAs.	
Level C Protection is not anticipated for this scope of work, no Level C or higher protection level (A or B) work is NOT allowed without prior approval from the PSM, PM, and HSM.	

11.1 Personal Protective Equipment

The levels of PPE to be used for this Site are summarized in Table 6 The information in this table is based on the hazard analysis completed for the Site and summarized in Section 9. The specific job task will be evaluated by the PSM or designee, via a TRA, and the appropriate PPE level will be established. The use of respirators is not anticipated at this Site. If any respirator work is required, it will not be done without prior approval of the PSM and PM in consultation with the HSM. If Level C is determined to be required for work, a project specific respiratory protection program will be drafted and appended to this HASP. Any respirator work will be completed in accordance with OSHA regulations 29 CFR 1910.134.

11.2 IDLH Conditions

Based on Site characterization data and past work experience, immediately dangerous to life or health (IDLH) conditions are not expected during Site activities. If IDLH conditions arise at any point based on monitoring, work will cease until additional engineering and administrative controls can be implemented, and personal protective equipment will be upgraded as appropriate. Work may not resume until approved by the PSM and PM in consultation with the HSM.

12. DECONTAMINATION PLAN

The Site is located in a residential area of Butte, Montana. As such, a thorough proper decontamination protocol is imperative to limit exposure to the community and personnel. Therefore, when necessary, contamination reduction zones for each work area throughout the Site will be established by the SSO or designee to limit the possibility of contamination outside the work area. If the work is mobile in nature, the decontamination zone will be determined and established by the SSO or designee at the beginning of each workday. The general establishment approach of work zones is described in Section 7.

A decontamination line for personnel and equipment shall be established if the work to be completed at the Site has the potential for contaminating equipment or clothing. The procedures outlined below describe the decontamination protocol. Typically, this will involve plastic sheeting, disposal bags, and washing supplies.

12.1 Disposable PPE

Personnel wearing disposable PPE (outer cover boots, gloves, etc.) and disposable clothing will, following gross removal of visible contaminants, place the PPE in a receptacle established at the hot line before leaving the contamination reduction zone. Disposable PPE will be disposed in accordance with applicable state or federal regulations. Provisions for disposal of personal protective equipment are summarized in the Site Management Plan.

12.2 Decontamination of NON DISPOSABLE PPE

To decontaminate non-disposable PPE, visibly or suspect contaminated areas of the PPE shall be washed with a detergent (TSP, Alconox, or Liquinox) and water solution.

Any clothing to be laundered will be bagged in the CRZ and labeled as such. The laundry service must be informed of the potential contaminants. Other reusable protective wear (such as waders) will be cleaned and decontaminated with appropriate solutions such as those listed above.

12.3 Decontamination of Respirators

While respirator use is not anticipated at this project, respirator filters and/or cartridges used during tasks identified in this HASP or subsequent addendums will be removed and either disposed or cleaned and bagged separately from the respirator. Respirators will be cleaned and decontaminated according to manufacturer's directions. Generally, this includes first cleaning with a detergent and water solution followed by a clear water rinse and air drying. The cleaned and inspected respirator shall then be stored in a clean, sealable, protective container.

12.4 Decontamination of Equipment

Air Monitoring Equipment:

If contamination is likely, monitoring equipment shall be wrapped in plastic wrap or bags to avoid the need for decon. Do ***not*** cover the probe or inlet with plastic! If contaminated, leave the plastic wrap or bags in the designated disposal receptacle at the CRZ. If the equipment has to be decontaminated, manufacturer's recommendation will be followed. See owner's manuals.

Excavating or Heavy Equipment:

Heavy equipment that has entered the exclusion zone will be appropriately decontaminated (e.g., steam-cleaned and washed with a water spray) prior to leaving the contamination reduction zone (most likely by the contractor operating the equipment). Tracks and wheels of equipment that has entered the Exclusion Zone will be washed (e.g., with a steam cleaner) in the CRZ prior to entering or crossing a public road. Decontamination of heavy equipment will be conducted in accordance with the project specifications for the Remediation Action. Decontamination materials and fluids will be disposed of in accordance with the Site Management Plan.

13. SPILL CONTAINMENT MEASURES

Although anticipated activities should not warrant spill containment measures, it is never-the-less feasible (though remote) that incidental "spillable" quantities of chemicals may be present. Spillable quantities of chemicals such as acids and solvents are not anticipated to be utilized during decontamination activities. Specific chemical handling and management procedures for Investigation Derived Waste are described in the Site Management Plan.

Gasoline, diesel fuel, hydraulic oils, and oil used in heavy equipment may constitute a "spillable" quantity. Spill containment equipment will be stored at the Site by the Contractor in order to immediately respond to a spill.

A minimum of spill containment equipment to be stored on-site will include the following:

- Absorbent material (such as speedy dry): 5-gallon bucket volume
- Absorbent hazmat spill socks: 4 – 8 to10-foot lengths
- Nonabsorbent booms (for use on water): 4 – 10-foot lengths
- Absorbent pads: 1 standard bundle/package of hazmat spill pads
- 1 - Long handled shovel
- 1 - 55-gallon drum (removable top) for collection of contaminated spill material – drums retained shall be compatible with the wastes it is intended for (i.e., plastic drums shall be available for corrosive wastes, etc.), this will be evaluated by the PSM.

The following containment procedure should be followed by the party responsible for the equipment in the event of a gasoline and/or oil spill:

Carefully contain and stop the source of the spill, if safe to do so. Protect nearby bodies of water and drains by diking, use of absorbents, or absorbent boom. Do not flush down sewer or drainage systems. Prevent contact with ignition sources or areas/equipment that requires protection. Apply sand or absorbent materials to the spill to prevent continued spread of the liquids. Carefully shovel, scoop, or sweep into a compatible waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Ensure contaminated spill materials are properly disposed per state and federal requirements.

14. CONFINED SPACE ENTRY

Confined Space Entry (CSE) can be very hazardous work and it is W&C's policy that CSE work will be avoided whenever possible. Improper CSEs across the country have resulted in numerous deaths of both entrants and would-be rescuers. W&C's CSE Program complies with the U.S. Occupational Safety and Health Administration (OSHA) standard, 29 CFR Part 1910.146, Permit-Required Confined Spaces (PRCSs). Confined space work presents unique hazards to workers who enter such spaces, as well as to those on the outside. Proper preparation and attention to detail during entry operations is required to avoid the occurrence of serious or fatal incidents. W&C's CSE Program applies to any entry of a PRCS, whether it is for the purposes of on-going operations, maintenance, construction related activities, and/or is made by an outside contractor.

A confined space is defined as a space that:

1. Is large enough to bodily enter
2. Has limited or restricted means of entry or exit
3. Is not designed for continuous employee occupancy

A permit-required confined space (PRCS) is defined as a confined space that has:

1. The potential for a hazardous atmosphere
2. The potential for an engulfment hazard
3. A tapered floor or inwardly converging walls
4. Any other serious health or safety hazard

The Federal OSHA standard 29 CFR Part 1910.146 is typically applicable to general industry and is more comprehensive than the construction standard 29 CFR 1926.21 (b) (6) (i) for confined space entry. In the event of an OSHA inspection the regulatory agency can and has cited employers utilizing the general duty clause. W&C's CSE Program applies to any entry of a PRCS, whether it is for the purposes of on-going operations, maintenance, construction related activities, and/or is made by an outside contractor.

W&C has a CSE policy which can be found in W&C's Health and Safety Manual at section 12 and is incorporated into this section of the HASP. W&C's CSE policy and OSHA's PRCS regulation 29 CFR 1910.146 will both be followed.

Confined Space Entry is anticipated at this site. W&C employees are trained to recognize and identify confined spaces but shall ***not*** enter or work in a confined space without additional proper training, backups, and requisite supplies and equipment. If confined space entry is determined to be required, modifications to this HASP will be made by the PSM and PM in consultation with the HSM prior to initiating entry.

Should a CSE be warranted for this project, the entry procedure will be coordinated between the SSO and the entry Contractor as procedures apply. A permit for entry of permit required confined spaces is provided in APPENDIX G. Completed permits shall be maintained in PSM project files for at least one year for review purposes. The following basic entry procedure should be followed at minimum:

1. Determine if entry into the confined space is necessary to perform the work.
2. Before entering a permit-required confined space, all employees involved in the job shall participate in a job safety briefing that reviews the specific requirements for safe entry and safe exit.
3. Eliminate any unsafe conditions before the access door or cover is opened.
4. Immediately guard the entry to prevent people or objects from accidentally entering the confined space.
5. Assemble and check the equipment.
6. Conduct initial air monitoring.
7. Ventilate the space as necessary to eliminate or control the atmospheric hazards.
8. Isolate the space from known hazards, as necessary.
9. Verify acceptable entry conditions have been met.
10. The entry supervisor signs and posts the permit.
11. Station at least one attendant outside the permit space for the duration of entry operations.
12. Test the air continuously while personnel are in the confined space to ensure the presence of a safe breathing atmosphere.
13. The entrant enters the space and completes assigned tasks.
14. When work is completed, the entrant exits the space. The space is closed and returned to its original condition.
15. The entry supervisor cancels the permit.

15. RAILROAD SAFETY

All employees performing work near or at railway properties shall comply with all applicable railway safety rules and contractual requirements, in addition to Woodard & Curran safety and health requirements.

15.1 Burlington Northern Santa Fe (BNSF) Requirements

- If working on BNSF property (even if there is no track present) a Safety Action Plan (SAP) must be submitted to BNSF and a printed copy kept on site.
- The BNSF contractor orientation course must be completed before working on BNSF property, even if there is no track present.
- A Roadway Worker Protection course must also be completed if within 25 feet of the centerline of the track.
- Contact the BNSF project Manager, BNSF Safety, or their representative prior to starting work, to discuss specific safety precautions to be taken during the course of the project, such as its processes and operations.

15.2 On-Track Safety

- Employees must not perform work activities within 25 feet of the centerline of the track, including overhead and underground, unless:
    - They have completed Roadway Worker Protection/On-Track Safety training which must be completed every twelve months to be considered current
    - They have met with their BNSF Project Manager and EIC to establish a project-specific strategy for addressing Roadway Worker Protection/On-Track Safety requirements, which is to be included in the contractor provided training
    - They are wearing an orange, ANSI Class II/III retro-reflective garment that is consistent with BNSF Safety Rules for the work being performed
- Any employees that will foul the track while performing their work duties at BNSF will be working under the direction of a BNSF Maintenance of Way Operating Rules (MWOR) Qualified employee or contractor. This individual will have ready access to the required On-Track Safety requirements, rules, general orders, etc.
    - Fouling the Track Fouling the track means the placement of an individual or an item of equipment, including material being handled by equipment, in such proximity to a track that the individual, equipment or material handled by equipment could be struck by a moving train or on-track equipment, or in any case is within four feet of the nearest rail. Each roadway worker is responsible for determining that on-track safety is provided before fouling any track, except when fouling the track is incidental to the performance of duties. Incidental Fouling When a roadway worker fouls a track incidental to the performance of duties, such as when walking across or adjacent to a track on which authority or protection has not been provided, each worker must:

        - Assume individual responsibility to make the move safely.
        - Foul the track only after determining that it is safe to do so.
        - Not carry tools or material that restrict motion, sight, hearing or prevent rapid movement away from an approaching train or other on-track equipment while being carried
        - Move directly and promptly to a position clear of the track
- Only Contractors with a specific BNSF Service Agreement, MWOR Training Program (49 CFR 243) Certification with the FRA, and the correlating MWOR Qualification shall be allowed to contact the BNSF Dispatcher to gain their own track authority.

Note: Contractor employees conducting operations at distances greater than 25-feet from the centerline of the track will fall under the above requirements when:

- Catastrophic failure of the equipment, such as cranes, could result in a fouling situation
- Excavation activities, such as driving or boring pipes or conduit, where the BNSF Project Manager has determined the integrity of the track structure could be affected
- Overhead activities, such as stringing power lines or bridge/overpass work, could result in material being dropped on or equipment and personnel being foul of the track.

15.3 Job Safety Briefings

- Conduct a job safety briefing before any roadway worker or equipment fouls a track. A job safety briefing is not complete until each roadway worker is informed of the method of on-track safety that will be applied and the procedures that will be followed.
- Roadway Work Groups In the job safety briefing, discuss information related to on-track safety with roadway workers who will foul the track. In addition to other safety issues, minimum on-track safety information must include:
    - Designation of the employee in charge
    - Method of on-track safety being applied
    - Track limits and time limits of authority
    - A risk assessment to identify any track that could be fouled
    - Determination of any adjacent tracks
    - Determination of any adjacent controlled tracks
    - Operational controls of movements on adjacent tracks if any
    - Procedure to arrange for on-track safety on adjacent tracks, if necessary
    - Means of providing a warning when a lookout is used
    - Designated place of safety where roadway workers will clear for trains, which may be between the rails on a track within established working limits and during which time no movements are permitted by the EIC

- Identification of any roadway maintenance machines in the work group that will foul the track
- Designated work zones around machines
- Safe working and traveling distances between machines
- Nature of the work to be performed and the characteristics of the work location Maintenance of Way Operating Rules

15.4 Adjacent Track Operations

- Movements on Adjacent Tracks: When a train is passing on an adjacent controlled track, roadway workers on the ground must not occupy the space between those tracks.
- Adjacent Tracks Before fouling a track where there is an adjacent track subject to train or on-track equipment movement, review this rule as part of the job safety briefing.
- When working on a track, establish on-track safety as necessary to protect against trains and on-track equipment passing on an adjacent track. To determine if authority or protection is required on adjacent tracks, the employee in charge must consider factors such as:
  - Any track that could be fouled
  - Adjacent controlled tracks
  - Roadway workers on the ground
  - On-track equipment that will occupy the track
  - Right-of-way conditions involved in reaching the designated place of safety
  - Curvature of the track
  - Sight distance
  - Speed of passing trains or on-track equipment
  - Spacing of roadway workers and equipment in the work group
  - Background noise
  - Risk of distraction
  - Designated place of safety, which may be between the rails on a track within established working limits and during which time no movements are permitted by the EIC.
- Fouling Adjacent Tracks Do not foul adjacent tracks with roadway maintenance machines unless working limits have been established on the adjacent track. Before operating equipment where an adjacent track could be fouled by the equipment, including any component of the equipment or material handled by the equipment, working limits must be established on the adjacent track. Movements within the adjacent track working limits may only be permitted by the EIC. Do not use a lookout to provide protection for equipment or material fouling an adjacent track.

