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SITE SPECIFIC HEALTH AND SAFETY PLAN

SUNY ALFRED GEOTECHNICAL WELLSVILLE, NEW YORK

3L88a

August 2014

Safety Commitment

Earth Dimensions, Inc. is committed to safety and does not tolerate unsafe practices or an unsafe work environment. EDI's Health and Safety Program is ever evolving to include training for new equipment and to meet changing OSHA, MSHA and DOT regulations.

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INTRODUCTION

The Health and Safety Plan (HSP) presented herein describes the health and safety procedures and emergency response guidelines to be implemented during the drilling and sampling program, and all other related services performed by Earth Dimensions, Inc.

The activities to be completed at the Site may include, but are not limited to, the following:

- Mobilization and demobilization of labor, materials, and equipment to the Site
- Drilling related activities
- Installation of monitoring or infiltration test wells
- Abandonment of monitoring or infiltration test wells
- Soil sampling
- Decontamination

During project activities, personnel may come in contact with soils, sediments, groundwater, and waste materials, which potentially contain hazardous substances. This HSP has been developed to ensure the following:

- That Site personnel are not adversely exposed to the hazardous materials
- That public health and the environment are not adversely impacted by contaminated materials which may potentially migrate off-Site during work activities at the Site
- Compliance with applicable regulations and guidelines. In particular, Occupational Safety and Health Act (OSHA) Subpart H of Part 1910 (Title 29 Code of Federal Regulations (CFR) Part 1910.120) will be implemented for all Site work
- The initiation of proper emergency response procedures to minimize the potential for any adverse impact to Site workers, contractor employees, the general public, or the environment

For the purpose of this HSP, all project activities performed on Site involving contact with potentially contaminated materials will be considered contaminated operations requiring personal protective equipment (PPE). The applicability of this HSP extends to all Earth Dimensions, Inc. personnel who will be on Site. Subcontractors who will be conducting project activities at the Site will be responsible for the health and safety of their own personnel.

All Background Information from the EPA Website Link Below

Sinclair Refinery

Wellsville, NY

The physical cleanup activities at the Sinclair Refinery site in Wellsville, New York (Allegany County) were deemed "completed" after a site inspection was conducted by EPA, NYSDEC and Atlantic Richfield (ARCO) in June 2012. The inspection confirmed that all work had been accomplished in accordance with design specifications and that systems were operating as designed and protective of human health and the environment. Environmental easements/restrictive covenants called for in EPA's 2009 Explanation of Significant Differences are in the process of being acquired.

EPA added the Sinclair Refinery site to the Superfund National Priorities List on September 1, 1983, because of harmful chemicals present at the site. The refinery, located on a 100-acre site adjacent to the Genesee River, was built in the late 1800s and operated until 1958. Gasoline, oil, grease, acid and pesticides were manufactured at the refinery.

A 1991 EPA study found that volatile and semi-volatile organic compounds, some that can cause liver and kidney damage were found in the site's groundwater and soils. Some 6,000 people live with one mile of the site and several businesses and the State University of New York at Alfred's Wellsville Campus occupy part of the site.

Clean up of the site began in 1983 when ARCO, as successor to Sinclair, removed some harmful material, and New York State Department of Environmental Conservation, the Village of Wellsville and Allegany County acted to prevent contaminated landfill material from entering the Genesee River. During the '80s and '90s, ARCO channelized the river, consolidated and capped the landfills on the site, removed some 150,000 pounds of contaminated soil and materials and demolished several buildings on the site.

In addition they completed a groundwater extraction and wetland treatment system which has been operational since 2008. Extensive work involving the excavation and backfilling of oil sheen-impacted sediment and soil in the river and main drainage swale was completed in 2010.

Post-construction restoration work, including the restoration of the recreational trail running atop the western bank of the river was accomplished in early 2012.

ARCO will undertake maintenance and monitoring activities at the site and obtain necessary easements as part of their ongoing commitment to site management.

http://www.epa.gov/region2/superfund/npl/sinclair/index.html

Earth Dimensions, Inc (EDI) will utilize a Diedrich D-120 truck mounted auger rotary drilling rig to advance eleven (11) soil borings and perform standard penetrometer tests as directed by the project engineer.

The depths of the borings and sampling intervals are as follows:

One (1) boring to 100-ft with continuous split spoon sampling for the first 12-ft.

Two (2) soil borings to 40-ft with continuous split spoon sampling for the first 12-ft.

Two (2) soil borings to 30-ft with continuous split spoon sampling for the entire depth.

