PROJECT HEALTH & SAFETY PLAN
(HASP)

Prepared for:
Office of the Attorney General
State of Mississippi
Walter Sillers Building
550 High Street Suite 1200
Jackson, Mississippi 39201

Submitted by:

EarthCon Consultants, Inc.
900 Holcomb Boulevard, Suite B
Ocean Springs, Mississippi 39564
Phone: 228-872-3096   Fax: 228-875-4427

EarthCon Project No. 02.20130380.13
This site specific health and safety plan (HASP) establishes procedures and practices to protect employees of EarthCon Consultants Inc. (EarthCon) and its subcontractors from potential hazards posed by site field activities. Only the Site Safety Officer (SSO) can change or amend this document in agreement with the EarthCon Corporate Safety and Health Manager (CSHM) and Project Manager (PM). The SSO must initial any change made to the HASP at the relevant section. Major amendments (e.g., changes in personal protective equipment not provided for in this plan, addition of tasks, etc.) must be documented by indicating the amendment date shown on this page. This HASP must be kept on-site through the duration of each phase of site operation or while project work is in progress.

**Prepared by:** Laura Sanchez, Project Geologist EarthCon Consultants, Inc. 11/4/13

**Project Manager:** Everett J. Ferris, R.P.G. Senior Geologist EarthCon Consultants, Inc. 11/20/13

**Reviewed by:** Richard H. Crawford, P.E. Project Principal EarthCon Consultants, Inc. 12/2/13

**Approved by:** Maxwell Ty Anderson, P.E., CIH EarthCon Corporate Safety and Health Manager (CSHM) EarthCon Consultants, Inc. 11/20/13

**Copy Cover Sheet to:** Maxwell Ty Anderson, P.E., CIH EarthCon Corporate Safety and Health Manager (CSHM)

**Brief Description of Amendment**

**Amendment Date**
Health and Safety Plan Consent Agreement

Because of the potentially hazardous nature of this site and activity occurring at the site, it is not possible to discover, evaluate, and provide protection for all possible hazards that may be encountered. Strict adherence to the health and safety guidelines set forth in this document will reduce, but not eliminate, the potential for injury and illness at this site. Guidelines in this plan were prepared specifically for this site and should not be used on any other site without prior evaluation by trained health and safety personnel.

All site workers must also review this HASP. The SSO must conduct a pre-entry briefing prior to initiating this project. All sections of this HASP must be reviewed during this briefing. Any worker not attending the initial meeting must be trained by the SSO on the information covered in the pre-entry briefing meeting. After reading the HASP and attending a pre-entry briefing, workers must sign the following acknowledgment statement.

I have read, understand, and will abide by the information set forth in this HASP. I have also attended a pre-entry briefing. I agree to perform my work in accordance with this HASP (Attach additional acknowledgement forms as necessary).

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1.0 SUMMARY

The following project information and personnel are provided in an initial summary. Personnel responsibilities are described in Table 1, and personnel training requirements are provided in Table 2.

Project Name…………………………… Chemfax, Inc.
                            Superfund Site Remediation

Project Location…………………… Three Rivers Road
                            Gulfport, Harrison County Mississippi

Project Number………………………… 02.01220023.55.01.13351

Project Manager………………………… Everett J. Ferris 601-408-9449

Site Safety Officer(s)…………………… Laura Sanchez 985-788-4921

Corporate Safety & Health Manager….. Maxwell Ty Anderson 601-917-1010

Branch Office Manager…………………. Richard H. Crawford 662-213-7651

Regional Manager……………………… Richard H. Crawford 662-213-7651

Planned Activities……………………… Excavation and off-Site disposal of contaminated soils and sediments. Characterization and Confirmation soil sampling.

Chemical Hazards……………………… Potential: BTEX (Benzene, Toluene, Ethylbenzene, Xylene); PAHs (Polynuclear Aromatic Hydrocarbons)
Initial PPE……………………………….. Level D

Emergency Phone………………………… 911

Hospital/ Walk-in Clinic Phone: 228-575-7000
Information…………………… Garden Park Hospital

Directions (see Figure 3)

Phone: 228-563-6800
Emergency Walk-in Clinic (Walmart)
9350 Highway 49,
Gulfport, MS 39501
Directions (see Figure 4)
2.0 INTRODUCTION

This HASP serves the following purposes:

- Identifies and describes the potentially hazardous substances and working conditions that may be encountered during the field work;
- Specifies personal protective and monitoring equipment to be used during on-site activities; and
- Outlines measures to be implemented in the event of an emergency.

2.1 Site Location and Description

The Site is a designated Superfund Site located in Gulfport, Harrison County, Mississippi. It is an 11-acre property bounded by Three Rivers Road to the east and Creosote Road to the south, and formerly operated as Chemfax, Inc., a facility that manufactured synthetic resins and waxes from petroleum products. It was in operation from 1955 through 1995. Inspections have documented possible releases from:

- An unlined pond where cooling water was collected;
- Potential spills of raw feedstock;
- The former molten resin processing area;
- Aboveground storage tanks (ASTs) where hazardous wastes were stored; and,
- Waste paraffin and waste oils that were discovered in drums that were found buried on-Site.

In January 1996, the United States Environmental Protection Agency (EPA) completed a Remedial Investigation and Feasibility Study (RI/FS), and an additional FS was completed in April 2000. The investigation revealed hazardous substances (by definition) at the Site. Groundwater was determined to be impacted with contaminants that included naphthalene, 2-methylnaphthalene, benzene, toluene, ethylbenzene, methyl butyl ketone, and bis(2-chloroethyl)ether at levels exceeding the Maximum Contaminant Levels (MCLs) or the risk based Performance Standards identified in the Record of Decision (ROD) (November 21, 2002) and/or the amended ROD (February 27, 2013). The soil was also impacted, contaminants identified include naphthalene, benzene, toluene, and ethylbenzene at levels indicating the contaminants could leach to groundwater. The groundwater at the Site is classified as Class II-B which is a potential source of drinking water. As a result, the EPA has issued a Unilateral Administrative Order (UAO) to the State of Mississippi requiring the performance of remedial design and remedial action pursuant to Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) with an effective order date of July 1, 2013.

A cleanup action to remove imminent threats to public health and the environment was conducted in 1999 under Superfund’s removal authority. This action resulted in the removal of asbestos, drums, and contents left in on-Site ASTs. The action also dismantled most of the processing lines, tank farms, bulk storage areas, and structures and removed approximately 2,000 cubic yards of contaminated soils, which were disposed of off-Site.
2.2 Project Objectives

EarthCon will address the remaining long term threats through the prescribed remedial action. The selected remedy as set forth in the ROD, 2002, requires the excavation of approximately 18,000 cubic yards of contaminated soil and sediment. The contaminated soils will be disposed of at an approved facility located off-Site and the excavated areas will be back-filled with clean soil. A portion of the Site may be designated as a Corrective Action Management Unit (CAMU). Confirmation samples will be taken from the excavated areas to ensure that sufficient soil and sediment has been removed from the designated areas and initial in-situ characterization samples of the soil will be collected for waste profiling.

The samples will be placed into laboratory-prepared bottled, labeled and stored in ice-cooled shipping containers. The samples will be shipped or delivered to an approved laboratory under chain-of-custody protocol within 24-hours of sample collection. EarthCon understands that ESC Lab Sciences (ESC) will provide laboratory analytical services for this project. ESC will analyze each soil and groundwater sample for benzene, toluene, ethylbenzene, naphthalene, and methyl butyl ketone via US EPA method 8260 and 2-Methylnaphthalene and Bis(2-chloroethyl)ether via US EPA method 8270.

2.3 Personnel Requirements and Responsibilities

Provisions of this HASP apply to all EarthCon personnel and all subcontractors that will be participating in the above noted field activities. EarthCon personnel who have responsibility for the safe operations of this project include the Project Manager (PM), EarthCon Corporate Safety and Health Manager (CSHM), the Site Safety Officer (SSO) and the Project Field Staff. Responsibilities of each of the above referenced personnel as they relate to project safety and health are summarized below and in Table 1.

Environmental, Health, and Safety (EH&S) Training may be required for some of the field activities associated with this Site. Training requirements will be specified in the Site specific plans and must be completed prior to initiation of field activities. Training documentation will be recorded on Table 2.

On-site personnel will be required to review the HASP prior to commencement of field activities and conduct all field activities in accordance with plan specifications. Other personnel on the site are expected to follow the provisions of the health and safety procedures outlined in this HASP. EarthCon will not assume responsibility for the health and safety of individuals other than those employed by, subcontracted to, or serviced by EarthCon. Pre-entry briefing and routine tailgate meetings will be conducted to facilitate on-site training. General safe work practices that must be implemented during work activities at this site are included in Table 3.
2.3.1 Project Manager

- Coordinate, approve, implement and manage this HASP and amendments, if any.
- Incorporate H&S planning, implementation, and supplies (PPE, decontamination materials) into project plans and budget.
- Select and assign responsibility to the SSO to implement HASP.
- Monitor the Field Logbooks for health and safety work practices employed.
- Coordinate with SSO so that emergency response procedures are implemented, if needed.
- Inform CSHM of HASP violations, if any, and verify corrective actions are implemented.
- Ensure personnel receive this plan, are aware of its provisions, are aware of the potential hazards associated with Site operations, are instructed in safe work practices, are familiar with emergency response procedures and document this information
- Coordinate with Client and SSO.

2.3.2 EarthCon Corporate Safety and Health Manager

- Prepare HASP, approve any associated amendments.
- Evaluate Site hazards for HASP preparation. Maintain a copy of the cover sheet for each completed HASP.
- Perform periodic audits of project activities to evaluate general compliance with policies, procedures, directives and guidelines presented in this HASP.
- Assist with the implementation of the Corporate Health and Safety Program.
- Provide environmental, health and industrial hygiene consultation as needed.

2.3.3 Site Safety Officer

- Be present on-Site, as appropriate, with the authority to implement HASP and amendments, if any, and EarthCon H&S protocols.
- Confirm that Site personnel meet the training and medical requirements.
- Verify that all monitoring equipment and personal protective equipment is operating correctly according to manufacturer’s instructions and such equipment is utilized by on-Site personnel. Calibrate or verify calibration of all monitoring equipment and record results.
- Verify that decontamination procedures are being implemented.
- Provide and document pre-entry briefing and daily tailgate safety meetings, monitor activities for safe work practices and HASP compliance.
- Perform weekly H&S inspections.
- Report to the Project Manager deviations from the anticipated conditions, and authorize the cessation of work if necessary.
- Notify the PM and CSHM in the event an emergency occurs, and implement Site emergency response and follow-up procedures, provide First Aid, as needed.
2.3.4 **Project Field Staff**

The project field staff will be comprised of EarthCon personnel and subcontractors who will be expected to comply with the following:

- Provide verification of required health and safety training and medical surveillance (if applicable) prior to arriving at the Site.
- Notify the SSO of any special medical conditions (e.g., allergies).
- Review, be familiar with and abide by the HASP.
- Attend pre-entry briefings and daily tailgate safety meetings.
- Comply with requests of PM, SSO, and HASP.
- Perform work using safe techniques, be responsible for their personal safety.
- Immediately report any accidents and/or unsafe conditions to the SSO.

2.4 **Site Control**

Site control procedures must be implemented **before** the start of Site tasks to control worker exposures to hazardous substances.

2.4.1 **Site Location Map**

A Site Location Map is included as **Figure 1**. This map shows the location of the Site in relation to Interstate 10 and Highway 49, Gulfport, Mississippi.