- When the conditions cannot be met:
    - Stop the equipment.
    - Secure the equipment against movement.
    - Inspect the passing train.
- Adjacent Controlled Track Protection One or more roadway workers of a work group on the ground engaged in a common task with on-track, self-propelled equipment (excluding hy-rails or other self-propelled on-track equipment, not coupled to cars, used for inspection or correctional repair purposes) or coupled equipment must be protected from adjacent controlled track movements by:
    - Working limits established on the adjacent controlled track or
    - A lookout. Work on a track must cease and roadway workers on the ground must move to a designated place of safety while a train or on-track equipment is passing on an adjacent controlled track unless working limits are established on the adjacent controlled track, and the EIC of the working limits instructs controlled track.

15.5 Personal Protective Equipment (PPE)

All employees working near railroads must have appropriate PPE to perform the tasks that are contracted for, including:

- Eyewear and Face Protection
    - Permanently mounted side shields
    - Mirror like lenses are prohibited
- Steel-toed boots/anti-slip footwear
    - Leather or leather-like upper
    - Sturdy no-leather sole that will resist puncture
    - 3/8 to 1-inch defined instep
    - Above ankle (5-inch height as measured from inside boot)
    - Minimum ASTM F2412-05, ASTM F2413-5 - 75-pound impact and compression class toe
    - Lace-up
    - Employees will wear anti-slip winter footwear when working in icy and or snowy conditions.
- Hard Hat
    - ANSI standard Z89.1, Type I, Class E or G
- Hearing Protection

    - Required in situations where the noise requires an employee to raise their voice during normal conversation at a distance of 3 feet
- Gloves/Hand protection
    - Must be worn when performing work
- High-Visibility Work Wear
    - Orange in color
    - Retro-reflective striping
    - ANSI Class II
- Other specialty PPE as identified/required by the Task Risk Assessment

15.6 Contractor Orientation

Required annually: (https://www.bnsfcontractor.com)

- Contractor Orientation completion requires contractors to upload a copy of their Safety Action Plan to the BNSF Contractor Orientation website, as well as provide a copy of their Safety Action Plan to their BNSF Project Manager or EIC.
- On or Near Track is part of Contractor Orientation (Module 3) and covers the safety considerations of work within 25 ft. of the track centerline. In these areas, the contractor shall have a MOW Rules Qualified Person to provide the appropriate method of on-track safety when necessary to foul the track.
    - Module 3 does not constitute Roadway Worker Protection training. Training is the sole responsibility of the Contractor Employer.

Employees complete the modules of the web-based review on BNSF Contractor Orientation that apply to their contract scope of work. Upon completion of the BNSF orientation course, a personal course completion certificate is issued and can be printed for temporary proof of completion. The BNSF Contractor Badge will be mailed to the individual (or company location) as requested and typically arrives with 3 to 7 business days.

16. HAZARD CONTROL INFORMATION

16.1 Warm and Cold Environments

Weather-related problems anticipated during operations include cold and heat stress. Cold stress will most likely occur during colder temperatures in the winter or early fall (however, hypothermia has been known to occur in the summer), if personnel or clothing gets wet during wind chill conditions. Heat stress will most likely occur when wearing protective clothing that decreases natural body ventilation. Workers should be aware of signs of cold or heat stress in themselves and other workers as described below. Cold-related symptoms range from a "chill" and "trench foot" to more serious conditions such as frostbite or hypothermia. Heat-related symptoms range from heat rash and heat cramps to more serious conditions such as heat exhaustion and heat stroke.

Under extreme environmental conditions workers will be required to use the "buddy system" to monitor for signs of chemical exposure, weather-related stress, and other health and safety hazards. Personnel will work in pairs and will maintain constant line of sight with each other. If a "buddied" person has to leave the work area, then his or her buddy must accompany them. First aid equipment and trained personnel will be available on-site.

16.1.1 Hot Environments

To reduce the risk of heat-related illness, the following measures will be taken when temperatures are at or above 80°F:

- Employees will be trained prior to working outdoors.
- Working hours will be modified to work during the cooler hours of the day, when possible. When a modified or shorter work-shift is not possible, more water and rest breaks in shade will be provided.
- Employees working in warm or hot temperatures will carry cell phones, or other means of communication, to ensure that emergency services can be called without delay.
- Employees will have access to air conditioning in a vehicle, nearby building, etc.
- The SSO will regularly remind employees about the importance of rest breaks in hot weather and will encourage employees to drink water throughout the day.
- When chemical resistant clothing is worn, body ventilation and evaporation are greatly reduced. Additional breaks will be scheduled for personnel wearing coveralls in hot weather.

In conditions where the temperature is at or exceeds 95°F, the following controls will be implemented:

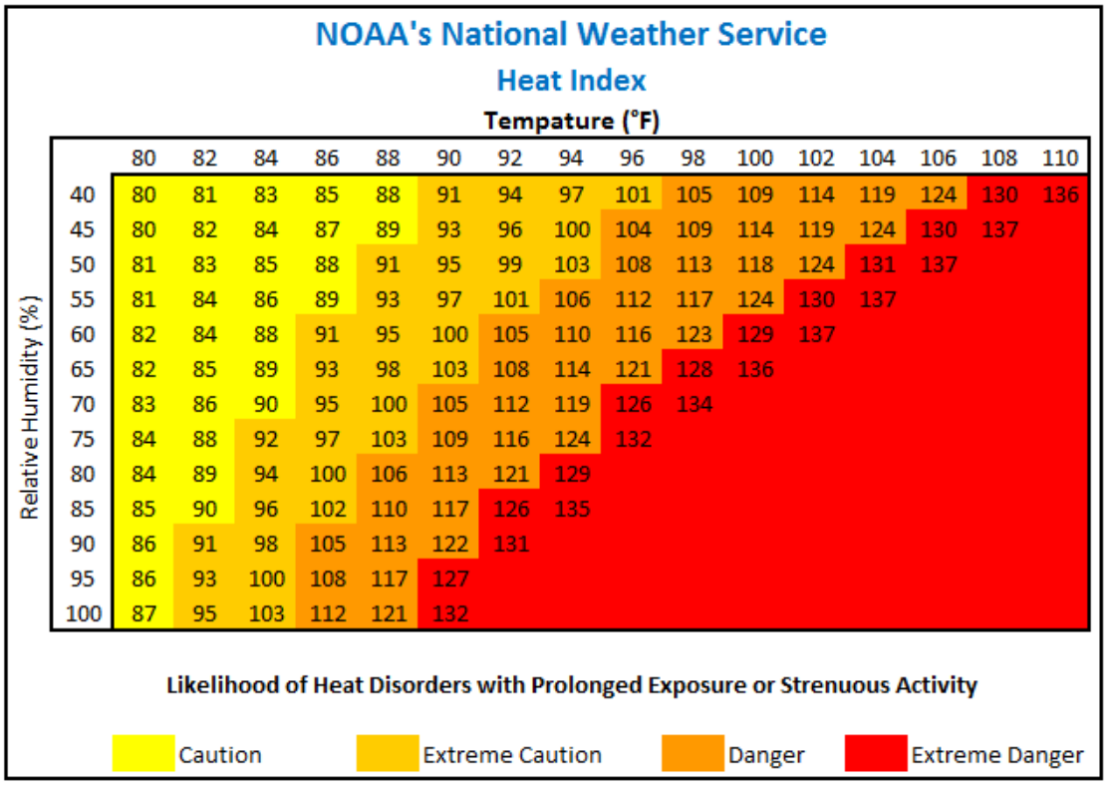
- The Project Manager considers if work can be rescheduled to a cooler day.
- Employees and their supervisors must maintain effective communication through voice, visual, or electronic means so that contact can be made if necessary.
- Observation/monitoring of employees for signs of heat illness by:

- Use of a mandatory buddy system
- Other productive observation means

- Designate at least one employee on each worksite as authorized to call emergency medical services (EMS).
- Consistent reminders throughout the shift for employees to drink water.
- Holding pre-shift meetings prior to work to discuss the high-heat procedures in place.
- Any new or returning employees shall be observed for the first 14 days of employment to ensure acclimatization to the high heat.

As a recommended practice, NOAA's National Weather Service Heat Index (Table 7) will be used as a screening tool on this project to evaluate if a heat stress situation may exist.

Table 7: NOAA's National Weather Service Heat Index



Personnel should be aware of the effects of extreme temperature environments, provided with adequate liquids, and instructed to observe each other for signs of heat or cold related stress. Medical conditions associated with heat include heat stress, heat stroke, heat exhaustion, heat cramps, and heat rash. Table 8 describes heat-related illness symptoms and what to do if these medical conditions occur.

Table 8: Heat-Related Illness Symptoms and Controls

Heat Illness	Symptoms	What to Do
Heat stroke	• Red, hot, dry skin (no sweating) • Throbbing headache • Dizziness • Nausea • Confusion • Unconsciousness	1. Call medical help immediately. 2. Get the victim to a cool, shady area. 3. Cool them off with a cool shower, garden hose, wet cloths, ice packs, etc. 4. Do not give the victim fluids to drink. 5. If emergency medical services is delayed, call the hospital for further instructions.
Heat Exhaustion	• Heavy sweating • Pale, clammy skin • Tiredness • Weakness • Headache • Dizziness • Confusion • Nausea, vomiting • Fainting	1. Get the victim to a cool, shady area to rest. 2. Loosen and remove any heavy clothing. 3. Give them cool water to drink unless they are sick to the stomach. 4. Cool the body by spraying with cool water or apply a wet cloth to skin, preferably the back of the neck.
Heat Cramps	Muscle pains or spasms, usually in the abdomen, arms, or legs	1. Get the victim to a cool area and have them sit quietly. 2. Give them clear juice or a sports beverage. 3. Have them rest for a few hours. 4. Seek medical attention for heat cramps if they do not subside in 1 hour.
Heat Rash	Skin irritation looking like a red cluster of pimples or blisters	1. Move employee to a cool, less humid area. 2. Keep the affected area dry.

These signs can be distinguished from those associated with chemical hazards as chemical hazards usually do not cause changes in skin temperature and/ or color, or the ability to sweat.

16.1.2 Cold Environments

Cold stress occurs when the ambient air temperatures drop below normal ranges and there is an increase in wind speed. For some locations where winter weather is not a common occurrence, cold stress can occur at near freezing temperatures (32°F). Key factors that can bring about or aggravate cold stress are age, body size, physical condition, length of exposure, wind, temperature,

exhaustion, hunger, dehydration, alcohol intake, smoking, and improper clothing and equipment. Cold stress can lead to the development of hypothermia, frostbite, and trench foot.

The following are required controls for employees working in cold environments:

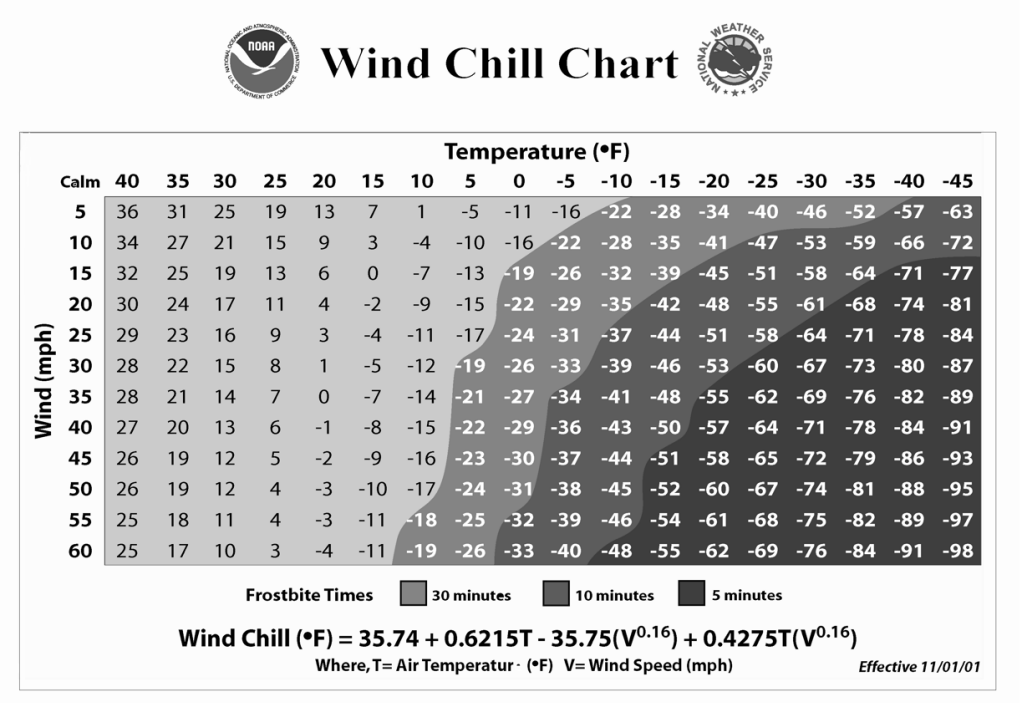
- The Project Manager considers rescheduling work to a warmer day if severe cold temperatures are expected.
- Temperature and wind speed monitoring shall be conducted when air temperatures are below 30ºF (-1.1ºC). Field staff check temperature, wind speed, and worker conditions every hour to determine if conditions have changed that require additional or different controls.
- Dress for the weather, which includes at a minimum a warm jacket, hat or hood, insulated boots, warm socks, and gloves or mittens.
- Keep a change of dry clothing available in case work clothes become wet.
- Do not underestimate the wetting effects of perspiration. Oftentimes wicking and venting of the body's sweat and heat are more important than protecting from rain or snow.
- Take breaks in warm areas.
- In extremely cold conditions, where face protection is used, eye protection must be separated from the nose and mouth to prevent exhaled moisture from fogging and frosting eye shields or glasses.
- Clothing must be dry. Moisture should be kept off clothes by removing snow prior to entering heated shelters.
- If an employee experiences heavy shivering, frostbite, excessive fatigue, drowsiness, irritability, or euphoria return to a heated shelter immediately.
- Consider the windchill chart (Table 9) when performing work activities in cold weather.

For work practices at or below 20°F (-7°C), the following shall apply:

- Continuous skin exposure shall not be permitted when the air speed and temperature results in an equivalent chill temperature (ECT) of -25°F (-32°C). (Refer to Table 9 for equivalent chill temperatures).
- If work is performed continuously in cold weather with an equivalent control temperature at or below 20°F (-7°C), warm shelters (e.g., tents, trailers, vehicles) shall be made available nearby. Workers shall use these shelters at regular intervals. The frequent use of shelters depends on the severity of the environmental exposure.
- Workers experiencing the onsets of heavy shivering, frostnip, the feeling of excessive fatigue, drowsiness, irritability, or euphoria shall immediately return to the shelter. When entering the heated shelter, the outer layer of clothing shall be removed, and the remainder of the clothing loosened to permit sweat evaporation. Field staff are encouraged to bring extra clothing in the event their clothing becomes wet.

- If workers are handling fluids (i.e., gasoline, alcohol, or cleaning fluids), precautions shall be taken to avoid soaking of the clothing and skin contact with the fluids.