Two (2) soil borings to 10-ft with continuous split spoon sampling for the entire depth.

Four (4) soil borings to 6-ft with continuous split spoon sampling for the entire depth, and to be used for infiltration testing.

Drilling Procedures:

EDI will set up work zones/exclusions zones with and caution tape for each boring location.

Auger spoils and unjarred spoon samples will be placed on poly and covered when not actively drilling. Split spoon samples will be field screened by others and if the soil is "clean," the cuttings will be returned to the bore hole and the final 2-ft of boring will be grouted.

Split spoon samples will be collected by driving each sampler at the selected zone with a 140-lb weight falling 30-inches. All sample spoons will be cleaned with Alconox between samples and all drill tooling will be cleaned between each bore hole with hot water pressure washer capable of producing steam.

EDI is able to contain all decon fluids if required.

Potential Contamination Considerations:

Earth Dimensions, Inc. (EDI) will drill each boring in Level D PPE with the ability to upgrade to Level C at any time. EDI will treat each sample as potentially hazardous until determined to be "clean."

If a boring location is determined to be hazardous, EDI will alter the Exclusion Zone to include a Hazard Reduction Zone. EDI will have tyvek suits, respirators, boots contaminant reduction equipment and containers for drilling spoils and PPE, if the need arises. All EDI personnel on site will be properly trained according to 29 CFR 1910.120 with medical monitoring and updated 8-hr refresher courses.

RESPONSIBILITIES AND ADMINISTRATION

The Health & Safety Officer (HSO), Brian Bartron, will be responsible for the overall implementation and monitoring of the HSP by:

- Overseeing that appropriate protective equipment is available and properly used by all personnel, in accordance with the HSP
- Overseeing personnel health and safety awareness by providing them with proper training and familiarity with procedures and contingency plans
- Overseeing that all personnel are aware of the potential hazards associated with the Site conditions and operations
- Monitoring the safety performance of all personnel to ensure that their work practices are conducted in accordance with the HSP
- Correcting any work practices or conditions that would expose personnel to possible injury or hazardous conditions
- Ensure that all on-Site personnel have obtained the required medical examination prior to arrival at the Site and have met the OSHA training requirements
- Maintain all necessary medical and training documentation
- Communication with the on-Site Health and Safety Officer (HSO)
- Supporting and enforcing the Earth Dimensions, Inc. HSP and policies

The on-Site Health and Safety Officer, Head Driller, shall be responsible for all decisions regarding operations and work stoppage due to health and safety considerations. The HSO will have prior experience in working at hazardous waste sites. The on-Site HSO responsibilities include:

- Supervision and enforcement of safety equipment usage
- Supervision of equipment cleaning, and decontamination procedures
- Responsible for daily sign in by all on-site personnel Attachment A
- Conducting the on-Site health and safety meetings Attachment B
- Maintaining the Exclusion Zone (EZ) and Contaminant Reduction Zone (CRZ) work areas
- Review and modification of the HSP as more information becomes available, or conditions warrant
- Authority to suspend work activity due to unsafe working conditions
- Coordination of emergency procedures
- Maintaining a copy of Earth Dimensions, Inc.'s HSP on Site
- Regular audits and corrective actions, if required

EMPLOYEE TRAINING AND EDUCATION

Prior to commencing Site activities, a Health and Safety Site Introduction Session will be presented. Attendance is mandatory for all personnel who will be involved with the project. The training program will stress the importance that each attendee understands the basic principles of personnel protection and safety, be able to perform their assigned job tasks in a safe and environmentally responsible manner, and be prepared to respond in an appropriate manner to any emergency which may arise. Background information of the Site will be presented along with the various components of the project HSP, followed by an opportunity to ask questions to ensure that each attendee fully understands the HSP. This training will be given in addition to the basic training required under OSHA and is not intended to meet the requirements of 29 CFR 1910.120. Prior to working on-site, all personnel will be required to successfully complete the training requirements of 29 CFR 1910.120 and provide documentation to that effect.