2.4.2 **Site Map**

A Site Map is included as **Figure 2**. Changes may be made to the Site map by the SSO, as needed, based on Site conditions. The Site map should be posted in the work area and/or field notebook.

2.4.3 **Route to Hospital Map**

A map showing the location of Garden Park Hospital and directions from the Site is attached as **Figure 3**. A Walk-In Clinic is located just 0.2 miles around the corner from the Site on Hwy 49 and is attached as **Figure 4**.

2.4.4 **Site Access**

Access to the site shall be controlled using the following method(s):

- Security fence
- Temporary barricades and/or warning tape
- Sign in/Sign out log
- Guard
- Identification badges
- Other:

2.4.5 **Work Zones**

Restricted work zones may be established to limit the spread of hazardous substances (when applicable) by workers from potentially affected areas to non-affected areas. The
exact location and extent of the work zones will be modified as necessary as site investigation information becomes available. Delineation of work zones is as follows:

- **Exclusion Zone:** The Exclusion Zone is the area where the potential for exposure to hazards and contact with hazardous materials could occur. The zone may be marked by caution tape. Personnel working within the Exclusion Zone will be expected to follow protective measures as prescribed by the SSO.

- **Contamination Reduction Zone:** The Contamination Reduction Zone is a transition area between the potentially affected areas/materials and assumed non-affected areas/materials. Decontamination of personnel and equipment, if necessary, shall be conducted in this area to reduce the probability of contamination transfer to a non-affected area. The Contamination Reduction Zone shall be situated upwind of the Exclusion Zone.

- **Support Zone:** The Support Zone is the area, outside the Exclusion and Contamination Reduction Zone, where administrative and other project support functions are performed. The Support Zone shall be situated upwind of the Contamination Reduction Zone and/or the Exclusion Zone.

### 2.4.6 Communications

Typical on-site communications may be conducted through the use of:

- [ ] Verbal
- [ ] Two-way radio  [ ] Horn
- [ ] Cellular telephone  [ ] Siren
- [ ] Hand signals  [ ] Other:______

Off-site communications may be conducted through the use of:

- [ ] Cellular telephone
- [ ] Site Phone: Location & No.  ______________________________
- [ ] Pay phone: Location & No. ______________________________
- [ ] Other: ______________________________
2.4.7 Visitors

Visitors to the Site are required to have the proper PPE and shall be continually escorted in order to assure their safety. Visitors will not be allowed past the Support Zone (if such a zone is established at this Site) unless they read, understand, sign, and abide by the requirements outlined in this HASP.

2.5 Worker Training

Table 2 will be used to document on-Site workers who have received the appropriate training according to the company Environmental, Health, and Safety (EH&S) Training Program. Table 2 must be completed prior to initiation of field activities. Pre-entry briefing and routine tailgate meetings will be conducted to facilitate on-site training.

2.6 Safety Meetings

Project personnel who will be involved with on-Site field activities must be appropriately trained in accordance with CFR Title 29 Part 1910.120 “Hazardous Waste Operations and Emergency Response”. Before field work begins, the SSO will review the HASP with the field workers addressing the potential hazards associated with the proposed field activities. Components of the safety meeting will include a review of the following:

- Potential chemical, operational and physical hazards present at the site.
- Personal protective equipment (PPE)/personal protection procedures.
- Hazardous materials handling procedures.
- Air monitoring procedures.
- Buddy system.
- Personal hygiene - general guidelines.
- Personal and equipment decontamination procedures.
- Emergency response procedures.
- Symptom awareness.

Periodic meetings with project personnel may be conducted by the SSO pending changes to the scope of work or modification to this HASP.

2.7 Medical Monitoring Requirements

OSHA requires medical monitoring for personnel potentially exposed to chemical hazards at concentrations in excess of the PEL for more than 30 days per year and for personnel who must use respiratory protection for more than 30 days per year.

Will personnel working at this site be enrolled in a medical monitoring program? □ Yes □ No
Personnel who are deemed to be unfit or unable to utilize a respirator, or are diagnosed as having medical conditions which could directly or indirectly be aggravated by either exposure to chemical substances suspected of being present at the Site, or by the use of Personal Protective Equipment (PPE), will not be allowed to participate in field activities. In addition, personnel with injuries or illnesses involving open wounds may not be allowed on-Site. Field personnel who develop an illness or injury during the project may be examined by a physician. A physician must determine if the employee is fit to return to work before they can return to field activities. In addition, the CSHM, SSO or Site employees may request additional medical testing if a chemical exposure is suspected.

2.8 Hazard Communication Requirements

When chemicals are used on-Site, EarthCon workers must adhere to the company’s Hazard Communication Program (29 CFR §1910.1200). The following procedures must be followed for all chemicals brought on-Site (i.e., decontamination solution, sampling preservatives, etc.):

- Labels on incoming primary chemical containers must not be defaced (until after the container is empty, decontaminated and ready for disposal).
- Chemical containers must be stored in appropriate storage cabinets.
- Secondary containers and storage cabinets must be correctly and clearly labeled using the Hazardous Materials Identification System (HMIS).
- Incompatible chemicals must not be stored together.
- Workers must receive training on the hazards of these chemicals as indicated in Table 4.
- A Material Safety Data Sheet for each chemical is included in Appendix E.
3.0 GENERAL PERFORMANCE REQUIREMENTS

3.1 Performance Requirements

- Any unsafe equipment, condition or work practice and all injuries, no matter how slight, must be reported to the SSO immediately.
- Field personnel working in the Exclusion Zone (if one is established) are to work with another person at all times.
- Procedures for the proper set up and control of each worksite task area should be planned and implemented prior to starting individual tasks.
- Field personnel must have ready access to a telephone and a vehicle in case of emergency.

3.2 Hygiene Requirements

- Long hair will be secured away from the face so it does not interfere with any activities.
- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated as being potentially affected by site related chemicals.
- Hands and face must be thoroughly washed upon leaving the work area, and before eating, drinking, or other non-project activities.
- Personnel leaving potentially contaminated areas will shower (including washing hair) and change to clean clothing as soon as possible after leaving the site.
- Kneeling, sitting, leaning, or general contact with potentially affected surfaces or with surfaces suspected of being potentially affected by hazardous materials (i.e., puddles, mud, leachate, etc.) should be avoided.

Medicine and alcohol can potentiate the effects of exposure to toxic chemicals. Neither should be taken by personnel if the likelihood of risk exists. Ingestion of alcohol during and immediately prior to field activities is prohibited.
4.0 HAZARD EVALUATION

A preliminary hazard evaluation was performed to identify existing site conditions and is documented in Table 5. The preliminary hazard evaluation addressed the following, where applicable:

- Identification of the suspected hazardous materials/wastes on-site;
- Toxicological aspects of the suspected hazardous materials on-site;
- Suspected chemical/elemental concentrations within the various media on-site;
- Inherent site hazards;
- Operational hazards; and
- Climate extremes.

4.1 Suspected Chemical/Elemental Hazards

To select those contaminants that may cause health and safety concerns, henceforth referred to as potential Contaminants of Concern (COCs), a review of the site remediation and sampling history was performed. Based on this review, potential COCs were selected and listed in Table 4. MSDSs for each of the potential COCs for this project are provided in Appendix E.

Information from the Contaminant Fact Sheets or MSDS (e.g., flash point, water reactive, etc.) has been utilized in performing the chemical hazard analysis in Table 5 (e.g., fire, inhalation, reactivity, and skin absorption hazards). If, based on the hazard analysis, chemical hazards exist, hazard mitigators must be implemented (Appendix C). In addition, air monitoring and personal protective equipment must also be utilized to evaluate airborne concentrations and protect workers.

After review of the relevant background information and data, if a potential for dermal and/or respiratory exposure to the materials or contaminants of concern exists, personnel shall perform the monitoring requirements summarized later in Section 5.2 and execute actions as appropriate. If action levels are exceeded, work shall be suspended until on-site conditions can be re-assessed and this HASP modified.

Best work practices can help to eliminate or mitigate exposure to Chemical Hazards:

- Use barricades, cones and other physical barriers to prevent access into the work zone;
- Ventilate the well head and/or vault for adequate time to allow vapors to dissipate;
- Use water spray to control dust emissions;
- Distance between worker and actual contaminated area, i.e., placing heavy equipment on clean side during activities to provide some measure of remoteness to the operation;
- Staying upwind from contaminant emissions; and,
- Ensuring only essential personnel are in work areas.
4.2 Operational/Physical Hazards

Potential operational/physical hazards associated with tasks to be performed and site location have been analyzed in Table 5. If, based on the hazard analysis, physical hazards exist; hazard mitigators (Appendix C) must be implemented.

- Utility (e.g., electrical) hazards: All electrical, natural gas, sewer, phone, fuel, water lines or other utility hazards associated with this project will be located and marked prior to excavating, sampling and any other work activities on-Site.

- Mechanical hazards: Fall, slip, and/or trip hazards exist when working with equipment and tools. Field personnel will observe walking surfaces in the work area to prevent tripping on equipment/tools placed on the ground. Good housekeeping will also be practiced.

- Excavation Hazards: Excavations will be conducted during this project. The primary hazard of trenching and excavation is employee injury due to soil collapse. The majority of the excavation on-Site is one (1) foot below surface grade, however several select areas will be excavated to three (3) and six (6) feet. Field personnel will install caution tape to maintain buffer zones around the excavations. A competent person will inspect excavated areas daily and following change in conditions, such as a heavy rain storm. No excavation areas in excess of four (4) feet will be accessed by personnel unless they have been properly shored and the field personnel has been trained in confined spaces. In addition, on-Site traffic flow via graded roads will be established to minimize interaction of equipment and field personnel and to prevent disruption of the traffic flow on contiguous roads.

- Noise Hazards: Noise hazards may exist when working around heavy equipment. Loud noises interfere with communication and also lead to temporary and/or permanent hearing loss, therefore, ear protection will be required and communication via hand signals will be implemented while these hazards are present. Noise hazards may exist wherever heavy equipment produce noise levels at or above the Action Level of 85 dBA for 8-hr Time Weighted Average (TWA). Noise in excess of 85 dBA may produce the following effects:

  1. Distraction, annoyance, or sudden surprise
  2. Inability to effectively communicate with co-workers
  3. Physical damage expressed initially as a Temporary Threshold Shift (TTS) and then, as a Permanent Threshold Shift (PTS), or immediately as a Permanent Threshold Shift if the impact noise is sufficient enough (usually greater than 100 dBA)

4.3 Suspected Biological Hazards

If, based on the hazard analysis (Table 5), biological hazards exist associated with tasks to be performed and site location (e.g., allergic reactions to poisonous plants or insects indigenous to the area, etc.); hazard mitigators (Appendix C) must be implemented.
4.4 Heat Stress

In addition to the chemical, physical and operational hazards referenced above, heat stress may present a potential hazard to on-site personnel during operations. This hazard can be created when individuals work in warm temperatures while wearing relatively impervious protective clothing. When ambient air temperatures at the site exceed 75 degrees Fahrenheit, heat stress can result. If these conditions are encountered, the precautions referenced below should be implemented.

Field team members will be observed for signs and symptoms of heat stress that include: confusion, dizziness, profuse sweating, skin color change, increased heart rate and vision problems. Personnel who exhibit any of these symptoms will be removed from field work and requested to consume two to four pints of electrolyte fluid or cool water every hour while resting in a shaded area. The individual should not return to work until the symptoms are no longer recognizable. If symptoms appear critical, persist, or get worse, seek immediate medical attention.