Table 9: NOAA Wind Chill Chart



While working in cold environments, workers' best practices are eating and drinking properly, taking breaks in warm areas, using the buddy system, and always wearing a personal floatation device (PFD) if employees are on or within three feet of water.

Signs of **cold stress** are summarized as follows:

Hypothermia: uncontrollable shivering, confusion, weakness or loss of coordination, pale or cold skin, drowsiness.

Frostbite: progressive numbness or loss of sensitivity, tingling or burning feeling, color change (white or purple), most common in ears, nose, hands/fingers, and toes.

Trench foot: red skin, inflammation, blisters, and extreme pain after warming.

Should signs of cold stress be detected, appropriate first aid measures will be taken to protect workers. Appropriate first aid measures are summarized below.

Cold Stress Treatment

1. Get the victim out of the cold.
2. Loosen tight clothing.
3. Remove perspiration soaked or wet clothing.

4. Apply warm blankets to the skin.
5. If conscious, give the victim cool water to drink.
6. Seek medical attention and call 911.

16.2 Noise Exposure/Hearing Conservation

Hazardous noise levels are ubiquitous on construction sites. Noise sources typically include the engines and/or motors of the equipment, the operating parts of the equipment, compressed air, and others. Noise-induced hearing loss (NIHL) is insidious and often occurs before one can notice it. Hearing protection devices (HPDs) including ear plugs and/or muffs as appropriate will be provided to personnel and will be used in areas with noise levels perceived as loud at or above 85 decibels by the SSO or designee. Such activities may include drilling, heavy equipment use during test pitting, and other activities observed to need HPDs for work at the Site. If necessary, a sound meter may be used by the SSO or designee to survey work area sound levels.

OSHA PEL for Noise		**ACGIH ® TLV ® and NIOSH REL for Noise**	
Noise limit	**Time (hrs.)**	**Noise limit**	**Time (hrs.)**
90 dBA	8 hours	85 dBA	8 hours
95	4	88	4
100	2	91	2
105	1	94	1
110	½	97	½
115	¼	100	¼

Some examples of typical approximate sound levels include the following:

Sound Pressure Level	**Activity/ies or Settings (varies depending on distance)**
180 decibels (dB)	Rocket launch from pad
170 dB	Shotgun blast
150 dB	Jet engine taking off, firecracker, artillery at 500 feet
140 dB	Pain threshold and jet engine at 25 meters distance
130 dB	Jackhammer, power drill, air raid, car race, symphony percussion
125 dB	Jet taking off at 100 meters distance, car stereo, chain saw
120 dB	Chain saw, hammering, siren, jet plane at ramp
110 dB	Pop/rock group/band, power saw, leaf blower
100 dB	Pneumatic chipper, factory machinery
90 dB	Heavy truck, tractor, blender, mixer
85 dB	Average street traffic, handsaw, noisy restaurant

Sources: Bruel & Kjar Instruments, Inc. and League for the Hard of Hearing.

16.3 Permitted Activities

Issuing Authority (IA) are trained and competent to open and close permits. Permits shall:

- Define the scope of work.
- Identify hazards and assess risk.
- Establish control measures to eliminate or mitigate hazards.
- Link the work to other associated work permits or simultaneous operations.
- Be authorized by the responsible person(s).
- Communicate the above information to all involved.

While additional permits could apply at the Site, the Control of Work permits that are likely to be required are outlined in subsequent sections below.

NOTE: Elimination of the hazard is our first hierarchy or control and should be seriously considered before issuing any permit.

16.3.1 Ground Disturbance

A Ground Disturbance permit will be issued for any manual digging exceeding 12 inches and any mechanical digging unless grading under 2 inches. Where soil samples are required from excavations deeper than 4 feet, persons should collect samples using a reach tool or from an excavator bucket. Personnel shall not enter excavations greater than 4 feet without the approval of the PSM or IA.

No digging or excavation will occur prior to completing a ground disturbance permit, which will confirm the absence of buried utility lines or other buried debris. Personnel will not enter an excavation or trench without the required special training and adequate protective measures. Personnel will not enter trenches or excavations greater than 3 feet deep unless they have completed OSHA "Competent Person" training. Excavations 4 feet deep or greater will be tested for hazardous atmospheres prior to entry using a multi-gas meter. If no other "confined space entry (CSE)" is anticipated, sampling will be performed from above ground using hose extensions whenever possible to reduce unnecessary exposure and to avoid congestion of personnel in confined areas.

Site personnel will comply with OSHA regulations 29 CFR Part 1926, Subpart P – Excavations 1926.650 – 1926.652 including having an OSHA CP for excavations on site. The following are required at a minimum:

- Excavated materials will not be placed within 2 feet of an excavation edge.
- Trenches 4-feet deep or greater will have ladders installed for ease of egress at least every 50 feet of trench length (such that a person need not travel more than 25 feet to exit via a ladder per OSHA).

- Excavations 5 feet deep or greater require protective systems prior to entry into the excavation to complete work.
- No water accumulation is allowed in the excavation or trench.
- Walkways 6 feet high or greater above trench bases require full OSHA guardrails.
- Excavations 20 feet deep or greater must be designed by a PE.

Excavations and trenches present potentially extreme hazards, which require 100% compliance with and adherence to proper protective measures. OSHA has a nation-wide Special Emphasis Program (SEP) that requires Compliance Safety and Health Officer (CSHO) to inspect any and all excavations that the CSHO observes. This is because an accident in an excavation is 17 times more likely to result in death than another accident in construction and 170 times more likely to result in death than another accident in general industry.

Drilling to any depth requires potholing to 6.5-feet and 110% diameter of the borehole. A ground disturbance permit is also required.

Drilling activities may occur for water well installation and development, using sonic, air or dual rotary, auger, and cable tool drilling techniques. There are serious inherent hazards when drilling if not adequately risk assessed. All drilling shall be in compliance with the Ground Disturbance Section which can be found in Section 19 of the BP HSSE Addendum, which outline strict controls for the mitigation of associated hazards. Additionally, drillers and their helpers must be pre-qualified to ensure they are trained and competent. All equipment shall be pre-inspected prior to use. Any modifications to the drill rig shall be disclosed and approved for use.

16.3.2 Working at Heights

Personnel may find themselves at a location that presents a fall hazard due to steep banks, ladders, manholes, culverts etc. Any work within six feet of a ledge or drop-off of four feet or more requires a Working from Heights permit. Ask yourself if you need to be near the leading edge of a fall hazard. Where elimination is not possible, adequate controls shall be imposed and documented on the associated work permit. Controls will typically include fall arrest or restraint (harness/lanyard).

16.3.2.1 Aerial Lifts

An aerial device is any vehicle-mounted device that telescopes, articulates or both, which is used to position personnel. One example is a scissors lift. [NOTE: A platform attached to the forks of a forklift would not be considered an aerial lift.] The aerial lift Safe work program is outlined in Section 17 of the W&C Health and Safety Manual. The following safe work practices shall be followed at a minimum:

- All new aerial devices must meet the design, construction, and testing requirements of the American National Standards Institute (ANSI) standard for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2 - 1969, or a more recent version of the standard:
- Aerial lifts will not be modified without written permission from the manufacturer.
- Aerial lifts will only be used in accordance with the allowances stated by the manufacturer.

- Only allow trained personnel to operate aerial devices.
- Test lift controls each day prior to use to determine that such controls are in safe working condition.
- Always stand firmly on the floor of the basket, and do not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
- When working from an aerial lift, wear a body belt and attach a lanyard to the boom or basket. Do not exceed boom and basket load limits specified by the manufacturer.

16.3.2.2 Overhead/Elevated Work

A four-foot fall protection rule will be in effect for all work activities. The walking/working surface on which personnel are to work must have the strength and structural integrity to safely support workers. Personnel are not permitted to work on those surfaces until it has been determined that the surfaces have the requisite strength and structural integrity to support the workers.

Where personnel are exposed to falling 4 feet or more from an unprotected side or edge, the employer must select a guard-rail system, safety net system, or personal fall arrest system to protect the worker.

A personal fall arrest system consists of an anchorage, connectors, body harness and may include a lanyard, a deceleration device, lifeline or a suitable combination of these. Each person in a hoist area must be protected from falling 4 feet or more by guardrail systems or personal fall arrest systems. If guardrail systems (or chain gate or guardrail) or portions thereof must be removed to facilitate hoisting operations, as during the landing of materials, and a worker must lean through the access opening or out over the edge of the access opening to receive or guide equipment and materials, that person must be protected by a personal fall arrest system.

Personal fall arrest systems, covers, or guardrail systems must be erected around holes (including skylights) that are more than 4 feet above lower levels.

Where walkways are provided to permit persons to cross over excavations, guardrails are required on the walkway if it is 4 feet or more above the excavation.

Each person using ramps, runways, and other walkways must be protected from falling 4 feet or more by guardrail systems.

16.3.3 Confined Space Entry

A confined Space is defined as a space that: is large enough and so configured that an employee can bodily enter and perform assigned work; has limited or restricted means for entry or exit; and is not designed for continuous employee occupancy. A confined space can be permit-required based upon the hazards that exist and the tasks that will be performed as documented on the Task Risk Assessment (TRA). Employees are trained to recognize and identify confined spaces but shall not enter or work in a confined space without proper training, permits, backups, and requisite supplies and equipment. Each confined space shall be evaluated to determine if it is permit-required using the confined space permit evaluation form and approved by RM management.

Storm drains and culverts are examples of confined spaces found within BPSOU. See Section 14 for more information on confined space entries.

16.3.4 Underground and Aboveground Utilities

W&Cs Electrical Safety Program for overhead electrical lines will be followed. Any time work is performed in the vicinity of overhead lines, a spotter will be assigned to help operators maneuver equipment in and around the wires. Table 10 shows the proper distances to be maintained around high-tension wires.

Table 10: Distances Around High-Tension Wires

Voltage Ranges (kV)	Minimal Clearance Distances (feet)
0-50	10
51-100	12
101-200	15
201-300	20
301-500	25
501-750	35
751-1000	45

Unintended equipment or vehicle contact with poles or guy wires may result in utility poles or power lines falling on personnel or equipment. Personnel should not park near or under powerlines, poles, and guy wires. In order to prevent damage, guy wires shall be visibly marked, and work barriers or spotters provided. Additionally, when working with heavy equipment and parking around guy wires, the minimum radial clearance distances for electrical power shall be observed.

Staging of mobile equipment, soil sampling using hand tools, and heavy equipment operations present the risk of making contact with underground/aboveground utilities/utility components (guy wires, junction boxes, fire hydrants, phone boxes, etc.). Utilities present include electrical, sewer, potable water, and communications. Thorough site risk assessments, utility locates, blind sweeps, spotters, associated permitting, and competent personnel will provide adequate controls to ensure the safety of personnel and property. Adherence to the above radial clearances should also protect personnel from accidental contact during field work. Where ground disturbance is within two feet of a known underground utility, the sample location shall be moved, or the dig area potholed and the utility exposed.

16.4 Control of Hazardous Energy

Control of hazardous energy or lockout-tagout (LOTO) applies to all W&C employees who work on electrical circuits and equipment or conduct other servicing and maintenance tasks on equipment with hazardous sources of energy. These provisions apply not only to those who use locks and tags to safely perform their work, but also to those who work in areas where others may use locks and tags. The minimum procedural requirements for the LOTO are located below. Site personnel shall also comply with control of hazardous procedures at Site as applicable.

16.4.1 Requirements for Energy Control Devices

1. LOCKOUT and TAGOUT devices must be singularly identified and must only be used for controlling hazardous energy. They may not be used for other purposes and must meet the following requirements:

    a. **Durable.** Devices must be capable of withstanding the environment to which they are exposed for the maximum time that exposure is expected (e.g., tags used in wet or damp locations must be constructed and printed so that the tag will not deteriorate, or the message become illegible).

    b. **Standardized.** LOCKOUT DEVICEs within the facility must be standardized by at least one of the following criteria: color, shape, or size. Print and format must be standardized on TAGOUT DEVICEs.

    c. **Substantial.** LOCKOUT DEVICEs must be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as the use of bolt cutters or other metal cutting tools. TAGOUT DEVICEs must be substantial enough to prevent inadvertent or accidental removal. Each TAGOUT DEVICE attachment must be non-reusable, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of not less than 50 pounds. The general characteristics and design must be at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

    d. **Identifiable.** Each LOCKOUT or TAGOUT DEVICE must indicate the identity of the employee applying it.

2. TAGOUT DEVICEs must also warn against possible hazardous conditions if the machine or equipment is ENERGIZED. The tags must include a legend such as: *Do Not Start, Do Not Open, Do Not Close, Do Not Energize, Do Not Operate,* or similar.

16.4.2 Application of Energy Control Procedure

The ENERGY CONTROL PROCEDURE shall cover the following elements and shall be done in the following sequence:

1. **Development of the procedure.** An initial survey must be completed to determine which switches, valves, or other isolating devices apply to the equipment being locked out. More than one energy source (electrical, mechanical, hydraulic, pneumatic, chemical, or others) may be involved.

    a) Energy Sources. Clear any questionable identification of sources with plant/project management, the SSO, or other technical resources within the project.

2. **Preparation for shutdown.** Before an AUTHORIZED or AFFECTED employee turns off a machine or equipment, the AUTHORIZED employee must have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.

3. **Machine or equipment shutdown.** The machine or equipment must be turned off or shut down using the procedures required by this program. An orderly shutdown must be utilized to avoid any additional or increased hazards(s) to employees as a result of equipment de-energization.

   CAUTION: Disconnect switches must not be pulled while under load, due to the possibility of arcing or even explosion. Personnel knowledgeable in equipment operation should be involved with shut down or re-start procedures.

4. **Machine or equipment isolation.** All ENERGY ISOLATING DEVICEs that are needed to control the energy to the machine or equipment must be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

5. **LOCKOUT or TAGOUT DEVICE application.** Each individual must apply his/her own locks and tags. A lock *and* a tag must be placed on each ENERGY ISOLATING DEVICE, with the following exceptions:

   a) If the equipment will not accept a lock, a tag alone may be used but only after considering whether the ENERGY ISOLATING DEVICE can feasibly be modified to accept a lock, and discussing the issue with the SSO, CM, and HSM.

   b) If a tag alone is used, at least one other safety measure must be taken. Examples include removal of a circuit element, blocking the control switch, or opening an extra disconnect.

Tags must be affixed in a manner so that they clearly indicate that the operation or movement of ENERGY ISOLATING DEVICEs from the "safe" or "off" position is prohibited.