PHYSICAL HAZARDS

Physical hazards expected during drilling activities are primarily related to working with drilling equipment, utilities clearance for subsurface soil sampling, slip, trip and fall hazards, uneven terrain, working in personal protective equipment, heat/cold stress and weather hazards. These hazards will be evaluated by the appropriate supervisory personnel, with input from all sampling team members, prior to beginning work in a new area, and as conditions change in the current work area. A tailgate safety briefing will be conducted by on-site HSO to identify additional safety protocols. The following precautions will be taken to reduce the physical hazard:

- No subsurface borings will be started at any location prior to utility clearance.
- Safety eyewear (ANSI Z87), and steel-toed safety footwear, or equivalent protective footwear, will be worn during all drilling activities.
- Activities conducted during hot weather will have an appropriate measure of heat stress monitoring. In addition, water breaks will be taken at regular intervals. NIOSH recommends drinking 16 oz. of water prior to beginning work and 1 to 1.6 gallons during the day. If necessary, supervisory personnel will conduct a brief tailgate meeting to discuss symptoms of heat stress and heat exhaustion.
- Activities conducted during cold weather will have an appropriate measure of cold stress/hypothermia monitoring. Employees will dress appropriately for the temperature, remain hydrated and monitor each other for signs of cold stress/hypothermia. If necessary, the on-site HSO will cover cold stress/hypothermia during the site meeting prior to commencing the daily activities.
- Intense rainfall, strong winds, and lightning constitute unfavorable conditions for drilling activities. Supervisory personnel will determine when unsafe conditions exist and stop project activities.
- Good housekeeping in the work area is a priority.

DRILLING SAFETY

Drilling safety is the responsibility of the entire Earth Dimensions' drilling crew. The ultimate responsibility for the safe usage of the rig rests with the Head Driller, and all on site crew members shall work in the proximity of the rig only under his supervision. Any member of the drilling crew or any on-site visitor who is acting in an unsafe manner and endangering the safety of himself or others will be ordered to leave the site at the head drillers' discretion. Each member of the onsite working party will be advised of the location of the Emergency Switches on the rig before the rig is operated.

TOOL STORAGE AND TRANSPORT

Suitable storage locations for tools, well supplies, and sampling equipment shall be provided on all support vehicles and drilling rigs. Tools and other materials shall not be transported in or onto the derrick (mast) of the rig. Pipe, rods, casing, screen and similar tool and supplies shall be appropriately stacked and secured prior to transport, and while conducting drilling operations. Work areas must be kept free of debris and obstructions. Gasoline and other flammable liquids will be appropriately stored and transported in marked, non-spark, secure containers.

DRILLING OPERATIONS

When the rig is mobilized from Earth Dimensions, Inc. (EDI), or is moved from hole to hole onsite, or demobilized from the site to EDI, the derrick (mast) shall be fully lowered. The head driller will check overhead clearance before raising the mast to avoid hitting trees and power lines, etc. The mast shall be raised only after all personnel are cleared from the areas immediately to the rear and sides of the mast. The mast shall be raised only after the rig has been fully leveled with leveling jacks or solid cribbing. The mast shall be lowered before the leveling jacks have been retracted.

If drilling is to be conducted within a building or enclosed area, the possibility of exhaust fumes escaping the area must be determined. The possibility of a pre-existing explosive atmosphere, or of an explosive atmosphere being created by the drilling activity, must be determined. The atmosphere shall be monitored during drilling operations to ensure that explosivity limits have not been reached.

The operator of the drilling rig will ensure that the tool handler and auger fork are clear of the auger column before rotation begins. Neither the driller nor the driller's helper shall touch the power coupling or auger flight with their hands or feet during rotations. Augers shall be cleaned only when the rig is in neutral, and the augers have stopped rotating.

Unattended boreholes will be adequately covered or cordoned off to prevent the onsite crew, visitors or animals from falling into the hole. All open boreholes will be covered, protected, or backfilled according to state or local regulations and particular project-specific designs.

Drilling operations will be terminated at the onset of an electrical storm, and all on site personnel will evacuate the vicinity of the drill rig. Likewise, the positions of buried electrical and other utility lines will be cleared by either the client or EDI before the site is entered. All overhead wires and all power lines will be considered to be "live" and dangerous, and will therefore be avoided by all onsite crew.

EQUIPMENT MAINTENANCE

The head driller will inspect the drill rig daily to determine its structural and mechanical integrity, the correctness of tension in chain drives, the securedness of nuts and bolts, and the soundness of hoses. Likewise, pressure gauges will be tested, along with pressure relief valves. Emergency "master-kill" switches will be tested before commencing drilling operations. A properly maintained fire extinguisher will be carried on the rig. All wire ropes and fittings will be inspected daily during use, and at least once a week during idle time, for signs of abrasion, wear, reduction in diameter, heat damage, corrosion, jamming, kinking, and reeving. Wire ropes will be properly matched with each sheave.

The cathead shall be kept free of rust and oil, and will be maintained by wire brushing. Ropes which come in contact with the cathead will be kept from coming into contact with any chemicals, and shall be kept clean.