To control the potential occurrence of heat stress, preventive measures will be evaluated and implemented on a daily basis. These measures may include:

- Frequent rest periods;
- Inducement of fluids (e.g., water, Gatorade, etc.) at a rate of one-half to one cup of cool (55ºF) water every 20 minutes of the workday;
- Periodic cooling of personnel (e.g., via shaded areas, hose-downs with water, etc.); and
- Sensitive personnel should wear sunscreen containing a minimum Sun Protection Factor of 15 when working outdoors in the sun. Sunscreen lotion should be applied prior to entering the work zones.

4.5 Cold Stress

In addition to the chemical, physical and operational hazards referenced above, cold stress may present a potential hazard to on-site personnel during operations. This hazard can be created when individuals work in cold temperatures below 40°F. If these conditions are encountered precautions are needed to avoid hypothermia.

Field team members will be monitored for the first warning sign of cold stress; pain or numbness in the extremities and/or shivering. These signs must be taken as a sign of danger to the worker and exposure to cold should be immediately terminated for any workers when they become evident.

To control the potential occurrence of cold stress, preventive measures will be evaluated and implemented on a daily basis. These measures may include:

- Wear adequate insulating dry clothing.
- Consider the insulating effect of PPE when determining the level of insulating clothing.
- Consider the equivalent wind chill temperature when determining clothing insulation requirements.
In the event that warning signs of cold stress are observed in field workers, the following actions should be considered:

- A reduction in the duration of the exposure period.
- Wearing additional insulating dry clothing.
5.0 PERSONAL PROTECTION

5.1 Personal Protective Equipment (PPE)

The levels of personal protection required for each task are provided in Appendix D. Required equipment and types of protective clothing materials are listed, as well as an indication of the initial level of protection.

Based on the hazards identified in Section 4, the following personal protective equipment will be required for the following site activities (specify both an initial level of protection and a more protective level of protection in the event conditions should change):

<table>
<thead>
<tr>
<th>Level of Protection</th>
<th>Initial</th>
<th>Contingency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Visits</td>
<td>D</td>
<td>MD</td>
</tr>
<tr>
<td>Groundwater Sampling</td>
<td>D</td>
<td>MD</td>
</tr>
</tbody>
</table>

Each level of protection will incorporate the following equipment (specify type of coveralls, boots, gloves, respiratory cartridges or other protection, safety glasses, hard hat, and hearing protection):

**Level D:**

- X Long pants and shirt or work coveralls. Hardhat, steel toed boots, work gloves, eye, face and hearing protection, as needed.

**Modified D (MD):**

- X Same as Level D with addition of chemical splash goggles and/or faceshields, coated Tyvek suits, disposable dust masks, Neoprene overboots, and Nitrile gloves.

**Level C:**

Same as Level D with chemical protective coveralls (uncoated Tyvek), gloves (nitrile or equivalent), and half-face air purifying respirator with P100 filter or cartridge.
Respirator/Respirator Cartridge Information

Is there potential for a respirator to be donned during fieldwork?  □ Yes  ☒ No

Respirator use for this project is not planned. If it is determined that personnel will require the use of a respirator, the individual(s) will receive a fit test and a respirator and the appropriate cartridge will then be selected. In that event, the following section(s) will be completed for each respirator/respirator cartridge combination that will be used during the course of the fieldwork. Contact the CSHM for specific instructions.

Personnel Name

Respirator Manufacturer #1

Respirator Cartridge Selected for Use

Respirator Cartridge Change Schedule

Justify the cartridge change schedule and present all data used to establish this schedule.

Personnel Name

Respirator Manufacturer #1

Respirator Cartridge Selected for Use

Respirator Cartridge Change Schedule

Justify the cartridge change schedule and present all data used to establish this schedule.
The general use of PPE is acceptable when engineering controls cannot adequately eliminate the hazard. The use of PPE is intended to provide protection for on-Site personnel from chemical, physical, and operational hazards that cannot be controlled through other safety procedures. Level D Protection will be employed by on-Site personnel and will include varying levels of eye, head, body, hand, foot, and hearing protection.

Acceptable PPE are further described below.

- **Eye Protection:** Eye protection will include impact resistant safety glasses; the use of chemical splash goggles and/or faceshields and impact resistant safety glasses with side shield protection that meet the current ANSI standard Z87.1 as required.

- **Head Protection:** Non-metallic hard hats meeting the current ANSI standard Z89.1 will be worn by on-Site personnel as required during field activities.

- **Body Protection:** Body protection will include the use of sleeved shirt and pants. Reflective vests will be worn when working around drill rigs or heavy machinery and near traffic areas.

- **Hand Protection:** Hand protection will include the use of nitrile gloves when hand contact with affected materials (e.g., groundwater and soil) may occur.

- **Foot Protection:** Foot protection will include the use of impact resistant boots meeting the current ANSI standard Z41.1.

- **Back-Up Respiratory Protection:** Level C respiratory protection includes MSHA and NIOSH approved half-face or full-face, air-purifying respirators fitted with P100 cartridges. They shall be donned when air monitoring data indicates the need for such, although not expected. Workers wearing respirators shall be trained and have medical clearance as per all applicable regulations.

These levels shall only be downgraded upon approval by either the CSHM or SSO. Project personnel are not permitted to deviate from the specified levels of protection without prior approval of the SSO.

### 5.2 Personal Air Monitoring

Personal air monitoring is not required for site tasks as outlined in this HASP.

### 5.3 Vehicle Safety

Vehicle safety requires the following:

- All vehicles are to be operated in a safe manner and in compliance with statutory traffic regulations and ordinances.
- All non-essential on-Site vehicles should park only in designated areas.
- All on-Site vehicles are to comply with traffic flow-direction and low speeds to minimize dust and prevent disruption of traffic flow on contiguous roads.
- Operators are to practice defensive driving and drive in a courteous manner.
• Operators are required to have a valid driver’s license and liability insurance (per local/state laws).
• Seat belts are to be worn by the driver and all passengers.
• No persons are allowed to ride in the back of any trucks or vans.
• Vehicles are to be driven in conformance with local speed limits.
• Personnel who are impaired by fatigue, illness, alcohol, illegal or prescription drugs, or who are otherwise physically unfit, are not allowed to drive.
• Personnel are to avoid using cellular phones or engaging in other distractions while driving.
• All vehicles should be maintained in a safe and clean condition.
• All field vehicles should be equipped with the following items; first-aid kit, fire extinguisher, spares tire and jack.
• Motor vehicle accidents shall be reported to the responsible law enforcement agency, the EarthCon CSHM, the EarthCon HR Director, the SSO and the EarthCon PM.
6.0 DECONTAMINATION

The following decontamination (cleansing) procedures for the sampling equipment and PPE have been developed with the intent of reducing the potential for the transfer of hazardous chemicals outside the Exclusion Zone (if such a zone is established at this Site). Decontamination stations shall be established on-site outside the Exclusion Zone in a Contamination Reduction Zone (if such a zone is established at this Site). It shall be situated upwind of the Exclusion Zone and downwind of the Support Zone (if such a zone is established at this Site) to minimize the potential of exposure to affected materials through wind transfer.

6.1 Sampling Equipment

To prevent the distribution of contaminants outside the Exclusion Zone (if such a zone is established at this Site) or cross contamination of samples, the following procedures will be used. Decontamination of the sampling equipment will include washing the equipment in a detergent solution (Liqui-nox and water), rinse with potable water, rinse with organic-free/distilled water, and allow to dry. Disposable equipment will be used when practicable to eliminate the need for on-site decontamination.

6.2 Vehicles

To prevent the distribution of contaminants outside the Exclusion Zone (if such a zone is established at this Site) and personal exposure to chemicals, vehicles will not be allowed inside the Exclusion Zone. If vehicles are required in the Exclusion Zone (e.g., drill rigs) the following procedures will be used. Personnel will wash or remove boots and change to dry clothing prior to vehicle entry. Non-disposable equipment will be washed or bagged before placement into field vehicles.

6.3 Personnel and PPE

PPE must be decontaminated (cleaned) per 29 CFR §1910.120(k). In an emergency, the primary concern is to prevent the loss of life or severe injury to site personnel. If immediate medical treatment is required to save a life, decontamination should be delayed until the victim is stabilized. If decontamination can be performed without interfering with essential life saving measures or first-aid, or if a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or loss of life, decontamination must be performed in coordination with or prior to initial medical treatment at the scene.

To prevent or minimize exposure, field personnel will avoid walking through spilled/contaminated materials. Disposable boot covers will be used if warranted and do not present a slip hazard. Boots and hardhats may be decontaminated with detergent and water if necessary. Disposable nitrile gloves will be used on this project, therefore no decontamination of gloves will be required.
6.4 Decontamination Fluids and Investigation-Derived Waste Disposal

All decontamination fluids along with groundwater monitoring well purge water and free product (if any), will be placed in 55-gallon drums for temporary storage on-site. Disposal methods will be determined after groundwater analysis and characterizations have been completed. This approach will ensure that any small levels of contamination removed from field equipment or monitoring wells is not disbursed across the Site. Solid waste generated during decontamination and field activities (i.e., tubing, paper towels, plastic tarps, used PPE) will be removed from the Site and disposed as refuse/trash.
7.0 EMERGENCY PROCEDURES

A list of Emergency Response contacts and telephone numbers for applicable local off-site emergency responders is provided in Table 6. The nature of site work and contaminants of concern should be reviewed with off-site responders before work begins on this project. The following emergency response equipment is required for this project:

- Fire Extinguisher(s): ☒ Type A ☐ Type B ☐ Type C ☒ Type ABC
- Air Monitoring: ☒ PID ☐ Air Sampling Pumps
- ☐ CG/O2 meter ☐ Miniram ☐ Radiation Meter
- ☐ H2S Meter ☐ Drager Pump w/ Sample Tubes
- ☐ Other: ____________________________

A first aid kit (mandatory, including adhesive Band-Aids, gauze, tape, gloves, CPR shield, triangle bandage) shall be available in the Support Zone at all times. Check additional items required for the site.

- ☉ Emergency Blanket ☐ Sunscreen (as needed)
- ☒ Insect Repellent (as needed) ☐ Other: ____________________________

Copious amounts of cool potable water shall be readily available for both drinking purposes and for personal hygiene purposes (e.g., washing, rinsing, and cooling of face and body, etc.).

Emergency references (e.g., nearest phone, emergency phone numbers and services, etc.) shall accompany the first aid kit.

Communication equipment such as a cellular phone will be accessible in case of an emergency.

A vehicle shall be easily accessible for transport/emergency.
The emergency response communication system for the site is:

- Verbal
- Two-way radio
- Hand signals:
  - Hand gripping throat = “Out of Air, Can’t Breathe”
  - Grip partner’s wrist or both hands around waist = “Leave area immediately”
  - Hands on top of head = “Need assistance”
  - Thumps up = “OK; I am all right; I understand”
  - Thumps down = “No; negative”
- Horn
- Siren
- Other: Cellular Phone

If an on-site emergency develops, the procedures delineated in Table 7 shall be followed immediately.