6. **Stored energy.** After the application of LOCKOUT or TAGOUT DEVICEs to ENERGY ISOLATING DEVICEs, all potentially hazardous stored or residual energy must be relieved, disconnected, restrained, and otherwise rendered safe. For instance:

   a) Capacitors must be discharged after their source is disconnected.

   b) High capacitance elements must have their source disconnected, their charge released, their power inlet diverted, and the capacitor put to ground.

   c) Springs; elevated machine members; rotating flywheels; hydraulic systems; and air, gas, steam, or water pressure must be released or restrained, etc.

   If there is a possibility of *reaccumulation of stored energy* to a hazardous level, verification of isolation must be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

7. **Verification of isolation.** Prior to starting work on machines or equipment that have been locked out or tagged out, the AUTHORIZED employee must verify that isolation and de-energization of the machine or equipment have been accomplished. Both visual inspections and physical tests are important elements of verification.

   a) **Visual.** Workers can visually confirm that switches, valves, breakers, etc. have been moved to or secured in the *off* or *safe* position. Visual inspection can also verify

whether or not LOTO and other protective devices have been applied to the control points in a manner that would prevent the unsafe movement of switches or valves. Finally, a visual inspection can be used to verify that isolation has taken place by determining that all motion has stopped and that all coasting parts such as flywheels, grinding wheels, saw blades, etc. have come to rest.

b) **Physical.** In order to reliably ascertain whether hazardous energy has been effectively isolated, the AUTHORIZED worker generally will need to use a combination of visual inspection techniques and other physical tests (e.g., the use of a test instrument, such as a voltmeter and/or a deliberate attempt to start up the equipment).

c) **Electrical Work.** Workers who are isolating and deenergizing electrical energy must use a Cat III voltage detection instrument (e.g., digital multimeter) to determine that the circuits or conductors are dead. It is not permissible to rely on other verification steps found in the ENERGY CONTROL PROCEDURE to verify that circuits or conductors are dead.

Exception: *Workers are permitted to use a non-contact proximity voltage detection device to verify an ELECTRICALLY SAFE WORK CONDITION if the following pre-condition is met: Electrical isolation is initially verified from outside of the electrical enclosure with covers closed via a permanently mounted voltage detection device*. In this case, the non-contact device may be used as the secondary means of verification in lieu of a digital multi meter. Additionally, in this instance, the worker would not be required to don arc flash PPE. *Note: The device must be one that is approved by the SSO and HSM and must only be installed on equipment that was reviewed by the SSO and HSM.*

8. **Reenergization.** Each individual must remove his/her own LOCKOUT DEVICE. Prior to start-up, check that nonessential items and employees are out of the way, and that equipment components are operationally intact. Notify AFFECTED employees once LOCKOUT/TAGOUT DEVICEs have been removed.

16.4.3 Single Energy Source Exemption

There are limited situations where ENERGY CONTROL PROCEDUREs do not need to be written. This exemption is intended to apply to situations in which the LOTO process can take place without detailed interactions of energy sources, machines/equipment, and employees. If **all** of the following elements exist, then the ENERGY CONTROL PROCEDURE is not required to be written:

1. There is a single source of hazardous energy that can be easily identified and isolated, and there is no potential for stored or residual energy in the machine.
2. The isolation and locking out of that single energy source will totally de-energize and deactivate the machine.
3. A full LOCKOUT of the energy source is achieved by a single LOCKOUT DEVICE, which is under the exclusive control of the AUTHORIZED employee performing the servicing.
4. The servicing, while the machine is locked out, cannot expose other employees to hazards.

5. No accidents involving the unexpected start-up of the machine/equipment have occurred.

16.5 Electrical Hazards

The electrical safety program for W&C is detailed in Section 19 of the Company Health and Safety Manual. Electrical hazards are one of four aspects of an OSHA "focused inspection" for construction and present obviously life-threatening hazards. Equipment capable of reaching the overhead power lines shall always maintain a safe clearance of at least 10 feet. Lines rated above 50 kilovolts (kV) will have safe clearance of 10 feet plus at least 0.4 inches per additional 1 kV. W&C will request that lines are de-energized prior to work in the area or adequately insulate the lines, if and as necessary.

W&C and other employers will comply with OSHA regulations 29 CFR Part 1926, Subpart K – Electrical 1926.400 – 1926.

Ground fault circuit interrupter (GFCI) protection will be used for power equipment, etc. Only heavy-duty, 3-prong, outdoor-type extension cords approved for the work and load will be used as necessary.

The following activities may ONLY be completed by a qualified person using appropriate arc flash protection and safe work practice:

- Testing work on electrical circuits or equipment
- Working on energized circuit parts or equipment
- Defeating an electrical safety interlock.

Wherever feasible, the equipment or system must be totally de-energized before beginning work using control of hazardous energy procedure. Deenergization must be verified prior to commencement of work.

A decision to work on live electrical conductors instead of deenergizing must be made by a qualified person and is only acceptable when either:

- Deenergization introduces additional hazards (e.g., deactivation of emergency alarm systems, removal of illumination for an area, etc.)
- The equipment/system must be energized to facilitate the troubleshooting process.

16.6 Other Heavy Equipment

This project will have heavy equipment (such as backhoes or direct push vehicles) on Site presenting significant hazards to workers. Two areas of an OSHA "focused inspection" for construction include "struck by" and "caught in or between" hazards, accidents or injuries. Most incidents involving heavy equipment are due to a lack of awareness of the victim by the operator and/or of the impending motion by the victim.

Communication, eye contact, hand signals, and awareness of personnel locations and movements and equipment motions are critical to avoid incidents. Personnel will not "take breaks" under or behind heavy equipment (on average, 20 workers per year die when they are backed over while doing this). All heavy equipment will have back-up alarms. Personnel on the ground will not approach equipment (such as excavators or backhoes) from the operator's "blind side" (the side with the arm and bucket). A minimum safe distance of 25 feet will be maintained by personnel from moving heavy equipment. Personnel may only approach heavy equipment when the equipment is stopped, buckets or other hydraulic arms lowered to the ground and visual contact with the operator is maintained. If operations require personnel to be in closer vicinity of operating heavy equipment, then a spotter and job pre-briefing must be employed so that the team is aware of the operational hazards.

Site personnel will comply with OSHA regulations 29 CFR Part 1926, Subpart O – Motor Vehicles, Mechanized Equipment, and Marine Operations 1926.600 – 1926.606. Personnel will not repair, fix, service, or maintain heavy equipment without first locking out and tagging out all hazardous energy sources that the worker(s) may be exposed to during the repair. This includes "blocking" sources of gravitational energy (e.g., a falling bucket).

16.7 Hazard Communication

All employers on Site must comply with 29 CFR Part 1910.1200 – Hazard Communication. Employers will maintain copies of safety data sheets (SDSs) on Site for all chemicals on-site. Personnel will have appropriate hazard communication training and each employer will have a written Hazard Communication Program for any chemicals brought to and/or stored on the project Site. The W&C Hazard Communication Program is available for review in APPENDIX C.

16.8 Fire and Explosion

Fire and/or explosion may occur because of worker carelessness during refueling operations, if parking in long, dry vegetation, or if hot work is performed. The following precautions shall be adhered to:

- Smoking is not allowed during any sampling or refueling activities; smoking shall occur only in designated areas.
- Avoid parking in tall, dry vegetation. Where driving is necessary in dry vegetated areas, a fire watch shall be used, equipped with a fire extinguisher.
- Request a hot work permit for any primary sources of ignition (hot work).
- Flammable and combustible liquid storage shall be posted "No Smoking".
- Make good housekeeping a top priority.
- All mobile equipment shall be equipped with a fire extinguisher.
- Vehicles and equipment shall not be parked and left unattended in tall/dry vegetation.
- All mobile equipment shall be free of any fluid drips/leaks.

While not anticipated, fuel cans shall be OSHA-accepted, labeled safety cans and shall not be transported in vehicle passenger enclosures (cabs, trunks, etc.).

16.9 Hot Surfaces

Personnel shall use caution around any activities/equipment that generates heat. This primarily includes combustion engines and exhausts. Equipment maintenance shall not be performed on hot engines.

16.10 Site Illumination

Working in poorly illuminated environments is dangerous, and therefore, activities should only be performed during daylight hours. Any field activities performed in poorly illuminated environments, outside daylight hours, shall be properly risk assessed and approved by the HSM.

16.11 Motor Vehicles

Motor vehicles present hazards to both operators and personnel working in the immediate area. Personnel shall:

- Perform daily inspections (360◦ walk around), and monthly formal documented inspections; Take out of service any deficiency which could affect the safe operation of vehicle.
- Obey all posted speed limits and signs.
- Drive at speeds consistent with road conditions and visibility.
- Stay alert.
- Avoid all distractions.
    - Drivers are prohibited from using any two-way mobile communication device such as mobile or smart phones, smartwatches, tablets, laptops, two-way radios or pagers while driving the vehicle. **This includes using the devices in hands-free mode.**
- Stop at all railroad crossings on AR-controlled property.
- Wear seatbelts.
- Follow the five Smith System Driving Keys.

In addition, the workforce should avoid driving vehicles on the highway during nighttime hours, due to abundant wild and domestic animals in the area.

The task of backing a vehicle results in over 30% of all collisions. As such, Site personnel should utilize the “first movement” policy. This policy can be summarized as follows:

- Avoid backing up if possible (parallel park).
- Back into parking spots upon arrival, instead of departure.
- Limit backing distance if you must back up.
- GOAL: Get Out And Look or use a spotter if you aren’t sure what’s behind you.

Several tasks involve working around traffic including water levels; ground water and surface water sampling; storm water samplings; soil sampling; dust collection; and construction oversight. These activities frequently occur in maintenance holes, on two-way streets, or in parking lots where two-way traffic should be anticipated. Traffic poses significant risk of injury or death to personnel and must be managed accordingly to keep workers safe. Due to the frequency and necessity of field activities which take place along roadways, a plan has been developed to manage and mitigate these risks (APPENDIX F, Traffic Control Plan).

16.12 Body Mechanics and Material Handling

Handling water and/or soil samples and tools and digging soil samples presents a significant risk of sprains and strains, and long-term illnesses like tendonitis if not mitigated. Blisters to the hands and general soreness are also inevitable if adequate controls are not followed. The following controls shall be used to prevent sprains, strains, and blisters:

- Gently stretch prior to any tasks which require lifting or repetitive motion.
- Always lift with the legs, keeping the back straight.
- When lifting objects, avoid twisting your back, take small steps, and pivot with your feet.
- Never lift an object that is too heavy (50 lb. max) or awkward. Ask for help and use mechanical devices (carts, wagons, etc.) for heavy and awkward loads, and for long packing distances.
- Share work tasks and take rest breaks as necessary to lessen the chance of developing muscle fatigue or soreness in joints.
- Maintain as close to a neutral body posture as possible to prevent overuse of soft tissue such as muscle, tendons, and ligaments.
- Use a cart or wagon instead of backpacks for transporting samples, where possible.
- Dig at a natural pace and avoid over-exerting.
- Use gloves with adequate padding on the palms, and make sure they stay dry.
- Use “mole skin” directly to sensitive areas of the skin.
- Rotate diggers within each team, as necessary.

16.13 Hand and Power Tools

The use of electrical hand tools is required on occasion. In such cases, they shall be double insulated or grounded. Additionally, a GFCI shall be used if operated outdoors or near water. All cords shall be heavy duty and inspected daily for frays, cuts, and abrasions. Portable power tools pose a special danger to employees because they are deceptively small and light, yet they can do great bodily harm if improperly used or poorly maintained. Read and understand instruction manuals and use the tool only for the purpose for which it was intended.

16.14 Slips, Trips, and Falls

Slips, trips, and falls while walking on uneven terrain are a continuous concern. When combined with rain, snow, or ice, and yields a perfect recipe for a slip, trip or fall. Personnel shall always wear appropriate safety footwear and be aware of slick and uneven surfaces that contribute to unsure footing. W&C shall insist on maintaining walking surfaces free of snow, ice, and mud; as feasibly possible. Other precautions include:

- Walk, never run.
- Inspect and clear a walking path before carrying objects.
- Keep one hand free for balance.
- Take short steps in slick conditions.
- Always practice good housekeeping.
- Ensure adequate lighting.
- Backfill sample pits as soon as practical.

Additionally, personnel shall avoid steep slopes and stay at least six feet away from subsidence, steep banks, shafts, holes, etc. and stay the same height to distance ration away from highwalls.

16.15 Working On, Over or Near Water

Employees on the site may be required to work in or around water during operations. In general, when water is greater than three feet deep or the bottom is muddy and of sufficient thickness that it could create an entrapment hazard, employees shall ensure the following safety rules are followed:

1. **Personal Flotation Device (PFD) Vest**
    - Wear Coast Guard approved PFD work vests. Do not use recreational boating PFDs such as ski jackets for work applications.
    - PFDs used as work vests may be Type I, II, III, or V. A Type V PFD, including Type V Hybrid PFDs, is acceptable only if it is U.S. Coast Guard approved and marked for use as a work vest, for commercial use, or for use on commercial vessels.
    - PFDs shall be fitted with a SOLAS (Safety of Life At Sea convention) compliant whistle or noise making device.
    - When worn at night, PFDs shall have SOLAS rated reflective tape/materials affixed to the PFD.
    - In hypothermia conditions, PFDs should be insulated (e.g., “mustang suits”).
    - PFD work vests shall be inspected before each use.
    - *NOTE: The use of PFDs is generally NOT appropriate for entrapment hazards such as deep muds.*

2. **Additional Emergency Response Requirements & Considerations**
    - All personnel working around water should have appropriate training and be familiar with emergency response procedures and contacts.
    - Continuous oversight and/or the buddy system shall be used when personnel are working around water.
    - Throwing rings or throwing bags should generally be used before launching a rescue skiff.
    - Rescue skiffs should be used judiciously and may pose additional drowning risk for rescue personnel.
    - If the risk assessment requires the use of a rescue skiff, personnel shall update this policy with small vessel operation requirements.
    - When working around water, the applicable emergency gear identified in the risk assessment (i.e., throw rings, PFDs, skiffs) must be available onsite at all times.
    - Deep water, fast flowing water, cold water and/or presence of thin ice can present additional constraints to emergency response. Divers, or other specialized responders, may need to be alerted and their availability verified prior to proceeding with work around water under these conditions.