HAZARD COMMUNICATIONS PROCEDURES

Earth Dimensions, Inc. employees are included under the Hazard Communication Standard (29 CFR 1910.1200). The Hazard Communication Standard ensures that all chemicals being used in, or imported to, a facility are evaluated to determine their potential hazard to employees and that this information is communicated in the form of a written hazard communication program.

For each chemical introduced to the site by Earth Dimensions, Inc., Material Safety Data Sheets (MSDS's) will be provided for review by all field personnel.

FIRE PREVENTION AND PROTECTION PLAN

The primary fire hazard is expected to be related to fueling gasoline-powered equipment at the job location. To reduce the risk of fire during this activity, all gasoline-powered engines will be shut off and allowed to cool for a minimum of five minutes prior to refueling. No open flames are permitted near gasoline containers.

In the event of a fire or explosion, the project supervisor or other personnel will report to appropriate site personnel immediately. All Earth Dimensions, Inc. vehicles are equipped with a fire extinguisher and all field personnel have been trained in their operation. A fire that cannot be readily extinguished with a fire extinguisher will be considered major and may require evacuation of work area personnel to safe areas. Evacuation routes will be discussed generally during the contractor H&S Training and Pre-Job Meetings. It is expected that specific routes will be reviewed periodically during EDI's Daily H&S Meeting.

WELDING AND CUTTING FIRE CONTROL PROGRAM

Welding and Cutting will be performed by qualified personal only and in locations permitted to have open flame. All welding and cutting activities will have a fire watch.

SPILL RESPONSE PLAN

This Spill Prevention, Containment and Control Plan (Spill Response Plan) describes planning, prevention and control measures to minimize impacts resulting from spills of fuels, petroleum products or other regulated substances as a result of drilling operations.

PLANNING & PREVENTION

Earth Dimensions, Inc. (EDI) requires its employees to implement proper planning and preventative measures to minimize the likelihood of spills, and to quickly and successfully clean up a spill in the event one should occur. EDI developed this Spill Response Plan to set forth minimum standards for handling and storing regulated substances and cleaning up spills. Potential sources of drilling related spills include: machinery & equipment failure, fuel handling, transfer accidents and release of drilling fluids. Employees will be responsible for implementing, at a minimum, the following planning and prevention measures:

EDI Employees shall:

- Report all spills to the client immediately
- Report Spills to appropriate federal, state and local agencies as soon as possible
- Mobilize on-site personnel, equipment and materials for containment and/or cleanup commensurate with the extent of the spill
- Determine when it is necessary to evacuate spill sites to safeguard human health

Equipment:

- Spill kits must be maintained and contain a sufficient quantity of absorbent and barrier materials to adequately contain and recover foreseeable spills. These kits may include, but are not limited to: absorbent pads, straw bales, absorbent clay, sawdust, floor-drying agents, spill containment barriers, plastic sheeting or any other materials relevant to the specific project.

- Suitable plastic lining materials shall be available for placement below and on top of temporarily stored contaminated soils and materials.
- 55 gallon drums will be available for storage of contaminated materials; if necessary.
- Fuel will be stored in safety cans and secured in support vehicles.
- Support vehicles and drill rig will carry appropriate, functioning fire extinguishers.

SPILL MANAGEMENT

Immediately upon learning of any fuel, oil, hazardous material or any other regulated substance spill, or upon learning of conditions that will lead to an imminent spill, EDI employees shall:

- Initiate actions to contain the fluid that has spilled, or is about to spill, and initiate action to eliminate the source of the spill to the maximum extent that is safely possible.
- Notify the client of the location and cause of the spill and the type of material that has spilled.
- Assess the situation and determine the need for further action.
- Direct subsequent activities and/or further assign responsibilities to other personnel.
- Mobilize on-site personnel, equipment and materials for containment and/or cleanup commensurate with the extent of the spill.
- Determine if the spill is beyond the scope of on-site personnel and equipment, if so, notify the Department of Environmental Conservation (DEC) Emergency Spill Response Office: 800-457-7362 or 716-851-7220

PERSONAL PROTECTIVE EQUIPMENT (PPE)

This section of the HSP describes the requirements for PPE and the levels of protection that may be required at the Site during project activities. The identification and proposed use of specific PPE has been based on a review of the hazard/risk analysis for the project activity. This includes the potential for exposure to the previously detected chemical compounds on Site and the ability of PPE to adequately provide protection against these identified chemical compounds.