7.1 Severe Weather / Earthquakes

In the event of emergency conditions, such as severe weather or an earthquake, site personnel will remain calm, turn off all equipment and ignition sources, and move away from buildings, cranes, and overhead utilities. Following an emergency, all personnel will proceed to a designated meeting place. The SSO will take a head count to ensure all personnel are present. Crews must remain together at all times. The SSO will assess injuries and the need for emergency assistance. In case of a lightning/thunderstorm, field personnel shall seek shelter (indoors or an enclosed vehicle) and remain there for 30 minutes after the last indication that the storm has passed.

7.2 Workplace Violence

If any employee or visitor is confronted by a potentially hostile person, he/she will remain calm and restrain from further aggravating the individual. Site personnel should contact the police immediately before a violent situation arises. All incidents of hostile encounter will be reported to the SSO.

7.3 General Response Procedures

In the event of an emergency, the following procedures will be performed in the following order:

1. Assess the situation.
2. Perform emergency first aid, as appropriate and by trained individuals; e.g.,
   - CPR
   - Artificial respiration
   - Treatment of severe bleeding, burns, shock, fractures, cuts, and poisoning/toxic exposures.
3. Arrange for off-site assistance and transport to an emergency medical facility.
4. Notify the project principals (e.g., SSO, PM, CSHM, Client).
5. Prepare an incident report.

The emergency response procedures listed above and potential on-site hazards shall be reviewed and evaluated on a periodic basis. In the event of an acute exposure to potentially contaminated material, provide the following immediate treatment:

- **Eye:** Irrigate immediately for 15 minutes.
- **Skin:** Wash with soap and water
- **Respiratory:** Get to fresh air and perform artificial respiration if necessary

Before beginning field activity, an available phone in proximity to the site locations must be identified, and the Emergency Reference list presented in Table 6 must be posted nearby. If phones are not readily accessible, then provisions should be made for emergency communication devices (e.g., walkie-talkies, 2-way radio, mobile telephones, etc.).

<table>
<thead>
<tr>
<th>Service</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police</td>
<td>911</td>
</tr>
<tr>
<td>Fire</td>
<td>911</td>
</tr>
<tr>
<td>Ambulance</td>
<td>911</td>
</tr>
</tbody>
</table>

Hospital Information:

- **Garden Park Hospital**: Phone: **228-575-7000**
  15200 Community Road
  Gulfport, MS 39503
  Directions (see Figure 3)

- **Emergency Walk-in Clinic (Walmart)**: Phone: **228-563-6800**
  9350 Highway 49,
  Gulfport, MS 39501
  Directions (see Figure 4)
## 8.0 SHIPMENT OF RESTRICTED ARTICLES

Federal laws and international guidelines place restrictions on what materials may be shipped by passenger and cargo aircraft. In the course of field activities, the following items will be shipped to and from the site in the following manner.

<table>
<thead>
<tr>
<th>Item</th>
<th>Hazardous Constituent</th>
<th>Quantity</th>
<th>Packaging</th>
<th>How Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental samples</td>
<td>BTEX, PAH</td>
<td>Several</td>
<td>Secure coolers</td>
<td>Shipped FedEx by field staff to laboratory</td>
</tr>
<tr>
<td>(Groundwater/soil)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preservatives HcL</td>
<td>Hydrochloric acids</td>
<td>&gt; 3 oz.</td>
<td>Potentially used in some of the sample containers</td>
<td>FedEx</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 1 and 2

Site Location / Site Map
Figure 3

Hospital Location Map

Hospital Information:
Garden Park Hospital
15200 Community Rd

Phone: 228-575-7000
Figure 4

Walk-In Medical Clinic Location Map

Clinic Information:
Emergency Walk-in Clinic (Walmart) Phone: **228-563-6800**
9350 Highway 49
Gulfport, MS 39501
### Table 1

#### Key Personnel and Health & Safety Responsibilities

<table>
<thead>
<tr>
<th>Project Manager (PM)</th>
<th>Corporate Safety and Health Manager (CSHM)</th>
<th>Site Safety Officer (SSO)</th>
<th>Project Field Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everett “Jay” Ferris</td>
<td>Maxwell “Ty” Anderson</td>
<td>Laura Sanchez</td>
<td>Laura Sanchez</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lars Larson</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ryan Austin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Christine Frost</td>
</tr>
</tbody>
</table>

- Coordinate, approve, implement and manage this HASP and amendments, if any.
- Incorporate H&S planning, implementation, and supplies (PPE, decontamination materials) into project plans and budget.
- Select and assign responsibility to the SSO to implement HASP.
- Monitor the Field Logbooks for health and safety work practices employed.
- Coordinate with SSO so that emergency response procedures are implemented, if needed.
- Inform CSHM of HASP violations, if any, and verify corrective actions are implemented.
- Ensure personnel receive this plan, are aware of its provisions, are aware of the potential hazards associated with site operations, are instructed in safe work practices, are familiar with emergency response procedures and document this information.
- Coordinate with Client and SSO.

- Prepare HASP, approve any associated amendments.
- Evaluate site hazards for HASP preparation. Maintain a copy of the cover sheet for each completed HASP.
- Perform periodic audits of project activities to evaluate general compliance with policies, procedures, directives and guidelines presented in this HASP.
- Assist with the implementation of the Corporate Health and Safety Program.
- Provide environmental, health and industrial hygiene consultation as needed.

- Be present on-site, as appropriate, with the authority to implement HASP and amendments, if any, and EarthCon H&S protocols.
- Confirm that site personnel meet the training and medical requirements.
- Verify that all monitoring equipment and personal protective equipment is operating correctly according to manufacturer’s instructions and such equipment is utilized by on site personnel. Calibrate or verify calibration of all monitoring equipment and record results.
- Verify that decontamination procedures are being implemented.
- Provide and document pre-entry briefing and daily tailgate safety meetings, monitor activities for safe work practices and HASP compliance.
- Perform weekly H&S inspections.
- Report to the Project Manager deviations from the anticipated conditions, and authorize the cessation of work if necessary.
- Notify the PM and CSHM in the event an emergency occurs, and implement site emergency response and follow-up procedures, provide First Aid, as needed.

- Provide verification of required health and safety training and medical surveillance prior to arriving at the site.
- Notify the SSO of any special medical conditions (e.g., allergies).
- Review, be familiar with and abide by the HASP.
- Attend pre-entry briefings and daily tailgate safety meetings.
- Comply with requests of PM, SSO, and HASP.
- Perform work using safe techniques, be responsible for their personal safety.
- Immediately report any accidents and/or unsafe conditions to the SSO.
### Table 2

**Training / Medical Surveillance / Respirator Fit Test Records**

<table>
<thead>
<tr>
<th>Name</th>
<th>EHS Category</th>
<th>Initial 40-Hour</th>
<th>Initial 24-Hour</th>
<th>Annual 8-Hour Refresher</th>
<th>8-Hour Supervisor (if applicable)</th>
<th>CPR/First Aid(^1) (initial or refresher)</th>
<th>Medical Surveillance(^2) (if applicable)</th>
<th>Annual Respirator Fit Test(^3) (if applicable)</th>
<th>Other:(^4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laura Sanchez</td>
<td></td>
<td>2002</td>
<td></td>
<td></td>
<td>2012</td>
<td>2008</td>
<td>2011</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td>Lars Larson</td>
<td></td>
<td>1994</td>
<td></td>
<td></td>
<td>2012</td>
<td></td>
<td>2012</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td>Ryan Austin</td>
<td></td>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Footnotes:**

1. CPR Refresher: every year; First Aid Refresher: every three years.
2. Annual Medical Surveillance for EHS Category I.
3. For EHS Categories I & II only.
4. Could include task-specific training, project-specific training, or project-specific medical surveillance.
Table 3

General Safe Work Practices

- Minimize contact with excavated or contaminated materials. Do not place equipment on the ground. Do not sit or kneel on potentially contaminated surfaces.
- Smoking, eating, or drinking after entering the work zone and before decontamination is prohibited. Use of illegal drugs and alcohol are prohibited. Workers taking prescribed medication that may cause drowsiness should not be operating heavy equipment, and should be prohibited from performing tasks where Level C, B, or A personal protective equipment is required.
- Practice good housekeeping. Keep everything orderly and out of potentially harmful situations.
- Use of contact lenses on-site shall only be allowed when dictated by working conditions.
- The following conditions must be observed when operating a motor vehicle.
  - Wearing of seat belts is mandatory
  - During periods of rain, fog, or other adverse weather conditions, the use of headlights is mandatory
  - A backup warning system or use of vehicle horn is mandatory when the vehicle is engaged in a backward motion
  - All posted traffic signs and directions from flagmen must be observed
  - Equipment and/or samples transported in vehicles must be secured from movement
  - The use of contractor acquired vehicles by non-Contractor personnel is prohibited
- In an unknown situation, always assume the worst conditions.
- Be observant of your immediate surroundings and the surroundings of others. It is a team effort to notice and warn of impending dangerous situations. Withdrawal from a hazardous situation to reassess procedures is the preferred course of action.
- Conflicting situations may arise concerning safety requirements and working conditions and must be addressed and resolved rapidly by the SSO and PM to relieve any motivations or pressures to circumvent established safety policies.
- Unauthorized breaches of specified safety protocol must not be allowed. Workers unwilling or unable to comply with the established procedures must be removed from the site immediately.
## Table 4

### Potential Contaminants of Concern

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>IP(eV)</th>
<th>PEL/STEL</th>
<th>IDLH ppm</th>
<th>LEL/UEL %</th>
<th>Flash Point</th>
<th>Routes of Exposure</th>
<th>Hazards</th>
<th>Medium</th>
<th>Maximum Concentration² (μg/l or mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>9.24</td>
<td>1 PPM</td>
<td>500</td>
<td>1.2 / 7.8</td>
<td>12°F</td>
<td>Skin, Inhalation, Ingestion</td>
<td>F, C, P,</td>
<td>Water/Soil</td>
<td>Unknown</td>
</tr>
<tr>
<td>Toluene</td>
<td>8.82</td>
<td>100 / 150</td>
<td>500</td>
<td>1.1 / 7.1</td>
<td>40°F</td>
<td>Skin, Inhalation, Ingestion</td>
<td>F, P, E</td>
<td>Water/Soil</td>
<td>Unknown</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>8.76</td>
<td>100 / 125</td>
<td>800</td>
<td>0.8 / 6.7</td>
<td>55°F</td>
<td>Skin, Inhalation, Ingestion</td>
<td>F, P, E</td>
<td>Water/Soil</td>
<td>Unknown</td>
</tr>
<tr>
<td>2-Methyl-naphthalene</td>
<td>8.56</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Skin, Inhalation, Ingestion</td>
<td>F, C, P, E</td>
<td>Water/Soil</td>
<td>Unknown</td>
</tr>
<tr>
<td>Methyl butyl ketone</td>
<td></td>
<td>50/75</td>
<td>500</td>
<td>1.2/8</td>
<td>57°F</td>
<td>Skin, Inhalation, Ingestion</td>
<td>F, C, P, E</td>
<td>Water/Soil</td>
<td>Unknown</td>
</tr>
<tr>
<td>Bis(2-chloroethyl)ether</td>
<td></td>
<td>15/</td>
<td>100</td>
<td>2.7/</td>
<td>130°F</td>
<td>Skin, Inhalation, Ingestion</td>
<td>F, C, P, E</td>
<td>Water/Soil</td>
<td>Unknown</td>
</tr>
<tr>
<td>Napthalene</td>
<td></td>
<td>8.12</td>
<td>10 PPM</td>
<td>0.9 / 5.9</td>
<td>190°F</td>
<td>Skin, Inhalation, Ingestion</td>
<td>F, P, E</td>
<td>Water/Soil</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