16.16 Weather-Related Hazards

In addition to heat and cold temperatures, weather-related hazards should be anticipated, and appropriate protective measures taken. Given the multi-season work schedule and unpredictable weather, multiple seasons' adverse weather should be anticipated. ***Always check the weather forecast for the Site locale before heading out!*** The following are some possible weather-related hazards and protective measures:

- Lightning: Do not work during electrical storms. If you hear distant thunder, or see ominous clouds indicative of a storm approaching, the occurrence of lightning may be imminent. Employees must follow the 30/30 rule. Begin counting as soon as you see lightning. If you hear thunder before you reach 30, stop work and go indoors. If shelter inside a permanent building is not available, seek shelter in a fully enclosed vehicle with all windows and doors closed. Outdoor activities must be suspended for at least 30 minutes after the last sound of thunder and/or sight of lightning, whichever is longer. If being outdoors during lightning is unavoidable:
    - Avoid open fields or hilltops as lightning typically strikes the tallest object in an area.
    - Stay clear of trees, scaffolding, rooftops, cell phone towers, and other tall, isolated objects.
    - Crouch close to the ground in a ball-like position with your head tucked and your feet and knees together. Keep minimal contact with the ground; do not lie flat on the ground.

- If in a group during a thunderstorm, separate from each other to reduce the number of injuries if lightning strikes the ground.
- Avoid metal objects, equipment, and surfaces than conduct electricity.
- Avoid water as lightning can electrify the water body. Any employee in open water during lightning or a thunderstorm must return to land immediately.

Discuss the lightning safety protocol before work begins, including how employees will be notified about lightning warnings, identify location(s) for safe shelter, discuss check-in procedures when safe shelter is reached, specify approaches for determining when to suspend outdoor activities and when to resume outdoor work activities.

- Snow squalls, whiteouts, blizzards, northeasters, freezing rain, sleet, or ice: Do not schedule work when weather reports indicate potential storm or snowstorm watches or warnings. Send personnel home early in advance of an approaching storm. Alternatively, shelter workers if conditions are too hazardous to risk travel.
- Tornado: Take appropriate shelter. Do not schedule work when weather reports indicate potential hurricane or tornado watches or warnings. Send personnel home early in advance of an approaching storm.
- Hail: Take appropriate shelter. Do not schedule work when weather reports indicate potential hail watches or warnings.
- Flash flooding: Take appropriate shelter. Do not schedule work when weather reports indicate potential flash flooding watches or warnings. Have workers vacate low-lying areas and seek high ground. Do not attempt to navigate across flooded areas or waterways.

16.17 Fauna and Flora Hazards

Of possible concern are venomous spiders and snakes, poisonous/irritating plants (poison oak, poison ivy), and stinging insects, particularly those to which individuals may have developed allergies (i.e., bees, wasps). Individuals with allergies to insect stings (bees, wasps, etc.) are encouraged to notify the person controlling work/PIC. Daily Toolbox Meetings should identify potential locations of poisonous plants and dense foliage where insects or snakes may be hidden. A first aid kit will be available in all vehicles to treat minor insect bites and stings. Adherence to safe work practices such as not reaching into dark places or picking up rocks and other objects, inspecting clothing and exposed skin for presence of ticks periodically during the day, and wearing steel-toed safety boots, long-sleeve shirts, and heavy leather work gloves when removing or contacting vegetation.

First aid procedures for minor insect bites and stings include: cold applications, use of soothing lotions (e.g., calamine). First aid procedures for a bee sting include: removal of the venom, stinger, and venom sac. If the bite or sting is from a venomous spider or produces a severe reaction, implement the following procedures: keep calm and keep the victim from excessive movement, preferably in a prone position, and immediately transport to the nearest medical emergency facility. If the victim cannot be transported to a hospital and emergency assistance is not immediately available, the field team should immobilize the bitten extremity keeping it below the heart, and if

necessary, provide artificial respiration and CPR. It is essential to get the victim to a hospital immediately.

16.17.1 Poison Ivy, Poison Oak, Poison Sumac

Poison ivy is a plant that causes an itchy, blistery rash that forms on the skin. Urushiol is an oil found within the plant that is responsible for irritation of the skin. All parts of poisonous plants (leaves, stems, roots, berries, etc.) may contain urushiol oil, even when the plant is dead. If the blisters on the skin are opened, there is an increased risk of infection. Therefore, it is important not to scratch the rash or blisters that form.

Poison ivy is most commonly observed in the Eastern and Midwestern United States in lake and stream habitats. Eastern poison ivy has a hairy ropelike vine with three shiny green leaves in the summer or red leaves budding from a small stem in the autumn. Poison ivy may have small, yellow flowers. Example pictures of poison ivy are depicted in Figure 4.

Figure 4: Examples of Poison Ivy

Poison Ivy Vine

Eastern Poison Ivy

Eastern Poison Ivy (young leaves)

Poison ivy flowers

Wild parsnip is an invasive species found in all states except Alabama, Florida, Georgia, and Mississippi. It is commonly found in disturbed landscapes such as along roadways and fields. The plant has an array of small yellow flowers on at the end of hollow, grooved, hairless stems. The yellow-green, toothed leaves are arranged into a circular cluster (Figure 5).

Figure 5: Examples of Wild Parsnip

Wild Parsnip Flower Cluster

Wild Parsnip Stalk

Wild Parsnip Leaf

16.17.2 Poisonous Plant Controls

The best way to protect against rash associated with poisonous plants is to avoid these plants. The following control measures are required when poisonous plants are onsite but will be avoided:

- Wear long pants, shoes, and socks.
- Notify the Project Manager and other site workers about the location of poisonous plants that are encountered.

Where poisonous plant exposure is likely, the following control measures below will be used. Activities with likely poisonous plant exposure involve touching poisonous plants with body, tools, or equipment (e.g., removing poisonous plants from an area, sampling a well where poisonous plants are growing up the well, walking over or through poisonous plants to access a work location, etc.). Employees highly susceptible to rash caused by urushiol oil who are working in areas with known poisonous plants should also consider implementing the control measures listed below even when not intending to contact poisonous plants.

- The Project Manager must:
    - Consider whether poisonous plant removal can be done by a contractor or client before Woodard & Curran employees access the area.
    - Ensure all required personal protective equipment and supplies are available to the project team.
- Employees must cover skin by wearing pants, long sleeves, shoes, socks, and gloves to minimize exposure.
    - A best practice is to wear an outer layer of clothing that can be easily removed after contact with poisonous plants.
    - Tyvek coveralls or Tyvek sleeves are available upon request to meet the long sleeve and long pants requirement.

- Place plastic on the ground for tool/equipment staging to avoid contact with the sap/urushiol oil from poisonous plants.
- Upon completing field work (and before getting into vehicle), employees should remove any easily removable outer layers of clothing, such as jackets, Tyvek, and/or gloves, that may have contacted poisonous plants with care and place them in a plastic bag to avoid spreading urushiol oil or poisonous sap.
- Clothing that contacted poisonous plants must be washed with regular soap/laundry detergent and hot water.
- Any tools or equipment (including boots) must be cleaned with hot water, soap, and a washcloth or paper towel.
- Wear gloves when handling clothing or tools contaminated with urushiol oil or sap.
- Take care in handling boots and tying boot laces after working in areas with poisonous plants. Boot gaiters may be used as a best practice to cover laces and most of the boot.
- Within two hours of contact with poisonous plants, employees must wash their skin with cold/lukewarm water using products designed for removal of urushiol oil (e.g., Tecnu) or use post-contact towelettes if working in areas of poison ivy, poison oak, or poison sumac. Note: washing skin with hot water may open the skin's pores allowing urushiol oil or sap to more easily enter the skin.
- Employees must notify the Project Manager and other employees about the location of poisonous plants that are encountered.
- Any employee in a situation where poisonous plants will be contacted who does not have Poisonous Plant training or personal protective equipment for protection against the poisonous plants must Stop Work and notify his/her Manager.

As a best practice, employees may (but are not required to) apply pre-exposure creams or wipes (e.g., IvyX) when working in or around poisonous ivy. Pre-exposure creams or wipes are encouraged for employees with known sensitivity to poisonous plants containing urushiol oil and may be used by any employee working in or around poison ivy. The above-listed PPE and post-work washing still apply, even if pre-exposure creams or wipes are utilized.

Any employee particularly susceptible to urushiol oil who is asked to perform work in an area where poison ivy, poison oak, or poison sumac are present, is encouraged to talk to their manager about the potential for exposure and possible reassignment.

16.17.3 Ticks

Ticks transmit bacteria that cause illnesses such as Lyme disease or Rocky Mountain spotted fever. Ticks wait for host from the tips of grasses and shrubs (not from trees). When brushed by a moving person, they quickly let go of the vegetation and climb onto the host. Ticks can only crawl; they cannot fly or jump. Tick season typically lasts from April through October; peak season is May through July; seasons can vary depending on climate. Ticks can be active on winter days when the ground temperatures are about 45° Fahrenheit.

The best prevention of tick-borne illnesses is to prevent the ticks from attaching to the body. Woodard & Curran employees working in areas containing tick habitat are required to:

1. **Conduct regular spot checks to look for ticks on clothing.** This is best achieved through frequent visual inspections during the day including a more complete inspection (checking your body) at the end of the day.
2. **Wear light-colored pants.** Tyvek pants are provided to all employees who request them to meet the requirement for wearing light colored pants.
3. **Tuck pant legs into socks or wear boot gaiters**. Tucking pants into socks is intended to keep the ticks on the outside of clothing where they can be spotted and removed during visual inspections. If you are not wearing boot gaiters or Tyvek, your pants should be taped where they are tucked into your socks. Light-colored boot gaiters impregnated with Permethrin (or non-treated) are available to all Woodard & Curran staff with work-related field needs upon request. Permethrin kills ticks on contact.

Several best practices are encouraged when employees are working in areas known or suspected of having ticks. These include:

- For overgrown areas where employees must work or access, the Project Manager requests the client mow or clear the area prior to our employees accessing the area, as appropriate.
- Employees are encouraged to Stop Work and reschedule work activities if the area is not adequately mowed/cleared or if there is a large presence of ticks.
- Stay on cleared, well-traveled trails.
- If you intend to go off trail or into overgrown areas, use insect repellent.
    - Permethrin: Permethrin is the preferred repellant for tick exposure and will both deter and kill ticks. However, use permethrin with caution. Do not apply Permethrin directly to skin, it is to be applied only to clothing and allowed to dry (minimum of four hours) prior to use for maximum efficiency. Permethrin impregnated/treated clothing will require re-treatment but typically remains effective on clothing for multiple wash cycles. Follow manufacturer's instructions for safe usage.
    - DEET: Insect repellant containing DEET (Diethyl-meta-toluamide) can be used on skin or clothing as a tick deterrent. DEET acts as a tick repellant but will not kill ticks.
- Keep work areas clear by removing brush or leaf litter.
- Avoid sitting directly on the ground or on stone walls (havens for ticks and their hosts).
- Be aware that ticks can also be above you on taller vegetation and branches (but they do not jump!).
- Keep long hair tied back.

- Wear easily removable outer layers of clothing (e.g., jacket, long-sleeved shirt, Tyvek, etc.) when working in tick habitat. Remove outer layers of clothing and place them in a sealed plastic bag prior to entering company vehicles, if possible.
- Place clothing in dryer on high heat for 10 minutes. Ticks can survive the hot water wash cycle, but the dryer will kill them.
- Do a final, full-body tick-check at the end of the day. If possible, ask a spouse or significant other to assist.

Tick bites must be reported to your Manager. Monitor the site of the bite for the appearance of a rash or fever beginning 3 to 30 days after the bite. At the same time, learn about the other early symptoms of tick-borne disease, including Lyme disease, and watch to see if they appear in about the same timeframe. If a rash appears or other early symptoms develop, call the Nurse Hotline for medical attention or advice. Call 911, or local emergency medical services, if experiencing a life-threatening event.

16.17.4 Mosquitoes

Mosquitoes, carriers of the West Nile Virus, Eastern Equine Encephalitis, and other diseases, are indigenous to the area. Employees working in areas where mosquito-borne illness is prevalent are required to cover as much of their skin as possible by wearing long sleeved shirts, long pants, and socks.

Best practices for mosquito bite prevention include:

- Eliminate standing water where mosquitos can breed. Mosquitos can develop in a standing body of water that persists for more than 4 days such as:
  - Stagnant pools
  - Ponds
  - Water troughs
  - Rain barrels
  - Irrigation ditches
  - Unused tires
  - Manure lagoons
  - Weedy, bushy, and wooded environments
- Disrupt areas that can act as breeding grounds. Inspect work areas and remove sources of stagnant or standing water, such as dumping out water pails or making sure spare tires have no water in them. If unable to remove the breeding grounds, avoid the area and consider staying indoors before dawn and after dusk when mosquitos are more active.
- Use insect repellent containing DEET, picaridin, or oil of lemon on exposed skin and clothing. Permethrin on clothing is also effective at repelling mosquitoes.
- Employees, including those who are pregnant or who plan (or whose partner plans) to become pregnant in the near future, may contact their Human Resources Talent Partner to request an accommodation.

16.17.5 Wasps and Bees

Wasps (hornets and yellow jackets) and bees (honeybees and bumblebees) are common insects that may pose a potential hazard to the field team if work is performed during spring, summer, or fall. Bees normally build their nests in the soil. However, they use other natural holes such as abandoned rodent nests or tree hollows. Wasps make a football-shaped, paper-like nest either

below or above the ground. Yellow jackets tend to build their nests in the ground, but hornets tend to build their nests in trees and shrubbery. Bees are generally more mild-mannered than wasps and are less likely to sting. Bees can only sting once while wasps sting multiple times because their stinger is barbless. Wasps sting when they feel threatened. By remaining calm and not annoying wasps by swatting, you lessen the chance of being stung. Wasps and bees inject a venomous fluid under the skin when they sting. The venom causes a painful swelling that may last for several days. If the stinger is still present, carefully remove it with tweezers or scraping a credit card or other blunt object against the sting site in the opposite direction in which the stinger is embedded.

Employees must take the following steps to prevent bee, hornet, yellow jacket, and wasp stings:

- Wear clothing to cover as much of the body as possible. Note that wearing additional clothing may contribute to heat stress in warmer months.
- If a nest is known to be in a work area and the work task cannot be relocated, the nest may be removed provided: Manufacturer's instructions for insecticide use is followed in accordance with local and state laws.

Some people may develop an allergic reaction, i.e., anaphylaxis, to a wasp or bee sting. If such a reaction develops, **seek medical attention at once**. Persons who are allergic to bee and wasp stings should carry an epinephrine pen, e.g., epi-pen, with them that is prescribed by a doctor and used to help abate swelling that occurs due to their allergy. Even if a person utilizes their epi-pen, they still need to seek medical attention for follow-up care and observation.