---

**Footnotes:**

1. Indicate type of medium (i.e. soil, water, sludge, etc.).
2. Indicate the maximum concentration detected for the contaminant. Indicate liquids in μg/l and solids in mg/kg.
# Table 5

## Hazard Analysis

<table>
<thead>
<tr>
<th>Tasks</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater Sampling</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Soil Sampling</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Excavation Activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drilling Operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDW management</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

## Instructions:
For each task, place an “X” in the blank corresponding to associated hazards.

## I. Chemical Hazards

<table>
<thead>
<tr>
<th>Hazard</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Inhalation</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Reactivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Skin absorption</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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</tbody>
</table>

## II. Physical Hazards

<table>
<thead>
<tr>
<th>Hazard</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold Stress</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Compressed Gas Cylinder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
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<tr>
<td>Drilling</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drowning</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Drum Handling</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Electrocution</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excavation/Trenching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Eye Injury</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hand/Foot Injury</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Heat Stress</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Heavy Equipment</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifting Heavy Loads</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Portable Power/Hand Tool</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Radiation Exposure</td>
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</tr>
<tr>
<td>Slipping/Tripping/Falling</td>
<td>X</td>
<td>X</td>
<td>X</td>
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## III. Biological Hazards

<table>
<thead>
<tr>
<th>Hazard</th>
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<th>3</th>
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<th>6</th>
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</thead>
<tbody>
<tr>
<td>Poisonous Plants</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Insect/Vermin/Snake Bites</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Medical Waste</td>
<td></td>
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<td></td>
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</tbody>
</table>
Table 6
Emergency Response Contacts

<table>
<thead>
<tr>
<th>Name</th>
<th>Telephone Numbers</th>
<th>Date of Pre-Emergency Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Department</td>
<td>911</td>
<td>NA</td>
</tr>
<tr>
<td>Garden Park Hospital</td>
<td>911 or 228-575-7000</td>
<td>NA</td>
</tr>
<tr>
<td>Police Department</td>
<td>911</td>
<td>NA</td>
</tr>
<tr>
<td>Poison Control Center</td>
<td>800-888-1222</td>
<td>NA</td>
</tr>
<tr>
<td>MDEQ Emergency Management</td>
<td>800-222-6362</td>
<td>NA</td>
</tr>
<tr>
<td>Chem-Trec</td>
<td>800-424-9300</td>
<td>NA</td>
</tr>
<tr>
<td>Site Safety Officer – Laura D Sanchez</td>
<td>228-872-3096</td>
<td>985-788-4921</td>
</tr>
<tr>
<td>Project Manager – Everett J Ferris</td>
<td>228-872-3096</td>
<td>601-408-9449</td>
</tr>
<tr>
<td>Project Principal – Richard H Crawford</td>
<td>601-853-2134</td>
<td>662-213-7651</td>
</tr>
<tr>
<td>Corp. HR Manager – Maria King</td>
<td>770 973-2100 ext 2887</td>
<td>NA</td>
</tr>
<tr>
<td>H&amp;S Manager – Maxwell Ty Anderson</td>
<td>601-853-2134 ext 2339</td>
<td>601-917-1010</td>
</tr>
<tr>
<td>Client Contact – Craig Farmer</td>
<td>601-359-9105</td>
<td>601-850-7999</td>
</tr>
</tbody>
</table>

NA – Not applicable in general or for the level of hazard at this Site.
This table must be completed before site activities are initiated.
Table 7

Emergency Response Procedures

- The SSO (or alternate) should be immediately notified via the on-site communication system.
- If applicable, the SSO must notify off-site emergency responders (i.e., fire department, hospital, police department, etc.) and must inform the response team as to the nature and location of the emergency on site.
- If applicable, the SSO evacuates the site. Site workers should move to their respective refuge stations using the evacuation routes provided on the Site Map.
- The SSO notifies the PM, Principal, and the CHSM of the emergency. If an EarthCon employee is injured, the SSO must contact the worker’s Regional Manager/Branch Office Manager immediately. If the Regional Manager/Branch Office Manager cannot be contacted, then the Corporate Human Resources Department must be notified.
- For small fires, flames should be extinguished using the fire extinguisher. Large fires should be handled by the local fire department.
- In an unknown situation or if responding to toxic gas emergencies, appropriate PPE, including SCBAs, should be donned.
- If chemicals are accidentally spilled or splashed into eyes or on skin, use eyewash and/or shower.
- Before continuing site operations after an emergency involving toxic gas, the SSO will don a SCBA and utilize appropriate air monitoring equipment to verify that the site is safe.
- An injured worker must be decontaminated appropriately.
- If a worker is injured, first aid will be administered by workers certified in first aid.
- After the response, the SSO must complete an accident investigation report and submit it to the CHSM.
Appendix A

Weekly Health & Safety Inspection Checklist

<table>
<thead>
<tr>
<th>Category</th>
<th>Observations/Corrective Actions (N/A, if Not Applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-entry briefing records are current</td>
<td></td>
</tr>
<tr>
<td>Tailgate meeting records are current</td>
<td></td>
</tr>
<tr>
<td>Training/medical surveillance/respiratory protection records are current</td>
<td></td>
</tr>
<tr>
<td>Site map is posted</td>
<td></td>
</tr>
<tr>
<td>Buddy system is implemented</td>
<td></td>
</tr>
<tr>
<td>Work zones are identified</td>
<td></td>
</tr>
<tr>
<td>Site access is controlled</td>
<td></td>
</tr>
<tr>
<td>Visitors are escorted</td>
<td></td>
</tr>
<tr>
<td>On-site/off-site communications are in working order</td>
<td></td>
</tr>
<tr>
<td>Safe work practices are implemented</td>
<td></td>
</tr>
<tr>
<td>Any additional hazards incurred?</td>
<td></td>
</tr>
<tr>
<td>Air monitoring equipment is in working condition</td>
<td></td>
</tr>
<tr>
<td>Air monitoring records are being recorded in field logbook</td>
<td></td>
</tr>
<tr>
<td>Air monitoring calibration records are recorded in field logbook</td>
<td></td>
</tr>
<tr>
<td>PPE storage area is neat and organized</td>
<td></td>
</tr>
<tr>
<td>Standard operating procedures are implemented</td>
<td></td>
</tr>
<tr>
<td>Housekeeping at decontamination zone is appropriate</td>
<td></td>
</tr>
<tr>
<td>Decontamination procedures are implemented</td>
<td></td>
</tr>
<tr>
<td>Emergency response equipment is in working condition</td>
<td></td>
</tr>
<tr>
<td>Route to hospital is posted</td>
<td></td>
</tr>
<tr>
<td>Confined space entry program is implemented</td>
<td></td>
</tr>
<tr>
<td>Spill containment equipment is available</td>
<td></td>
</tr>
<tr>
<td>Chemical inventory is up to date</td>
<td></td>
</tr>
<tr>
<td>Material safety data sheets are available</td>
<td></td>
</tr>
<tr>
<td>Primary and secondary containers are properly labeled</td>
<td></td>
</tr>
<tr>
<td>Housekeeping at the chemical storage area is appropriate</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

Contaminant Fact Sheet Directory

<table>
<thead>
<tr>
<th>Included in HASP</th>
<th>Chemical Name</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acetone</td>
<td>Dimethyl Ketone; Ketone propane; 2-Propanone</td>
</tr>
<tr>
<td></td>
<td>Aldrin</td>
<td>HHDN; Octalene</td>
</tr>
<tr>
<td></td>
<td>Aniline</td>
<td>Aminobenzene; Aniline Oil; Benzeneamine; Phenylamine</td>
</tr>
<tr>
<td>X</td>
<td>Benzene</td>
<td>Benzol; Phenyl hydride</td>
</tr>
<tr>
<td></td>
<td>Bis(2-ethylhexyl)phthalate</td>
<td>Di(2-ethylhexyl)phthalate</td>
</tr>
<tr>
<td></td>
<td>Cadmium</td>
<td>Cadmium metal</td>
</tr>
<tr>
<td></td>
<td>Carbon disulfide</td>
<td>Carbon bisulfide</td>
</tr>
<tr>
<td></td>
<td>Chlorobenzene</td>
<td>Benzene chloride; Chlorobenzyl; MCB; Phenyl chloride</td>
</tr>
<tr>
<td></td>
<td>Chloroform</td>
<td>Methane trichloride; Trichloromethane</td>
</tr>
<tr>
<td></td>
<td>Chromic Acid</td>
<td>Chromic anhydride; Chromium trioxide</td>
</tr>
<tr>
<td></td>
<td>Chromium</td>
<td>Chromium metal</td>
</tr>
<tr>
<td></td>
<td>Copper</td>
<td>Copper metal dusts; Copper metal mists</td>
</tr>
<tr>
<td></td>
<td>Cyanide</td>
<td>Cyanide</td>
</tr>
<tr>
<td></td>
<td>2,4-D</td>
<td>Dichlorophenoxyacetic acid</td>
</tr>
<tr>
<td></td>
<td>DDT</td>
<td>p,p-DDT; Dichlorodiphenyltrichloroethane; 1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane</td>
</tr>
<tr>
<td></td>
<td>Dioxin</td>
<td>Dioxin</td>
</tr>
<tr>
<td></td>
<td>1,2-Dichlorobenzene</td>
<td>O-DCB; Orthodichlorobenzene</td>
</tr>
<tr>
<td></td>
<td>1,2-Dichloroethane</td>
<td>Ethylene dichloride; Glycol dichloride</td>
</tr>
<tr>
<td></td>
<td>1,2-Dichloroethylene</td>
<td>1,2-Dichloroethene; (cis, trans, or sym-) Acetylene dichloride</td>
</tr>
<tr>
<td></td>
<td>1,2-Dichloropropane</td>
<td>Propylene dichloride; Dichloro-1,2-propane</td>
</tr>
<tr>
<td></td>
<td>2,4-Dinitrotoluene</td>
<td>Dinitrotoluene; DNT; Methylidinitrobenzene</td>
</tr>
<tr>
<td></td>
<td>Endosulfan</td>
<td>Benzoepin; Endosulphan; Thiodan</td>
</tr>
<tr>
<td>X</td>
<td>Ethylbenzene</td>
<td>Ethylbenzol; Phenylethane</td>
</tr>
<tr>
<td></td>
<td>Ethylene Dibromide</td>
<td>EDB; 1,2-Dibromoethane, Ethylene bromide, Glycol dibromide</td>
</tr>
<tr>
<td></td>
<td>Gasoline</td>
<td>Motor fuel; Motor spirits; Natural gasoline; Petrol</td>
</tr>
<tr>
<td></td>
<td>Hexachloroethane</td>
<td>Carbon hexachloride; Ethane hexachloride; Perchloroethane</td>
</tr>
</tbody>
</table>
### Appendix B

#### Contaminant Fact Sheet Directory
(continued)

<table>
<thead>
<tr>
<th>Included in HASP</th>
<th>Chemical Name</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hydrochloric Acid</td>
<td>Anhydrous hydrogen chloride; Aqueous hydrogen chloride; Muriatic acid</td>
</tr>
<tr>
<td></td>
<td>Hydrogen Sulfide</td>
<td>Hydrosulfuric acid; Sewer gas; Sulfuretted hydrogen</td>
</tr>
<tr>
<td></td>
<td>Isophorone</td>
<td>Isoacetophorone; 3,5,5-Trimethyl 2-cyclohexenone</td>
</tr>
<tr>
<td></td>
<td>Isopropanol</td>
<td>Isopropyl alcohol; IPA; 2-Propanol</td>
</tr>
<tr>
<td></td>
<td>Lead (inorganic)</td>
<td>Lead metal</td>
</tr>
<tr>
<td>MTBE</td>
<td>MTBE</td>
<td>Methyl Tert Butyl Ether</td>
</tr>
<tr>
<td></td>
<td>Mercury</td>
<td>Colloidal mercury; Metallic mercury; Quicksilver</td>
</tr>
<tr>
<td></td>
<td>Methane</td>
<td>Fire damp; March gas; Methyl hydride</td>
</tr>
<tr>
<td></td>
<td>Methoxyclor</td>
<td>P,p-Dimethoxydiphenyl/trichlorethane; DMDY</td>
</tr>
<tr>
<td></td>
<td>2-Methylphenol</td>
<td>Ortho-Cresol; 2-Cresol; O-Cresylic Acid; 1-Hydroxy-2-Methylbenzene; 2-Hydroxytoluene</td>
</tr>
<tr>
<td></td>
<td>Methyl ethyl ketone</td>
<td>2-Butanone; MEK; Methyl acetone</td>
</tr>
<tr>
<td></td>
<td>Methyl chloroform</td>
<td>1,1,1-Trichloroethane</td>
</tr>
<tr>
<td></td>
<td>Methylene chloride</td>
<td>Dichloromethane; Methylene Dichloride</td>
</tr>
<tr>
<td>X</td>
<td>Naphthalene</td>
<td>Naphthalin; Tar Camphor; White Tar</td>
</tr>
<tr>
<td></td>
<td>Nickel</td>
<td>Nickel catalyst</td>
</tr>
<tr>
<td></td>
<td>Nitrobenzene</td>
<td>Essence of mirbane; Nitrobenzol; Oil of mirbane</td>
</tr>
<tr>
<td></td>
<td>Pentachlorophenol</td>
<td>PCP; Penta; 2,3,4,5,6-Pentachlorophenol</td>
</tr>
<tr>
<td></td>
<td>Phenol</td>
<td>Carbonic acid; Hydroxybenzene; Monohydroxybenzene; Phenol alcohol; Phenyl hydroxide</td>
</tr>
<tr>
<td></td>
<td>Phosgene</td>
<td>Carbonyl chloride; Carbon oxychloride; Chloroformyl chloride</td>
</tr>
<tr>
<td></td>
<td>Polychlorinated biphenyls (54%)</td>
<td>PCBs; Chlorodiphenyl</td>
</tr>
<tr>
<td></td>
<td>Solid Singlet Oxygen</td>
<td>Hydrogen peroxide compound, proprietary product</td>
</tr>
<tr>
<td></td>
<td>Synergist-D</td>
<td>Proprietary product</td>
</tr>
<tr>
<td></td>
<td>Silver</td>
<td>Silver metal; Argentum</td>
</tr>
<tr>
<td></td>
<td>2,4,5-T</td>
<td>2,4,5-Trichlorophenoxyacetic acid</td>
</tr>
<tr>
<td></td>
<td>Tetrachloroethylene</td>
<td>Tetrachloroethylene; Perchlorethylene; Perk</td>
</tr>
</tbody>
</table>
## Appendix B

### Contaminant Fact Sheet Directory
(continued)

<table>
<thead>
<tr>
<th>Included in HASP</th>
<th>Chemical Name</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o-Toluidene</td>
<td>2-Methybenzeneamine; O-Aminotoluene; 1-Methyl-2-aminobenzene; O-Methylaniline; 2-Methylaniline, ortho-Toluidine</td>
</tr>
<tr>
<td>X</td>
<td>Toluene</td>
<td>Methyl benzene; Methyl benzoquinone</td>
</tr>
<tr>
<td></td>
<td>Toluene-2,4-Diisocyanate</td>
<td>TDI; 2,4-TDI; 2,4-Toluene diisocyanate</td>
</tr>
<tr>
<td></td>
<td>Toxaphene</td>
<td>Chlorinated camphene</td>
</tr>
<tr>
<td></td>
<td>1,1,2-Trichloroethane</td>
<td>Ethane trichloride; B-Trichloroethane; Vinyl trichloride</td>
</tr>
<tr>
<td></td>
<td>1,2,4-Trichlorobenzene</td>
<td>Trichlorobenzene; 1,2,4-Trichlorobenzel</td>
</tr>
<tr>
<td></td>
<td>Trichloroethene</td>
<td>Trichloroethylene; TCE</td>
</tr>
<tr>
<td></td>
<td>Trichlorofluoromethane</td>
<td>Fluorotrichloromethane; Freon II</td>
</tr>
<tr>
<td></td>
<td>1,2,3-Trichloropropene</td>
<td>Allyl trichloride, Glycerol trichlorohydrin, Glyceryl trichlorohydrin; Trichlorohydrin</td>
</tr>
<tr>
<td></td>
<td>Vinyl chloride</td>
<td>Chloroethene; VC; VCM</td>
</tr>
<tr>
<td></td>
<td>Xylene (Mixed Isomers)</td>
<td>o-xylene; p-xylene; m-xylene</td>
</tr>
<tr>
<td>X</td>
<td>Methyl butyl ketone</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>2-Methynaphthalene</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Bis(2-chloroethyl)ether</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix C

**Hazard Mitigators Directory**

<table>
<thead>
<tr>
<th>Included in HASP</th>
<th>Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Fire</td>
</tr>
<tr>
<td>X</td>
<td>Inhalation</td>
</tr>
<tr>
<td></td>
<td>Reactivity</td>
</tr>
<tr>
<td>X</td>
<td>Skin Absorption</td>
</tr>
</tbody>
</table>

**Physical Hazards**

<table>
<thead>
<tr>
<th></th>
<th>Compressed Gas Cylinder</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Drowning</td>
</tr>
<tr>
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HAZARD MITIGATORS – DRUM HANDLING

- Use only drums and containers that meet the appropriate DOT, OSHA, and EPA regulations.
- Be aware of the potential hazards of the contents of drums or containers before handling.
- Inspect the integrity of the drum or container before moving. Any drum or container lacking integrity shall be over packed.
- Consider any unlabeled drum or container as containing a hazardous substance and leave alone until contents are properly identified and labeled.
- Organize site operations to minimize the amount of drum or container movement.
- Never stand on drums or containers.
- Know that bulging drums or containers are an indication of pressure build-up. Pressure can be relieved slowly by carefully loosening the bung. If the possibility of fire or explosion exists, protective shield and/or remote opening devices should be used.
- Utilize drum/container handling equipment whenever possible. The equipment utilized should have a sufficiently rated load capacity, and should be able to operate smoothly on the available surface.
- Use proper lifting and moving techniques to prevent back injuries, if handling equipment is not available.
- Have a clear view of the available pathway when moving drums. If needed, an additional person should be available to provide guidance.
- Set up drum/container staging areas to safely identify and classify contents for proper shipment. Staging areas shall be provided with adequate ingress and egress routes.
- Label and identify drums and containers as to their contents when moved to the staging areas.
- Cease all site operations immediately if site activities uncover buried drums or containers. The SSO must be notified. The SSO will evacuate the site. All unknown situations must be evaluated before site activities are resumed. The services of a specialized contractor trained in handling unknown contaminants may be needed. If, after evaluating the situation, only a portion of the site is affected, that area shall be barricaded and work may continue at other portions of the site.
HAZARD MITIGATORS – ELECTROCUTION

- A minimum clearance of 12 feet (radius) will be maintained between heavy equipment (i.e., drill rig) and any overhead power lines, regardless of voltage.
- Before subsurface work, a utilities search for underground lines will occur and will be documented.
- Installation and maintenance of electrical facilities or equipment must only be performed by qualified and properly authorized personnel or electrical subcontractors. Apprentice personnel permitted to work on electrical equipment shall be under the surveillance of a fully qualified electrician.
- Electricians shall be familiar with the National Electrical Code; state and local electric codes; OSHA standards, including 29 CFR 1926, Subpart K; and applicable sections of the National Fire Protection Association Codes.
- When working on energized circuits of 440 volts or higher, at least one qualified electrician and one other employee shall be present.
- Do not wear rings, watches or metallic objects that could act as conductors when working with electrical circuits.
- Do not use metal ladders and un-insulated tools while working with electrical circuits and equipment.
- Follow the company Lock-out/Tag-out procedures when applicable. Electrical equipment and lines shall always be considered “energized” until proven “de-energized”. Before beginning work, each electrical circuit shall be inspected, tested, and where possible, isolated from the power source. Extreme care shall be exercised as wires designed to operate at ground potential may become energized by faulty or inadequate connections.
- Use only approved grounding equipment as a ground for electrical equipment. Metal frames on electricity powered equipment, electrical facilities, and transmission equipment shall be connected to the grounding system. Alternative grounding systems complying with applicable electrical codes may be used for temporary portable equipment.
- Protect electrical wires with suitable protective conduits or devices where they are exposed to possible damage.
- Connect grounding devices to a ground before contacting any conductor of a circuit. When grounding devices are removed, they shall be disconnected from the circuit before being disconnected from ground.
- Equip all portable extension cords with a non-conducting plug and/or another socket shell. All electrical cords shall be equipped with three-blade grounding type plugs.
• Use only heavy duty electrical cords that are not subjected to excessive bending, stretching, or kicking. All cords and wires shall be frequently inspected for signs of defects. Damaged or frayed electrical wires, cords, and plugs shall be immediately replaced by a qualified electrician or other properly trained personnel.

• Install adequate warning signs and barriers (in plain sight) in all areas where hazardous electrical facilities exist.

• Do not permit overloading of electrical circuits at anytime. The replacement of fuses or circuit breakers with makeshift materials or over-capacity fuses is strictly prohibited.

• The type of circuit shall determine the type of protective equipment required. Rubber gloves, sleeves, blankets, mats, and insulated platforms shall be used as required. Questions regarding PPE should be directed to the SSO.

• Inspect all insulated protective equipment continuously for defects or damages. Any defective equipment shall be replaced before using.

• Establish and enforce testing schedules for insulation qualities for protective equipment. All users shall verify that equipment has been satisfactorily tested prior to use.
HAZARD MITIGATORS – EYE INJURY

- Wear appropriate eye protection according to the task at hand (e.g., goggles if liquid splash could occur, welding lenses, etc.).

- Minimize the amount of vapor or particulate matter generated, if possible.

- Avoid touching the face and eyes.

- Flush eye with water for at least 15 minutes if chemicals do get into the eye.
HAZARD MITIGATORS – HAND/FOOT INJURY

- Be aware of “pinch points” when working with tools and heavy equipment.
- Use proper lifting techniques to avoid dropping heavy loads on hands and feet.
- Be aware of moving machinery and heavy equipment in the work area.
- Wear protective gloves as required in the Health and Safety Plan.
- Wear steel-toed boots as required in the Health and Safety Plan.
Heat stress is a medical condition where a worker exerts energy above his body's ability to adapt to the stress. Malfunctioning or overload of the body's temperature and sweat mechanisms results in heat stress. Poor adaptation to heat may lead to heat cramps, heat exhaustion, or heat stroke. There are three primary causes of heat stress: insufficient water intake; insufficient salt intake; and a deficiency in the production of sweat, the evaporation of which helps to cool the body naturally. Heat stress or heat exhaustion can result in a more life-threatening condition called heat stroke, which is an overexposure to extreme heat, where the body can no longer provide natural regulation of heat. The body overheats and core temperatures may reach 107°F which can result in a coma and death.