16.17.6 Spiders

Although most spiders are harmless, there are two types of spiders that pose a potential hazard at the Site, including the Hobo and the Black Widow. Spider bites are rarely fatal. However, a spider's venom could be extremely painful, and in some cases, fatal if not treated immediately. Most bites can easily be prevented by wearing work gloves, keeping your hands out of dark areas, and not attempting to handle any spiders. Symptoms may include severe pain around the bite, profuse sweating, nausea, abdominal cramps, and difficulty breathing and speaking. Field personnel are reminded to exercise extreme caution when opening well caps and other closures. Spiders often reside in the upper portions of well casings. Spiders of concern include:

- The Hobo spider (Tegenaria Agrestis) spider is a light to medium brown color with a dark stripe down the center to either side of lighter midline stripes. Legs are solid light brown with no bands. Hobo spiders' range in size from 1 to 1 and ¾ inches in diameter. Personnel are instructed not to attempt to handle any spiders in order to identify them. Hobo Spider bites can be painful and cause the skin to turn red. It was long believed that Hobo Spider venom could cause tissue damage and necrosis. According to the Centers for Disease Control and Prevention the hobo spider venom is not considered toxic to humans. This is supported by studies where hobo spider venom was injected into animals and failed to show any reactions.

- The Black Widow (Latrodectus mactans) spider is usually identified by their shiny black color and large rounded abdomens. Female Black Widows are generally larger than the males ranging from one to two inches in diameter. The obvious sign of a female Black Widow is the large red hourglass shape on the spider's abdomen. Although the hourglass shape lies on the underside of the spider, personnel are instructed not to attempt to handle any spiders in order to identify them. Black Widow bites are known to be very painful up to 8 to 12 hours after the bite has taken place. A bite causes severe muscle spasms throughout the entire body and could be deadly, especially to a child.

16.17.7 Snakes

While poisonous snake sightings have been non-existent within the BPSOU, they aren't impossible. Snake bites are serious and should be treated as though from a venomous snake such as a rattlesnake (See APPENDIX H: Montana Snake Guide for pictures to help with identification of snakes). Seek medical attention immediately, transport the victim to the nearest Hospital. Signs and symptoms of venomous poisoning include swelling, pain, and tingling at the bite site, tingling and a metallic taste in the mouth, fever, chills, blurred vision, and muscle tremors. Even if the bite is not from a venomous snake there is a real possibility of tetanus. The following first aid steps should be followed while transporting the individual to the emergency room or waiting for medical assistance, if the victim cannot be moved:

- Calm the victim and keep hydrated and comfortable.
- Immobilize the affected area and keep it at or below the level of the heart.
- Remove rings, watches, and other constrictive items before swelling starts.
- Gently clean the wound with antiseptic soap and apply sterile dressing, don't apply ice or attempt to cut the bite site and suck out the venom.

The immediate goal should be safe and rapid transport to the emergency room without undue anxiety or activity that may accelerate absorption of the venom. A short walk is acceptable if the patient feels up to it and if no other alternative is available.

Personnel should remember that snake bites are preventable events. Most individuals that are bitten see the snake, but then take actions that put them at risk. Give snakes a wide berth, move away and the snake will not chase you. Always look before you step over an object, and before you turn over a rock or log, or place your hand in a crevice. Complete outdoor tasks during daylight hours. Personnel should always wear protective clothing (heavy leather work gloves, thick leather safety boots, long-sleeved shirts, and gators) when working in areas with tall grass or potential snake habitat.

16.17.8 Other Wild and Domestic Animals

Other animal hazards that could be encountered include wild and domestic animals. Most wild animals will be frightened away, but the more domestic they are, the less likely they will run. The following guidelines are recommended to avoid animal attacks in the field:

- Stay clear of domestic and wild animals.
- Surprising animals and thereby provoking an attack can be avoided by making noise when entering wooded or brushy areas, or areas with high grass.
- Make a wide detour around all animals that are observed.
- If animals that pose a potential threat are present and cannot be scared away, leave the area, and in the case of aggressive domestic animals, notify the animal warden.

Rodent nests or rodent infestations could pose a potential health hazard (rodents may carry hantaviruses, the causative agent of hemorrhagic fever); inhalation or ingestion of urine, feces, or saliva, even aerosols, from infected rodents could transmit the virus to workers. Do not disturb mice nests. If removal is necessary, complete a TRA and follow the instructions on APPENDIX I How to Clean Up After Mice.

16.18 Worker Fatigue

Extended work-shifts and workdays will result in worker fatigue at some point. An evaluation for fitness for task shall be completed prior to work assignments at active sites where the site and /or task are identified as having potential exposure to health hazards including, but not limited to chemicals, noise, biological agents, etc. exist or may require use of a respirator.

Employees performing or visiting active field sites, shall certify they are fit for duty by signing "in and fit" and "out and fit" on the Field Authorization Form (FAF [Appendix B], as described in Hazard Identification and Task Risk Assessment (HITRA) section.

Supervisors or Managers shall monitor workers daily and discuss fatigue and tiredness. In addition, the following restrictions shall be adhered to:

- Workdays shall not exceed 14 hours within a rolling 24- hour period and Employees shall not work more than 60 hours over a continuous 7-day period without the approval of the AA and PSM.
- Be aware of your limitations.
- Use careful judgment.
- Follow procedures carefully.
- Take breaks when possible.
- Never work under the influence of drugs or alcohol.
- Avoid late nights on work days.
- Worker fatigue should be realized, monitored, and addressed; before accidents happen.
- Personnel safety shall not be compromised by project schedule and/or budget constraints.

16.19 Asbestos Containing Materials

If asbestos-containing materials (ACM) are identified within the existing Site buildings or elsewhere on site, as required by both Federal USEPA regulation and by various States'

regulations, if present friable ACM will be properly "abated" prior to demolition by a licensed asbestos abatement contractor. If suspected ACM is encountered during site activities, the materials will be tested to determine whether or not they are ACM prior to continuation of work activities.

16.20 Lead Hazards

Lead-based paint (LBP) or other lead-containing materials (LCM such as lead roof flashing and piping) may be present in some building materials of various structures on site. As required by both Federal OSHA and EPA and HUD regulations, W&C will make this determination and if present, LBP or LCM will be properly removed prior to or during demolition by trained employees of said contractor who are monitored and enrolled in their company's medical surveillance plan for lead.

16.21 Silica Hazards

Respirable crystalline silica is a common mineral found in many naturally occurring materials, such as sand and stone. Silica is used in the manufacturing of building products such as concrete, brick, and mortar. Routine, long-term exposure and inhalation of respirable crystalline silica can lead to silicosis, chronic obstructive pulmonary disease (COPD), lung cancer, kidney disease, autoimmune disorders, and cardiovascular disease.

16.21.1 Tasks with Silica Exposure

The following materials may be cut, sanded, drilled, jackhammered, sawed, mixed, or otherwise disturbed and may generate respirable crystalline silica at this project:

- Asphalt
- Concrete
- Cement

16.21.2 Silica Controls

Employees and contractors generating respirable silica dust will follow all controls in OSHA Silica Table 1 (see APPENDIX E). If all controls in Silica Table 1 cannot be followed, then an exposure determination will be performed to evaluate employee exposure. The exposure determination may be performed using personal air monitoring data, objective data, or both to evaluate if employee exposure is at or above the action level.

Areas where airborne exposure to respirable crystalline silica is above the PEL will be labeled as a "Regulated Area." These areas must be demarcated, and signs must be posted at entrances to all regulated areas. Only those authorized people with appropriate respiratory protection will be allowed to enter regulated areas.

Proper housekeeping is important to reducing airborne silica dust. The following housekeeping measures will be instituted onsite:

- Maintain all surfaces as free as possible from silica dust.
- Dry sweeping of silica dust is prohibited. Instead, wet sweeping methods or HEPA vacuums will be used to clean-up silica dust.
- Compressed air will NOT be used to remove silica from any surface unless it is used with a ventilation system designed to capture airborne dust created while using compressed air.
- Workers may not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas.

Respiratory protection will be selected based on Silica Table 1 (APPENDIX E) or, if Silica Table 1 controls cannot be followed, based on an assessment of the potential airborne respirable crystalline silica exposure. Any employee required to wear a respirator for protection against respirable crystalline silica inhalation must be medically cleared to wear a respirator, have a current fit test, and have respirator training. If employees are required to wear respiratory protection, a site-specific respiratory protection plan will be created and attached to this HASP.

16.22 Bloodborne Pathogens

16.22.1 Scope and Application

This Bloodborne Pathogens (BBP) Exposure Control Plan has been developed as a supplement to the corporate Woodard & Curran Exposure Control Plan. The intent of this document is to describe the specific procedures used to protect employees from occupational exposure to bloodborne pathogens at the Site.

This plan applies to all employees with occupational exposure to blood or other potentially infectious materials (OPIM).

16.22.2 Responsibilities

16.22.2.1 Project Manager

- Delegate responsibilities and provide the appropriate resources to implement the provisions of this exposure control plan for all projects they manage where employees have occupational exposure to BBP.
- Evaluate tasks that will be performed to determine if work involves occupational exposure to blood or OPIM, with technical assistance from Health & Safety as needed.
- Ensure that all personnel understand the potential hazards associated with exposure to blood or OPIM.
- Maintain this BBP Exposure Control plan meeting the requirements outlined Woodard & Curran Corporate Health and Safety Manual Section 14.
- Provide management support and resources for the BBP program:
    - Enforcing compliance with the policies and procedures outlined in this plan
    - Helping ensure that exposure incidents are reported and investigated, and recommended corrective actions are implemented

    - Checking that all employees with occupational exposure are provided with initial and annual refresher training and the opportunity to receive the Hepatitis B vaccination
    - Ensuring that the project program is reviewed and updated as needed or at least annually
- Ensure employees with occupational exposure participate in BBP training.
- Report the exposure incident using the H&S HUB (see APPENDIX D).

16.22.2.2 Health and Safety

- Develop the corporate written BBP Exposure Control Plan and coordinate a review of the program.
- Assist with the development of site-specific Exposure Control Plans.
- Provide guidance and technical support related to BBP.
- Work with Management to arrange for initial and annual refresher training for those employees with occupational exposure to blood or OPIM.
- Maintain Hepatitis B Declination Forms.
- Provide guidance on proper disposal of regulated waste.

16.22.2.3 Employees with Occupational Exposure

- Conduct work activities involving potential exposure to blood or OPIM in accordance with the requirements of the OSHA standard and the Woodard & Curran Exposure Control Plan.
- Immediately report all incidents involving potential exposure to blood and OPIM to your Manager.
- Participate in initial and annual refresher training.
- Receive the Hepatitis B vaccination series or sign the declination form. Notify your Manager if the vaccination was originally declined but is later desired.
- Provide feedback on opportunities for program improvement, including any known new technology. Participate in the annual program review upon request.

16.22.3 Exposure Determination

Individuals that are First Aid/ CPR trained have occupational exposure to BPP. A list of First Aid/CPR trained personnel can be found in Section 1.5, Table 2.

16.22.4 Methods of Compliance

16.22.4.1 Universal Precautions

Universal precautions stress that all blood and certain body fluids should be assumed to be infectious for bloodborne pathogens regardless of the perceived status of the source individual. Other potentially infectious material (OPIM) includes any body fluid visibly contaminated with blood, as well as a number of body fluids (e.g., amniotic, pericardial, peritoneal, pleural, synovial, cerebrospinal).

In most occupational settings, universal precautions do not apply to fluids such as saliva, feces, vomit, urine, sweat, tears, and nasal secretions, unless these fluids are visibly contaminated by blood.

16.22.4.2 Engineering Controls

Engineering controls are used to eliminate or minimize the risk of employee exposure to BBP, and include methods that either remove the hazard or isolate the worker from the hazard.

Sharps Containers

In the event of a workplace accident, broken glass, tools, or damaged equipment with sharp edges may become potentially contaminated with blood or body fluids. All potentially contaminated sharps will either be properly decontaminated, or be discarded as soon as feasible in specified sharps containers that are:

- Puncture resistant
- Color-coded or labeled with a universal biohazard warning sign
- Leak-proof on the sides and bottoms
- Closable

In addition, these containers will remain upright during use and will not be allowed to overfill; this will minimize the risk of injury to personnel handling the containers.

16.22.4.2.1 Work Practice Controls

Work practice controls are modifications in procedures and practices that, if executed properly, will reduce the risk of worker exposure to blood or OPIM.

Hand Washing

- Employees will wash their hands with a non-abrasive soap as soon as possible, if not immediately after, removing gloves or coming in contact with potentially contaminated objects.
- At field sites or other locations where non-abrasive soap and running water are not provided, alternate arrangements will be made to provide hand washing capabilities. This will include either an appropriate antiseptic hand cleanser in conjunction with clean

cloth/paper towels or antiseptic towelettes. When antiseptic hand cleansers or towelettes are used, hands will be washed with soap and running water as soon as feasible afterwards.

- Eating, drinking, and smoking are prohibited in any area where contamination of blood or OPIM exist and prior to hand washing following a potential exposure.

Sharps Handling

- Since contaminated sharps are capable of inflicting injury and direct inoculation of bloodborne pathogens into the bloodstream, potentially contaminated sharps (e.g., broken glass, tools, damaged equipment with sharp edges, or syringes) will not be directly handled.
- Instead, employees will use mechanical means, such as a scoop or dustpan to clean-up and dispose of sharps. A damp paper or cloth towel in combination with heavy gloves will be used to collect small pieces that cannot be swept up.
- To avoid injury, employees will not reach by hand into containers of contaminated sharps or transfer contaminated sharps by hand to another container.

Aerosol and Splash Control

- All procedures involving blood or other potentially infectious materials will be performed in such a manner as to minimize splashing, spraying, splattering, or generation of droplets of these substances.

16.22.4.2.2 Personal Protective Equipment

All employees will be trained to use the appropriate personal protective equipment (PPE) whenever there is a potential for exposure to blood or OPIM. The following table provides details on the use of specific PPE for tasks that present an opportunity for exposure to bloodborne pathogens:

TASK	HAZARD	MINIMUM PPE REQUIRED
Providing first aid to treat a minor laceration, puncture or other similar wound	• Hand contact with blood • General eye hazards	• Impervious gloves • Safety glasses with side shields
Handling contaminated items/ equipment or decontaminating surfaces/equipment (for blood or OPIM amounts limited to a few small drops; otherwise see below)	• Hand contact with blood or OPIM • Eye contact with disinfectant; general eye hazards	• Impervious gloves (e.g., disposable nitrile) - double gloves recommended • Safety glasses with sideshields
Cleaning up spill of blood or OPIM (for amounts greater than a few small drops)	• Hand, eye, mucous membrane, and body contact with blood or OPIM	• Impervious gloves – double gloves recommended

TASK	HAZARD	MINIMUM PPE REQUIRED
		• Safety glasses with sideshields • Mask with eyeshield • Tyvek coat, coveralls or similar
Providing first aid to treat a severe laceration or other injury with large amounts or spurting blood	• Hand, eye, mucous membrane, and body contact with blood or OPIM	• Impervious gloves – double gloves recommended • Safety glasses with sideshields • Mask with eyeshield • Tyvek coat, coveralls or similar
Providing CPR	• Mouth-to-mouth transmission of saliva that may be contaminated with blood	• Mouth barrier
Walking on open waste piles at active, or recently active, landfills	• Improper disposal of syringes at landfill. • Direct inoculation of blood or OPIM into bloodstream through needle stick in foot.	• Puncture-resistant safety shoes

16.22.5 Decontamination

All equipment and surfaces contaminated with blood or OPIM as a result of a personal injury will be cleaned and disinfected immediately after the initial response to stabilize the victim. The following disinfectant(s) can be found at the Site.

Disinfectant Name	Contact Time	Precautions
Bleach, 5.25%	10 minutes	Avoid contact with skin, eyes, and clothing. Do not ingest. Do not inhale. Follow first aid instructions on label.

16.22.5.1 Procedure for Cleanup and Surface Disinfection

The following general guidelines apply, in addition to using professional judgment and prudence:

1. Put on appropriate protective equipment.

2. Control access to the affected area. Prevent people from walking through affected area and tracking blood or OPIM to other areas.
3. Use plastic scoops or other mechanical means to remove any broken glass or other sharp objects from the area. Take care to avoid generation of aerosols.
4. Place any contaminated sharps involved into a sharps container. If a sharps container is not available, place contaminated sharps into a small, lined cardboard box, or other container that will prevent the sharps from puncturing individuals' hands or the primary regulated medical waste container. Securely tape the box closed, label it as "contaminated sharps" or similar, and place it into the primary regulated medical waste container.
5. For very small volumes or semi-viscous materials:
    a. Clean up and remove all visible material first with absorbents or disposable towels or other means that prevent direct skin contact with the blood.
    b. Place soiled toweling immediately in a red bag or regulated waste bin to prevent contamination of other surfaces.
6. For larger volumes of blood, apply a thin layer of paper towels or wipes over the surface to contain any splattering when the disinfectant is applied. To minimize creation of aerosols, avoid spraying disinfectant directly onto spilled material.
7. Pour or spray disinfectant over the towels and allow it to remain wet for at least 10 minutes, or other contact time specified for the particular disinfectant, before wiping up with clean absorbent pads or towels.
8. After the specified contact time, bag the used clean-up material and place it in the red bag or regulated medical waste bin for disposal.
9. Wipe all potentially affected surfaces with disinfectant.
10. Remove and properly dispose of protective equipment, then wash hands.
    a. Remove PPE in the following order (to the extent that such PPE was required and worn for the specific clean-up scenario): disposable coat/coverall, outer pair of gloves if double gloves were worn, mask and safety glasses with side shields, and then inner gloves.
    b. Do not remove PPE from the face with potentially contaminated gloves. If only one pair of gloves were worn, they should be removed before touching the face and taking off safety glasses (or before touching other clean and uncontaminated items).

16.22.6 Regulated Waste

Regulated waste includes the following:

- Liquid or semi-liquid blood or OPIM
- Contaminated items that would release blood or OPIM in a liquid or semi-liquid state if compressed

- Items caked with dried blood or OPIM that are capable of releasing these materials during handling
- Contaminated sharps
- Pathological and biological waste containing blood or OPIM

16.22.6.1 Labeling & Containers for Regulated Waste

- Labels affixed to containers of regulated waste at the worksite contain the biohazard symbol and the legend, "BIOHAZARD". The labels are fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color. Red bags or red containers may be substituted for labels.
- Regulated waste is placed in containers that are closable, constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping, and color-coded or labeled with the universal biohazard symbol that is readily visible from all approaches.
- These containers will be closed prior to removal to prevent spillage or protrusion of contents.
- If a primary regulated waste container is damaged, or its exterior contaminated beyond decontamination, then its contents will be placed into a secondary container which meets the requirements outlined above. In these cases, the original container will be placed entirely in the secondary one, instead of transferring the contents by hand. All regulated waste containers (primary and secondary) will be closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.

16.22.6.2 Disposal of Regulated Waste

- Disposal of all regulated waste will be in accordance with applicable federal, state, and local regulations.
- When a regulated waste container is full, contact Health & Safety for guidance on proper disposal.

16.22.7 Hepatitis B Immunization

- Woodard & Curran provides the opportunity for immunization against hepatitis B to employees with occupational exposure to bloodborne pathogens at no cost and at a reasonable place and time.
- The Hepatitis B vaccination will be made available after the employee has received the initial training and within 10 working days of initial assignment to a job duty with occupational exposure, unless:
    - The employee has documentation of previous receipt of the complete hepatitis B vaccination series
    - Antibody testing has revealed that the employee is immune
    - The vaccine is contraindicated for medical reasons.

- Records for the vaccinations are maintained by Woodard & Curran's medical monitoring provider.
- Employees who choose to decline the vaccine will sign a declination form. These forms will be maintained in the Corporate Health & Safety files in Portland, Maine.
- If an employee who declined the Hepatitis B vaccination later wishes to receive it, it will be provided at no cost and at a reasonable time and place if the employee still has occupational exposure.

16.22.8 Exposure Incident

An exposure incident is defined as a specific eye, mouth, mucous membrane, non-intact skin, or parenteral contact with blood or OPIM that results from the performance of an employee's duties. All Woodard & Curran employees covered under this program will be provided with post-evaluation and follow-up treatment in the event of occupational exposure to blood or OPIM.

16.22.8.1 Initial Response

1. Provide immediate care to the exposure site.
    a. Wash wounds and skin with non-abrasive soap and water.
    b. Flush mucous membranes with water.
2. Report the incident to Health & Safety using Woodard & Curran's electric event reporting tool (see APPENDIX D).
3. Contact the Nurse Hotline (888-449-7787) for post exposure evaluation direction.

16.22.8.2 Post-Exposure Evaluation and Treatment

1. The medical evaluation will be provided to the affected employee at no cost and at a reasonable time and place. Post-exposure evaluation and treatment will be coordinated though the Nurse Hotline (888-449-7787).
2. The post-exposure evaluation and treatment protocol is provided in section 8.2 of the corporate program.

16.22.8.3 Incident Evaluation

1. The exposed employee's Manager will work with the involved employee(s) to perform the incident evaluation. Where appropriate based on the nature of the incident, Health & Safety or the occupational health professional will be asked to participate in the investigation.
2. In addition to the standard information required on an incident report, documentation for a BBP exposure incident must also include the following:
    c. What potentially infectious materials were involved
    d. Source of the material

16.22.9 Information and Training

- All employees with occupational exposure to BBP will be provided with initial and annual refresher training, at no cost to the employee and during working hours. Training will be provided prior to the employee's initial assignment, which required inclusion in this program.
- Details on required training content and documentation requirements are provided in section 9 of the corporate program. Health & Safety will arrange for training that meets these minimum requirements.

16.22.10 Program Review

As described in section 10 of the corporate program, this Site-specific Energy Control Procedure will be reviewed and updated:

- Whenever there are new or modified tasks and procedures which affect occupational exposure
- Whenever there are new or revised employee positions with occupational exposure
- Whenever the results of exposure incident investigations indicate major deficiencies in the program, or opportunities for significant improvement in these policies and procedures are otherwise identified
- At least annually

16.22.11 Recordkeeping

As described in section 11 of the corporate program, the following records related to this BBP exposure control plan will be maintained:

- Hepatitis B vaccination status
- Medical records for each employee with occupational exposure
- Sharps injury log
- Training
- Program review

16.23 COVID-19 Controls

The following controls will be instituted on this project to reduce the spread of COVID-19 and other respiratory illnesses:

1. If you or a family member is ill, stay home.
2. Project staff and visitors self-screen before coming to work and do NOT come to work if they are sick or have reason to believe they have COVID-19.
    a. Face coverings: Employees do not need to mask or distance unless required by local law or client.

4. Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, touched common objects, or after blowing your nose, coughing, or sneezing, and before eating or smoking.

5. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.

6. Hold toolbox talks outside, when possible.

7. Clean common areas and commonly touched objects (e.g., surfaces, door handles, restrooms, etc.) daily.

8. Disinfect areas and equipment used by a COVID-19 positive individual if it has been less than 24-hours since the COVID-19 positive case was in the area or used the equipment.

9. Clean up after yourself to avoid spreading germs.

10. Comply with all Owner's Safety and COVID-19 compliance requirements.

16.24 Oft-Forgotten Hazards

There are many not so obvious hazards that are often forgotten or overlooked. Here is a partial list that should be considered and controlled as applicable to the scope of work.

- Allergies or medical conditions
- Lack of food and drink
- Repetitive motion (musculoskeletal disorders, ergonomics, lifting)
- Sun blindness (sunset, water or building reflection, snow blindness, etc.)
- Thin ice conditions
- Ultraviolet radiation (UV) – eyes and sunburns
- Other vehicles (snowmobiles, ATVs, trucks, boats, etc.)
- Lack of needed supplies – change of clothes, flashlights, and batteries

APPENDIX A: APPROVALS AND SIGNATURES

(Also serves as OSHA required PPE assessment Certification)

03/20/2024

Program Safety Manager **Date**
Nicole Santifer

03/20/2024

Project Manager **Date**
Scott Bradshaw

03/20/2024

Woodard & Curran H&S Manager **Date**
Joanna K. Wallace

Note: HASP is <u>not</u> complete without the approvals!

REVIEW ACKNOWLEDGMENT FORM

I have read and understand the requirements of this HASP and have received safety orientation on the contents of this plan. I agree to abide by these safety rules and understand that any violation may result in my removal from the Site.

Name	Representing (Group/Company)	Date

APPENDIX B: AMENDMENTS TO SITE HEALTH AND SAFETY PLAN

Record of Review & Revision

HASP review and update is required annually for active projects or when: 1) a new work phase not previously identified for the project is identified; 2) new project hazards (including chemicals) are discovered; 3) a change in the scope of work affects the degree of safety exposure; 4) an administrative change occurs (e.g., contact information for site personnel changes); or 5 new technology to control project hazards is considered or implemented for project use (note: new technology includes products and equipment introduced by manufacturers to protect workers performing hazardous waste operations.)

Date	Description of Change	Name of Person Making Change	Reason for Change (check all that apply or specify)						
			Annual Review	New Work Phase	New Hazards	Scope of Work Change	Administrative Update	New Technology Considered	Other (specify)
08/01/2022	Deleted the reference to Do Forms for vehicle inspections and added Vehicle inspection forms are now managed through Fleetio.	Nicole Santifer					X		
03/04/2024	Changed Site Safety to Caleigh Mullaney, Updated CPR trained list, fixed grammar and spelling errors.	Caleigh Mullaney	X						
03/20/2024	Updated symptoms of exposure to Zinc on Table 4 Added that boots need a 4-inch upper and distinctive heel to Level D PPE, Format and spelling corrections throughout, Added personal air monitoring and perimeter air monitoring to the Scope, changed the wording on personal air monitoring section,	Nicole Santifer				X	X		

	added personal air monitors to Table 5, changed the SoC requirement to 4 per year, changed the number for Nurse Hotline and updated COVID controls, updated COC table.								

APPENDIX C: HAZARD COMMUNICATION PROGRAM

A searchable online SDS database can be accessed by any device with internet access (phone, tablet, computer, etc.). The database can be found at:

www.MSDSSource.com

Username: Treci

Password: MSDS data

Hard Copies to be Printed for Field Copy

APPENDIX D: H&S EVENT REPORTING

Report a workplace injury/illness, safe act, unsafe act, unsafe condition, vehicle damage, property damage, or suggestion here (or use the QR code below): Health & Safety HUB (sharepoint.com)

APPENDIX E: OSHA SILICA TABLE 1

Exposure Control Methods When Working with Materials Containing Crystalline Silica
(Information form Table 1 of OSHA 29 CFR 1926.1153)

Equipment/task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
Stationary masonry saws	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions	None	None
Handheld power saws (any blade diameter)	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	• None (when used outdoors) • APF 10 (when indoors or in enclosed area)	APF 10 (indoors or outdoors)
Drivable saws	• For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
Handheld power saws for cutting fiber-cement board (with blade	• For tasks performed outdoors, use saw equipped with commercially available dust collection system.	None	None.

Equipment/task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
diameter of 8 inches or less)	• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with ≤ 99% efficiency.		
Walk-behind saws	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	• None (when outdoors) • APF 10 (when indoors or in enclosed area)	• None (when outdoors) • APF 10 (when indoors or in enclosed area)
Rig-mounted core saws or drills	• Use tool equipped with integrated water delivery system that supplies water to cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
Handheld and stand-mounted drills (including impact and rotary hammer drills)	• Use drill equipped with commercially available shroud or cowling with dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the	None	None

Equipment/task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
	tool manufacturer, or greater, and have a filter with ≤ 99% efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.		
Dowel drilling rigs for concrete	• For tasks performed outdoors only: Use shroud around drill bit with a dust collection system. Dust collector must have a filter with ≤ 99% efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10
Vehicle-mounted drilling rigs for rock and concrete	• Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector OR • Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
Jackhammers and handheld powered chipping tools	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. OR • Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's	• None (when outdoors) • APF 10 (when indoors or in enclosed area)	APF 10 (when indoors or outdoors)

Equipment/task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
	instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with ≤ 99% efficiency and a filter-cleaning mechanism.		
Handheld grinders for mortar removal (*i.e.,* tuckpointing)	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with ≤ 99% efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 25
Handheld grinders for uses other than mortar removal	• For tasks performed outdoors only: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR	None	None

Equipment/task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with ≤ 99% efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None (when used indoors or outdoors)	• None (when used outdoors) • APF 10 (when used indoors or in an enclosed area)
Walk-behind milling machines and floor grinders	• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR • Use machine equipped with dust collection system recommended by the manufacturer. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with ≤ 99% efficiency and a filter-cleaning mechanism.	None	None

Equipment/task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
	• When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.		
Small drivable milling machines (less than half-lane)	• Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None.
Large drivable milling machines (half-lane and larger)	• For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust • Operate and maintain machine to minimize dust emissions • For cuts of four inches in depth or less on any substrate: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None

Equipment/task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
	OR • Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.		
Crushing machines	• Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (*e.g.,* hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). • Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. • Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station.	None	None
Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (*e.g.,* hoe-ramming, rock ripping) or during demolition with silica-	• Operate equipment from within an enclosed cab. • When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None.

Equipment/task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours/shift	> 4 hours/shift
containing materials			
Heavy equipment / utility vehicles for tasks such as grading and excavating but not including: abrading, demolishing, or fracturing silica-containing materials	• Apply water and/or dust suppressants as necessary to minimize dust emissions. OR • When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

Notes:

1. When implementing the control measures specified in the table above, each employer must:
   a. For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust.
   b. For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust.
   c. For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
      - Is maintained as free as practicable from settled dust
      - Has door seals and closing mechanisms that work properly
      - Has gaskets and seals that are in good condition and working properly
      - Is under positive pressure maintained through continuous delivery of fresh air
      - Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0µm range (*e.g.,* MERV-16 or better)
      - Has heating and cooling capabilities
2. When an employee performs more than one task on the table above during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on the table above combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

3. For tasks not listed in the table, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in the table, the employer must ensure that no employee is exposed to respirable crystalline silica above 50 $\mu g/m^3$, calculated as an 8-hour TWA.