Field team members shall be observed for signs and symptoms of heat stress that include: confusion, dizziness, profuse sweating, skin color change, increased heart rate and vision problems. Personnel who exhibit any of these symptoms shall be removed from field work and requested to consume two to four pints of electrolyte fluid or cool water every hour while resting in a shaded area. The individual should not return to work until the symptoms are no longer recognizable. If symptoms appear critical, persist, or get worse, seek immediate medical attention.

To control the potential occurrence of heat stress, preventive measures will be evaluated and implemented on a daily basis. These measures may include:

- Frequent rest periods;

- Inducement of fluids (e.g., water, Gatorade, etc.) at a rate of one-half to one cup of cool (55°F) water every 20 minutes of the workday; and

- Periodic cooling of personnel (e.g., via shaded areas, hose-downs with water, etc.).

- Sensitive personnel should wear sunscreen containing a minimum Sun Protection Factor of 15 when working outdoors in the sun. Sunscreen lotion should be applied prior to entering the work zones.
Working Outdoors in Warm Climates
Hot summer months pose special hazards for outdoor workers who must protect themselves against heat, sun exposure, and other hazards. Employers and employees should know the potential hazards in their workplaces and how to manage them.

Sun
Sunlight contains ultraviolet (UV) radiation, which causes premature aging of the skin, wrinkles, cataracts, and skin cancer. There are no safe UV rays or safe suntans. Be especially careful in the sun if you burn easily, spend a lot of time outdoors, or have any of the following physical features: numerous, irregular, or large moles; freckles; fair skin; or blond, red, or light brown hair. Here’s how to block those harmful rays:
- Cover up. Wear loose-fitting, long-sleeved shirts and long pants.
- Use sunscreen with a sun protection factor (SPF) of at least 30. Be sure to follow application directions on the bottle or tube.
- Wear a hat. A wide brim hat, not a baseball cap, works best because it protects the neck, ears, eyes, forehead, nose, and scalp.
- Wear UV-absorbent sunglasses (eye protection). Sunglasses don’t have to be expensive, but they should block 99 to 100 percent of UVA and UVB radiation. Before you buy sunglasses, read the product tag or label.
- Limit exposure. UV rays are most intense between 10 a.m. and 4 p.m.

OSHA Card—Protecting Yourself in the Sun
www.osha.gov/Publications/osha3166.pdf

Heat
The combination of heat and humidity can be a serious health threat during the summer months. If you work outside (for example, at a beach resort, on a farm, at a construction site) or in a kitchen, laundry, or bakery you may be at increased risk for heat-related illness. So, take precautions. Here’s how:
- Drink small amounts of water frequently.
- Wear light-colored, loose-fitting, breathable clothing—cotton is good.
- Take frequent short breaks in cool shade.
- Eat smaller meals before work activity.
- Avoid caffeine and alcohol or large amounts of sugar.
- Work in the shade.
- Find out from your health care provider if your medications and heat don’t mix.
- Know that equipment such as respirators or work suits can increase heat stress.

There are three kinds of major heat-related disorders—heat cramps, heat exhaustion and heat stroke. You need to know how to recognize each one and what first aid treatment is necessary.

OSHA Heat Stress Fact Sheet:

OSHA Heat Stress Quick Card:
www.osha.gov/Publications/osha3154.pdf

Lyme Disease/Tick-Borne Diseases
These illnesses (i.e., Rocky Mountain spotted fever) are transmitted to people by bacteria from bites of infected deer (blacklegged) ticks. In the case of Lyme disease, most, but not all, victims will develop a “bull’s-eye” rash. Other signs and symptoms may be non-specific and similar to flu-like symptoms such as fever, lymph node swelling, neck stiffness, generalized fatigue, headaches, migrating joint aches, or muscle aches. You are at increased risk if your work outdoors involves construction, landscaping, forestry, brush clearing, land surveying, farming, railroads, oil fields, utility lines, or park and wildlife management. Protect yourself with these precautions:
- Wear light-colored clothes to see ticks more easily.

Hazard Mitigators – Heat Stress
HAZARD MITIGATORS – HEAT STRESS

- Wear long sleeves; tuck pant legs into socks or boots.
- Wear high boots or closed shoes that cover your feet completely.
- Wear a hat.
- Use tick repellants, but not on your face.
- Shower after work. Wash and dry your work clothes at high temperature.
- Examine your body for ticks after work. Remove any attached ticks promptly and carefully with fine-tipped tweezers by gripping the tick. Do not use petroleum jelly, a hot match, or nail polish to remove the tick.


West Nile Virus

West Nile virus is transmitted by the bite of an infected mosquito. Mild symptoms include fever, headache, and body aches, occasionally with a skin rash on the trunk of the body and swollen lymph glands. Symptoms of severe infection include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. You can protect yourself from mosquito bites in these ways:
- Apply Picaridin or insect repellent with DEET to exposed skin.
- Spray clothing with repellents containing DEET or permethrin. (Note: Do not spray permethrin directly onto exposed skin.)
- Wear long sleeves, long pants, and socks.
- Be extra vigilant at dusk and dawn when mosquitoes are most active.
- Get rid of sources of standing water (used tires, buckets) to reduce or eliminate mosquito breeding areas.


OSHA Safety and Health Information Bulletin: “Workplace Precautions Against West Nile Virus”


Poison Ivy-Related Plants

Poison ivy, poison oak and poison sumac have poisonous sap (urushiol) in their roots, stems, leaves and fruits. The urushiol may be deposited on the skin by direct contact with the plant or by contact with contaminated objects, such as clothing, shoes, tools, and animals.

Approximately 85 percent of the general population will develop an allergy if exposed to poison ivy, oak or sumac. Forestry workers and firefighters who battle forest fires have developed rashes or lung irritations from inhaling the smoke of burning plants.
- Wear long-sleeved shirts and long pants, tucked into boots. Wear cloth or leather gloves.
- Apply barrier creams to exposed skin.
- Educate workers on the identification of poison ivy, oak, and sumac plants.
- Educate workers on signs and symptoms of contact with poisonous ivy, oak, and sumac.
- Keep rubbing alcohol accessible. It removes the oily resin up to 30 minutes after exposure.


This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

For more complete information:

U.S. Department of Labor
www.osha.gov
(800) 321-OSHA
DSTM 9/2005

Hazard Mitigators – Heat Stress 2/5/2014
Fatal exposures to cold among workers have almost always resulted from accidental exposures involving failure to escape from low environmental air temperatures or from immersion in low temperature water. The single most important aspect of life-threatening hypothermia is the fall in the deep core temperature of the body. Workers should be protected from exposure to cold so that the deep core temperature does not fall below 96.8°F; lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision making, or loss of consciousness with the threat of fatal consequences. Pain in the extremities may be the first early warning of danger to cold stress. During exposure to cold, maximum severe shivering develops when the body temperature has fallen to 95°F. This must be taken as a sign of danger to the workers and exposure to cold should be immediately terminated for any workers when severe shivering becomes evident. Since prolonged exposure to cold air, or to immersion in cold water, at temperatures well above freezing can lead to dangerous hypothermia, whole body protection must be provided.

Adequate insulating dry clothing to maintain core temperatures above 96.8°F must be provided to workers if work is performed in air temperatures below 40°F. Wind chill cooling rate must also be considered when determining protective clothing. The equivalent chill temperature should be used when estimating the combined cooling effect of wind and low air temperatures on exposed skin or when determining clothing insulation requirements to maintain the deep body core temperature.

Unless there are unusual or extenuating circumstances, cold injury to other than hands, feet, and head is not likely to occur without the development of the initial signs of hypothermia. Older workers or workers with circulatory problems require special precautionary protection against cold injury. The use of extra insulating clothing and/or a reduction in the duration of the exposure period are among the special precautions which should be considered.

Workers handling evaporative liquid (gasoline, alcohol, or cleaning fluids) at air temperatures below 39.2°F should take special precautions to avoid soaking of clothing or gloves with the liquids because of the added danger of cold injury due to evaporative cooling. Special note should be taken of the particularly acute effects of splashes of “cryogenic fluids” or those liquids and gases with a boiling point that is just above ambient temperature.
HAZARD MITIGATORS – HEAVY EQUIPMENT

- Apply Hazard Mitigators for motor vehicles when utilizing heavy equipment (where applicable).

- Remember, heavy equipment has the right-of-way over regular vehicles. Yield to heavy equipment.

- Listen for warning signals on heavy equipment.

- Perform a visual inspection and walk around parked heavy equipment before moving to assure that equipment is in good condition and that there are no personnel on the ground that could be injured or objects that could be damaged by vehicle movement.

- Use hand rails and footholds when mounting and dismounting equipment.

- Follow appropriate equipment startup procedures. Brakes, steering, clutches and controls shall be tested.

- Pay attention to workers on the ground that may be in the path and provide warning prior to moving the equipment.

- Permit no one to ride on, or in, heavy equipment. This includes any portion of a backhoe, bulldozer, forklift or the back of a pickup truck, except in locations specifically designed for passenger use and approved by the SSO.

- Locate and flag underground utilities and buried cables, whenever possible, prior to intrusive activities (such as excavation and drilling).

- Keep haulage vehicles under positive control at all times while operating. Vehicles shall be kept in gear when descending grades.

- Do not use heavy equipment on slopes with steepness exceeding 3H:1V unless operations are consistent with manufacturer's recommendations (if the Owner’s Manual is not with the equipment or does not specify slope operating procedures, see the SSO).
HAZARD MITIGATORS – HEAVY EQUIPMENT

- Operate equipment with booms, blades, buckets, beds, etc., lowered or in a stable position while on slopes. Safety cables tethered to appropriate anchors shall be used for equipment working on steep slopes, where appropriate. The use of cables and anchors must be approved by the SSO.

- Use rollover protection and seat belts.

- Lower hydraulic systems (e.g., blades, rippers, etc.) to the ground, set brakes, and shut down equipment if malfunction occurs which impairs the ability to control a piece of equipment.

- Suspend in slings or support by hoists or jacks heavy equipment in need of repair. The equipment must also be blocked or cribbed before workers are permitted to work underneath. Working under heavy equipment can pose a crushing hazard.

- Shut off motors, do not allow smoking, and use proper dispensing equipment when refueling gasoline-operated equipment to prevent fire hazards.

- Wear hearing protection if required.

- Maintain eye contact with the heavy equipment operator when working near equipment.

- Be aware of changes in sound of equipment that may indicate a change in direction or activity.
Be aware that the lungs are extremely vulnerable to chemical agents. Even substances that do not directly affect the lungs may pass through lung tissue into the bloodstream, where they are transported to other vulnerable areas of the body.

Know the odor and odor threshold of the chemicals of concern. Some toxic chemicals present in the atmosphere may not be detected by human senses (i.e., they may be odorless and colorless, and their toxic effects may not produce any immediate symptoms).

Use engineering controls to reduce vapor concentrations (e.g., ventilation) or dusty atmospheres (e.g., dust suppression techniques).

Wear respiratory protection as indicated by air monitoring results and/or as required by the Health and Safety Plan.