APPENDIX F: TRAFFIC CONTROL PLAN

Job Zone Control and Traffic Management Plan for all tasks that include working around traffic.

1.0 Site Entrances and Exits

Work sites can be near building entrances/exits. Several ground water, surface water, and storm water sites are located near the south entrance of the Civic Center: Ground water sites AMW-01A, AMW-01B, AMW-01C, surface water sites MSD-HAB and MH-MSD116. In the absence of public events, there is minimal pedestrian traffic at that the south entrance of the Civic Center. The applicable sites will not be set up or inspected during any public event.

Surface water station SS-05 is located near the entrance/exit of the now defunct BSB Asphalt Plant, but Plant traffic can be easily avoided at that site by parking vehicles to the side of the entrance. When parking at SS-05, personnel should avoid blocking the line of vision of BSB employees utilizing the plant exit.

In general, work on major streets (e.g., Continental, Montana, Main, George, Kaw, Front, and Harrison) will be performed during daylight, off-peak traffic hours. Times to be avoided on moderately heavy traffic streets are 0730-0900 (morning commute), 1200-1300 (lunchtime traffic), and 1630-1800 (evening commute). After school traffic, 1455-1530, will be avoided on Main Street/Kaw Avenue, and any other street within six blocks of an elementary, middle, or high school. Side streets experience extremely light traffic and thus do not have work hour limitations, other than performing work in daylight hours. Parking lots will be accessed in mid-day or morning hours, as those hours typically have the lightest parking lot traffic. Work is not permitted in parking lots when events are occurring.

1.1 Traffic Patterns

High pedestrian traffic is not likely at any of the sites covered by this Plan, given that work will not be scheduled during events. At sites with moderately heavy traffic, peak periods are 0730-0900, 1200-1300, and 1630-1800. Additionally, Main/Kaw streets, Montana street, Continental, and streets within a six-block radius of schools experience moderately heavy traffic from 1455 to1530. Traffic volume will be light at most sites, and moderately heavy at a small number of sites. At all street sites, other than Front Street, Montana Street, Continental and Main Street, traffic is two lanes with posted speed limits of 25 miles per hour (mph). Traffic on Front St and Continental are two lanes, with a middle turn lane, and the posted speed limit is 35 mph. Montana Street is four lanes with posted speed limits ranging from 25-35 mph. On Main Street, traffic is four lanes, and the posted speed limit is 25 mph.

1.2 Traffic Control

Traffic control will include avoiding heavy traffic periods, vehicles used as barriers, caution lights, 42-inch traffic candles, drums, caution signs, high visibility clothing, and spotters. The vehicle

wheels will be aligned in a way to direct the vehicle away from personnel in the event of an impact. When parking the vehicle for use as a barrier, the vehicle will be parked so that once work is completed, the first move of the vehicle will be in the forward direction. Once in position, ensure the vehicle is in park, the parking brake will be set, the flashers will be turned on or a flashing yellow light will be used on top of the vehicle.

Prior to each task, a risk assessment will be developed listing the hazards and required controls at each location. These efforts will include minimizing the time spent in traffic. The Traffic Control Plan will be reviewed by BPSOU personnel and by BSB officials, as appropriate, for their notification and concurrence. For ground water and water levels traffic control requirements are listed for each site on the Butte-GW Smpl Clctn and Butte-GW WLs DoForms.

1.3 **Other Site Conditions**

This work may be performed during winter weather, and there is a chance of encountering icy conditions. Work in maintenance holes will not be performed on days that roads are covered in ice and snow to the extent that slick conditions are created where vehicles could slide into the work zone.

1.4 Work Areas and Levels of Protection

In addition to the traffic protection included above, standard personal protective equipment (PPE) will be required on this job. That PPE is a long-sleeved shirt, safety-toed boots, high visibility upper body apparel, a hard hat, and appropriate gloves (leather or comparable for handling tools and equipment; impervious gloves for handling samples or any equipment in contact with contaminated water).

1.5 Levels of Protection for Job Zones

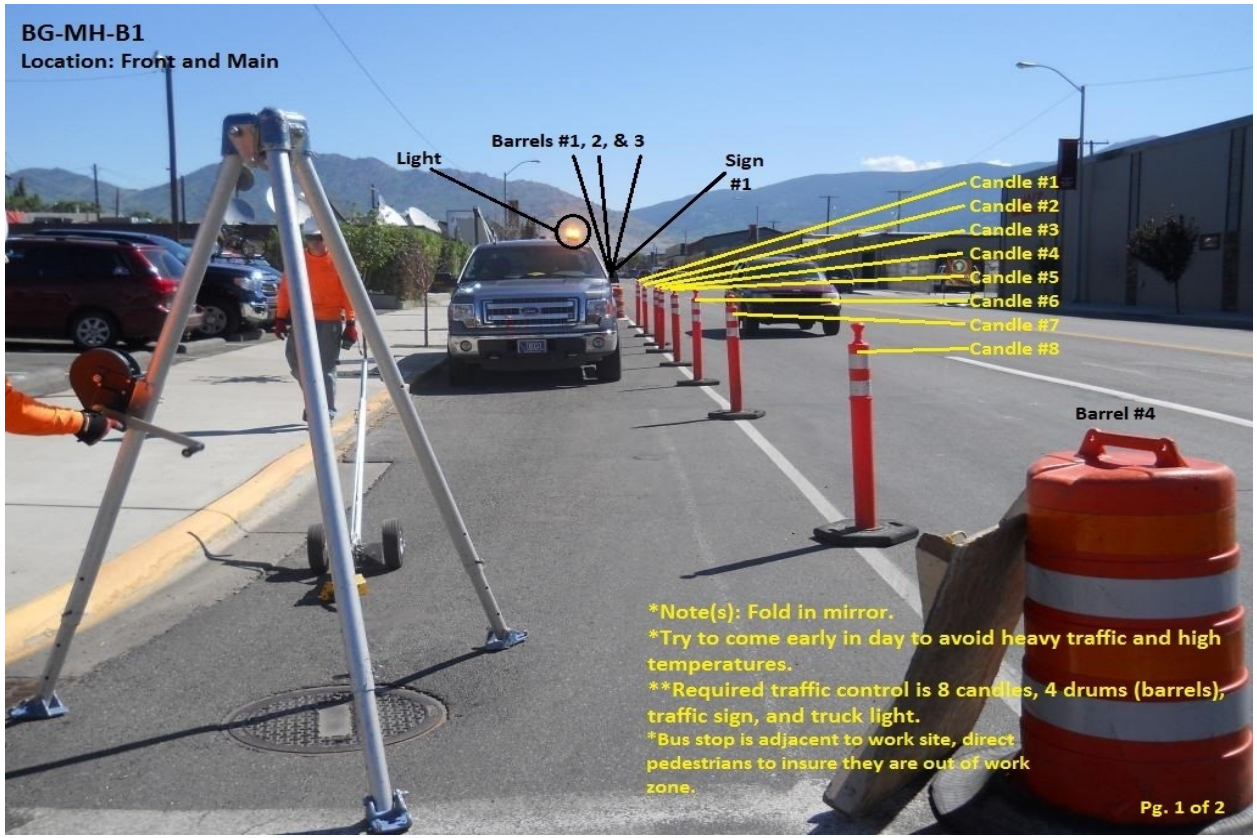
A combination of Level II and Level III Traffic Control shall be used as required on the risk assessment. This includes: 42-inch candles, field vehicles with flashing yellow lights, diamond grade drums, and signage. 42-inch candles will be used to delineate the work zone by channeling traffic, drums will be used where road width will not accommodate channeling, and signage such as “Caution Workers Ahead” will be used to warn on-coming traffic. Vehicle flashers, or an auxiliary flashing yellow light on top of the vehicle cab, will be employed. Some examples of traffic control requirements can be found below.


AR-MH-1
Location: Civic Center parking lot
South side of Civic Center
Light
Candle #1
Candle #2
Candle #3
Candle #4
*note: North side of parking lot
Pg. 1 of 1

TX-HD-1
Location: Corner of Texas and Civic Center Road

*Note: No traffic control required at TX-HD-1


BG-MH-B1
Location: Front and Main St.
Light
Sign #1
*Note: sign is placed at the end of block.
LANE CLOSED
Candle #5
Candle #4
Candle #3
Candle #2
Candle #1
Barrels #1, 2, & 3
Pg. 2 of 2


BG-MH-B1
Location: Front and Main
Light
Barrels #1, 2, & 3
Sign #1
Candle #1
Candle #2
Candle #3
Candle #4
Candle #5
Candle #6
Candle #7
Candle #8
Barrel #4
*Note(s): Fold in mirror.
*Try to come early in day to avoid heavy traffic and high temperatures.
**Required traffic control is 8 candles, 4 drums (barrels), traffic sign, and truck light.
*Bus stop is adjacent to work site, direct pedestrians to insure they are out of work zone.
Pg. 1 of 2

APPENDIX G: FORMS AND PERMITS

APPENDIX H: MONTANA SNAKE GUIDE

APPENDIX I: HOW TO CLEAN UP AFTER MICE

This Appendix is an excerpt from the CDC's "Facts About Hantaviruses" document describing how to clean up after mice and rats. See the last page for a link to the entire CDC document.

Facts About Hantaviruses

What You Need To Know To Prevent the Disease Hantavirus Pulmonary Syndrome (HPS)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention

How To Clean Up After Mice and Rats

How to clean up mouse and rat urine and droppings:

- Wear rubber or plastic gloves.
- Spray urine and droppings with a disinfectant or a mixture of bleach and water. Make sure you get the urine and droppings very wet. Let it soak for 5 minutes.
- Use a paper towel to wipe up the urine or droppings.
- Throw the paper towel in the garbage.
- Mop or sponge the area with a disinfectant or bleach solution.
- Wash gloved hands with soap and water or spray a disinfectant or bleach solution on gloves before taking them off.
- Wash hands with soap and warm water after taking off your gloves.

Spray disinfectant

Clean-up tip:

Do not sweep or vacuum up mouse or rat urine, droppings, or nests. This will cause virus particles to go into the air, where they can be breathed in.

Bleach and water solution

Use either of these when cleaning up after mice and rats:

- General-purpose household disinfectant. Make sure the word "disinfectant" is written on the label.

OR

- Bleach and water solution. Mix 1 ½ cups of household bleach with 1 gallon of water. Smaller amounts can be made with 1 part bleach and 9 parts water.

How to clean up a dead mouse or rat in a snap trap and how to clean up a rodent nest:

- Wear rubber or plastic gloves.
- Spray the dead mouse, rat, or nest, as well as the surrounding area, with a disinfectant or a mixture of bleach and water. Let it soak.
- Place nesting materials or trap with the dead rodent in a plastic bag. If you plan to reuse the trap, get the mouse or rat out of the trap by holding it over the bag and lifting the metal bar. Let the mouse or rat drop in the bag. Disinfect the trap.
- Seal the bag. Place the full bag in a second plastic bag. Seal that bag.
- Throw the bag into a covered trash can that is regularly emptied or contact your state health department for information on other ways to throw away dead mice and rats.
- Wash gloved hands with soap and water or spray a disinfectant or bleach solution on gloves before taking them off.
- Wash hands with soap and warm water after removing your gloves.

Nesting Materials:

Some materials mice and rats use to build their nests include paper, tissues, insulation, and the stuffing from furniture.

Spray gloves before taking them off

Important:

If you live in the western United States, you may be at risk for plague carried by fleas from rodents. Use insect repellent (containing DEET) on clothing, shoes, and hands to reduce the risk of flea-bites while picking up dead rodents. Contact your local or state health department to find out if plague is a danger in your area and for more information on other flea-control methods.

How to clean out cabins, sheds, barns, or other outbuildings:

- Open all doors and windows. Leave them open for 30 minutes before cleaning.
- Wear rubber or plastic gloves.
- Clean up all rodent urine, droppings, nests, or dead mice or rats by using a disinfectant or a mixture of bleach and water.
- Mop floors or spray dirt floors with a disinfectant or mixture of bleach and water.

Air out cabins

Mop floors

- Clean countertops, cabinets, and drawers with a disinfectant or a mixture of bleach and water.
- Steam clean, shampoo, or spray upholstered furniture with a detergent, disinfectant, or a mixture of bleach and water.
- Wash any bedding and clothing with laundry detergent in hot water if you see any mouse or rat urine or droppings on them.

Wash clothes and bedding with detergent in hot water

For more information about hantavirus pulmonary syndrome or rodent control, call your state or local health department.

Or call the Centers for Disease Control and Prevention (CDC) at 1-877-232-3322

Or see the CDC web page at: http://www.cdc.gov/ncidod/diseases/hanta/hps/index.htm

APPENDIX J: LIST OF ACRONYMS

AA	Area Authority
ACGIH	Association Advancing Occupational and Environmental Health
AR	Atlantic Richfield
BPSOU	Butte Priority Soils Operable Unit
CoC	Constituent of Concern
CoW	Control of Work
CPR	Cardiopulmonary Resuscitation
CSE	Confined Space Entry
DTB/FAF	Daily Took Box/Field Authorization Form
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
ES&H	Environmental, Safety & Health
FAF	Field Authorization Card
PIC	Person in Charge
GFCI	Ground Fault Circuit Interrupt
HASP	Health and Safety Plan
HITRA	Hazard Identification Task Risk Assessment
H&S	Health and Safety
HSM/IA	Health and Safety Manager/Issuing Authority
HSSE	Health, Safety, Security, and Environment
IA	Issuing Authority
LM	Liability Manager
LOTO	Lock Out Tag Out
MOC	Management of Change
MSP	Medical Surveillance Program
NIOSH	National Institute for Occupational Safety and Health
OPIM	Other Potentially Infectious Material
OSHA	Occupational Safety and Health Administration
PA	Performing Authority
PEL	Permissible Exposure Limit
PFD	Personal Floatation Device
PIC	Principle in Charge
PM	Project Manager
PO	Project Oversight
PPE	Personal Protective Equipment
PSM	Program Safety Manager
REL	Recommended Exposure Limit

RIK	Replacement in Kind
RM	Remediation Management
SAP	Safety Action Plan
SIMOPs	Simultaneous Operations
SDS	Safety Data Sheet
SOC	Safety Observation and Conversation
SSHASP	Site-Specific Health and Safety Plan
SSO	Site Safety Officer
TRA	Task Risk Assessment
TLV	Threshold Limit Value
USEPA	United States Environmental Protection Agency