Conduct work zone air monitoring as required by the Health and Safety Plan.
• Be able to recognize insects/vermin/snakes indigenous to the site location.
• Advise the SSO if you have allergies to any insects prior to engaging in any field activities.
• Include the following controls:
  – Boots, hoods, netting, gloves, masks, or other personal protection.
  – Repellents.
  – Drainage or spraying of breeding areas.
  – Burning or destruction of nests.
  – Smudge pots and aerosols for protecting small areas.
  – Elimination of unsanitary conditions that propagate insects or vermin.
  – Extermination measures.
  – Inoculation.
• Report any bites or stings to the SSO and seek first aid immediately.
HAZARD MITIGATORS – LIFTING HEAVY LOADS

- Know and practice proper lifting techniques.

- Limit continuous lifting of weights to 50 pounds or less. Lifts of heavier weights are permitted on an interim basis. Help shall be obtained for lifting of loads greater than 50 pounds. Mechanical equipment should be used on heavy materials when possible. If mechanical assistance is not available, adequate manpower to maintain the 50-pound limit per employee will be required.

- Do not lift more weight than can be handled comfortably, regardless of load weight. If necessary, help should be requested to lift a load so that the lifting is comfortable.

- Use drum dollies when moving drums or barrels.

- Inspect objects for grease or slippery substances before they are lifted to ensure that the object will not slip.

- Do not carry long, bulky or heavy objects without first verifying that the way is clear and that vision is unobstructed. This ensures that other persons or objects will not be struck by the load.

- Do not carry loads that cannot be seen over or around.

- Make sure workers are physically suited for the job before assigning jobs requiring heavy and/or frequent lifting. A person’s lifting ability is not necessarily indicated by his height or weight.

- Before lifting an object, consideration should be given to how the object will be set down without pinching or crushing hands or fingers. For example, to place an object on a bench or table, the object should be set on the edge and pushed far enough onto the support so it will not fall. The object can then be released gradually as it is set down, and pushed in place with the hands and body from in front of the object.

- When two or more persons are handling the same object, one should “call the signals”. All the persons on the lift should know who this person is and should warn him if anyone in the crew is about to relax his grip.

- Proper lifting includes:
  - **Feet** - Feet should be parted, with one foot alongside the object being lifted and one behind. Feet should be comfortably spread to give greater stability. The rear foot should be in position for the upward thrust of the lift.

  - **Back** - Use the sit-down position and keep the back straight, but remember that “straight” does not mean “vertical”. A straight back keeps the spine, back muscles, and organs of the body in correct alignment. It minimizes the compression of the abdomen that can cause a hernia.

  - **Arms and Elbows** - The load should be drawn close, and the arms and elbows should be
tucked into the side of the body. When the arms are held away from the body, they lose much of their strength and power. Keeping the arms tucked in also helps keep body weight centered.

- **Palm** - The palm grip is one of the most important elements of lifting. The fingers and the hand are extended around the object to be lifted. Use the full palm; fingers alone have very little power.

- **Chin** - Tuck in the chin so the neck and head continue the straight back line. Keep the spine straight and firm.

- **Body Weight** - Position the body so its weight is centered over the feet. This provides a more powerful line of thrust and assures better balance. Start the lift with a thrust of the rear foot. Shift hand positions so the object can be boosted after knees are bent. Straighten knees as object is lifted or shifted to the shoulders. To change direction, lift the object to a carrying position, and turn the entire body, including the feet. Do not twist your body. In repetitive work, both the person and the material should be positioned so that the worker will not have to twist his body when moving the material. If the object is too heavy to be handled by one person, get help.
Know the effects of noise, including:

- Workers being startled, annoyed, or distracted.
- Physical damage to the ear, pain, and temporary and/or permanent hearing loss.
- Communication interference that may increase potential hazards due to the inability to warn of danger and proper safety precautions to be taken.

Utilize feasible administrative or engineering controls if workers are subjected to noise exceeding an 8-hour, time-weighted average (TWA) sound level of 90 dBA (decibels on the A-weighted scale).

Implement the company Hearing Conservation Program when noise exposures equal or exceed an 8-hour, TWA sound level of 85 dBA.

Wear hearing protection where applicable.
• Route cords, hoses, and cables supplying power to portable power tools to prevent tripping hazards or contact with equipment or machinery.

• Avoid abusing the power supply lines of portable equipment. Excessive scraping, kicking, stretching, and exposure to grease and oils will damage lines or cause them to fail prematurely, and possibly injure the operator or fellow workers.

• Inspect cords, hoses, and cables for wear or deterioration prior to each use. Defective power supply lines shall not be used.

• Do not use electrically powered tools near flammable materials or explosive atmosphere, unless they are of the explosion-proof type meeting the National Electrical Code for explosive area. Employees operating the equipment should be aware of sparks and or metal fragments when using this equipment.

• Ground-check portable electric power tools with metal cases initially and quarterly. At no time will electrical power equipment be operated without proper grounding. All electrical cords and cables, including extension cords, shall include a third wire ground.

• Prohibit operations of electric tools in wet or damp areas except in unusual emergency circumstances. When operation is required in wet or damp conditions, extreme care will be exercised to ensure effective grounding of equipment and proper use of protective gear.

• Size cords adequately for length and the electrical demand of the tool. Otherwise, they may cause a fire hazard.

• Limit use of tools to the purpose for which the tool is intended (e.g., wrenches will not be used as hammers). Defective tools (e.g., with mushroomed heads or split or defective handles) shall not be used.

• Protect tools from corrosion damage.

• Keep tools free of accumulated dirt and unnecessary oil or grease. Moving and adjustable parts shall be lubricated frequently to prevent wear and misalignment.
HAZARD MITIGATORS – PORTABLE POWER/HAND TOOLS

- Replace or repair damaged or worn tools promptly. Temporary or makeshift repairs are prohibited. At the discretion of the supervisor, discard all tools that cannot be repaired safely. Supervisors shall decide when to discard a tool.

- Store tools in suitable boxes or containers. Loose tools shall not be stored on ledges or where they might fall. Tools shall be picked up when a job is completed and not be allowed to accumulate in the work area. Store all tools in a safe place.

- Do not use conducting (i.e., metal) tools around electrical facilities. Insulated tools, approved for electrical work, shall be tested frequently for proper insulation.

- Select the correct size and type of wrench for each job. Wrench handles shall not be extended with a pipe or cheater because the jaws will spread.

- Repair mushroomed punch, drift and chisel heads. Mushroomed heads represent crystallized metal that will break and fly off when struck.

- Wear eye protection at all times.
HAZARD MITIGATORS – SKIN ABSORPTION

- Be aware of chemicals of concern that can directly injure the skin or that can be absorbed into the bloodstream and subsequently transported to other organs.
- Know that skin absorption is enhanced by abrasions, cuts, heat, and moisture.
- Do not wear contact lenses in contaminated atmospheres (since they may trap chemicals against the eye surface). The eye is particularly vulnerable because airborne chemicals can dissolve in its moist surface and be carried to the rest of the body through the bloodstream (capillaries are very close to the surface of the eye).
- Keep hands away from face.
- Minimize contact with liquid and solid chemicals.
- Wear protective clothing (e.g., suits and gloves) as required by the Health and Safety Plan.
HAZARD MITIGATORS – SLIPS TRIPS AND FALLS

- Wear the proper footwear for the task at hand.
- Pay attention to the environment and use caution when moving about on site.
- Follow the easiest and safest path to the destination.
- Follow good housekeeping procedures.
- Remove objects that pose tripping hazards where practicable.
- Prevent water accumulation where practicable.
## Appendix D

### Personal Protective Equipment Per Task

**Applies to Task:** ☑️ ⊗ Groundwater Sampling

<table>
<thead>
<tr>
<th>☑️ <strong>Modified Level D</strong>*</th>
<th>☐ <strong>Level C</strong>*</th>
<th>☐ <strong>Level B</strong>*</th>
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*If checked, indicates initial level of PPE. Other completed columns indicate information to upgrade/downgrade.

** Optional as applicable
## Personal Protective Equipment Per Task

**Applies to Task:**  
- ☒ Oil 
- ☒ Soil Sampling

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<td>☐ Inner gloves</td>
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*If checked, indicates initial level of PPE. Other completed columns indicate information to upgrade/downgrade.  
** Optional as applicable
# Personal Protective Equipment Per Task

**Applies to Task:** ☑️ ☐ Excavation Activities

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<th>Level C*</th>
<th>Material/Type</th>
<th>Level B*</th>
<th>Material/Type</th>
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<tbody>
<tr>
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<td>Sleeved shirt and long pants, Tyvek**</td>
<td>☐ Full-face air-purifying respirator</td>
<td>Cartridge Type:</td>
<td>☐ SCBA (pressure demand)</td>
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<td>☒ Outer gloves</td>
<td>Nitrile</td>
<td>☐ Half-mask air-purifying respirator</td>
<td>Cartridge Type:</td>
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</tr>
<tr>
<td>Full-face shield**</td>
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<tr>
<td>☒ Hard-toed boots</td>
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<td>☐ Other boots</td>
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<tr>
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<td>☐ Hard hat**</td>
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<td>☒ Other: **</td>
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<td>☐ Safety “tag” rope**</td>
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*If checked, indicates initial level of PPE. Other completed columns indicate information to upgrade/downgrade.

** Optional as applicable
## Personal Protective Equipment Per Task

**Applies to Task:** ☑ ☐ Drilling Operations

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<td>Outer gloves</td>
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<td>Outer boots</td>
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<td>Hard hat**</td>
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<td>☐</td>
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<tr>
<td>Safety glasses Full-face shield**</td>
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<td>Hard-toed boots</td>
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<td>Other: ** Reflective Vest**</td>
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*If checked, indicates initial level of PPE. Other completed columns indicate information to upgrade/downgrade.

** Optional as applicable
### Personal Protective Equipment Per Task

Applies to Task:  IDW management

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*If checked, indicates initial level of PPE. Other completed columns indicate information to upgrade/downgrade.

** Optional as applicable
Appendix E

Material Safety Data Sheets
Appendix F

Site Safety Meeting Minutes

Site Name: ________________________________________ Contract No. _________________

Meeting Location ____________________________________________________________________

Meeting Date __________ Time ______________ Conducted By _______________

_____ Pre-Fieldwork Orientation _____ Weekly Site Meeting _____ Other

Subjects Discussed:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Safety Officer Comments:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Name and Signature of Participating Personnel (list company name if subcontractor)

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Note: Attach additional pages if necessary. Send this form to the EarthCon Project Manager. Copies will be placed in the appropriate project files.
OSHA On-site Training Documentation Form

After completion of the OSHA 40-hour training class, 29 CFR 1910.120 states that 3 days of on-site experience under the direct supervision of a trained, experienced supervisor are required to complete the OSHA HAZWOPER training requirements. This form is to be used to document this requirement, and shall be completed by a qualified supervisor (i.e., someone who has completed the 8-hour supervisory training class). Upon completion of this form, please submit it to the EarthCon project manager.

EMPLOYEE INFORMATION

Name: ____________________________________________

Signature: ____________________________________________

40-Hour Training Completion Date: ____________________________

Dates of On-site Training: ____________________________________________

Name of Site: ____________________________________________

Type of Site: ____________________________________________

SUPERVISOR CERTIFICATION

Supervisor: ____________________________________________

Signature: ____________________________________________
Appendix H

Contractor and Outside Company HASP Consent Agreement

I have reviewed the health and safety plan prepared by EarthCon Inc., dated __________, for the _______________ site fieldwork. I understand the purpose of the plan, and I consent to adhere to its policies, procedures, and guidelines.

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<th>Employee signature</th>
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<tbody>
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