REQUIRED PPE – MINIMUM ON/OFF-SITE

The basic PPE requirements for all personnel on-Site but not in an active work zone include:

- Full length pants
- Safety footwear
- Safety glasses with side shields – ANSI Z87 *clear* eye protection when working inside
- Hard hats
- Long sleeve shirts

REQUIRED PPE – DETERMINED BY SITE-SPECIFIC CONDITIONS

Personnel will wear protective equipment when project activities involve potential exposure to Site chemicals or when direct contact with potentially hazardous substances may occur. The duration of project activities involving the usage of PPE will be established by the HSO based upon ambient temperature and weather conditions, the capacity of personnel to work in the designated level of PPE, and limitations of the PPE. All rest breaks will be taken in a clean area after necessary decontamination and PPE removal. The specific protection levels to be employed on-Site will be determined based on the hazards related to the particular task at hand. All project activities conducted at the Site will require the use of one of the following levels of PPE:

PPE Level A

- Supplied air respirator (MSHA/NIOSH approved). Respirators may be positive pressure-demand, self-contained breathing apparatus (SCBA) or positive pressure-demand airline respirator (with escape bottle for Immediate Danger to Life and Health (IDLH) or potential for IDLH atmosphere)
- Fully encapsulating suit
- Polycoated Tyvek coveralls
- Steel toe work boots and disposable boot covers or rubber boots
- Disposable inner gloves-chemical resistant
- Outer work gloves-chemical resistant
- Hard hat
- Hearing protection as required
- Reflective safety vests as required

PPE Level B

- Supplied air respirator (MSHA/NIOSH approved). Respirators may be positive pressure-demand, self-contained breathing apparatus (SCBA) or positive pressure-demand airline respirator (with escape bottle for Immediate Danger to Life and Health (IDLH) or potential for IDLH atmosphere)
- Polycoated Tyvek coveralls
- Steel toe work boots and disposable boot covers or rubber boots
- Disposable inner gloves-chemical resistant
- Outer work gloves-chemical resistant
- Hard hat
- Hearing protection as required
- Reflective safety vests as required

PPE Level C

- Full face air purifying respirator (APR), equipped with combination cartridges for organic vapors/acid gases and particulates
- Polycoated Tyvek coveralls
- Steel toe work boots and disposable boot covers or rubber boots
- Disposable inner gloves-chemical resistant
- Outer work gloves-chemical resistant
- Hard hat
- Hearing protection as required
- Reflective safety vests as required

PPE Modified Level D

- Polycoated Tyvek coveralls
- Steel toe work boots and disposable boot covers or rubber boots
- Disposable inner gloves-chemical resistant
- Outer work gloves-chemical resistant
- Hard hat

- Hearing protection as required
- Reflective safety vests as required
- Safety glasses with side shields – ANSI Z87 *clear* eye protection when working inside
- Splash shields as necessary

PPE Level D

- Standard work uniform or coveralls
- Steel toe work boots or equivalent protective foot gear
- Gloves as necessary
- Safety glasses with side shields – ANSI Z87 *clear* eye protection when working inside
- Hard hat
- Hearing protection as required
- Reflective safety vests as required

PPE CARE AND MAINTENANCE

PPE will be maintained in a clean sanitary condition and ready for use. Disposable coveralls shall be discarded when torn and as personnel leave the contaminated work zone. Hard hats shall be thoroughly cleaned after leaving the contaminated work zone. Respirators shall be cleaned after each day's use and cartridges discarded. A sufficient quantity of potable water shall be supplied for washing, cleaning PPE, and drinking. A potable water supply for washing and cleaning PPE will be maintained adjacent to the decontamination area. Protection levels provided by PPE selection shall be upgraded or downgraded based upon changes in Site conditions.

LIMITATIONS OF PPE

PPE ensembles designated for use during project activities have been selected to provide against the known or suspected chemicals in the soil and groundwater. No protective garment, glove, or boot is chemical-proof, nor will it afford protection against all chemical types. Permeation of a given chemical through PPE is a complex process governed by chemical concentrations, environmental conditions, physical condition of the protective garment, and the resistance of a garment to a specific chemical. Chemical permeation may continue even after the source of the chemical has been removed from the garment.

In order to obtain optimum usage from PPE, the following procedures are to be followed by all Site personnel using PPE:

- When using disposable coveralls, don a new clean garment after each rest break or at the beginning of each shift
- Inspect all clothing, gloves, and boots both prior to and during use for imperfect seams, non-uniform coatings, tears, and poorly functioning closures
- Inspect reusable garments, boots, and gloves both prior to and during use for visible signs of chemical permeation, swelling, discoloration, stiffness, brittleness, cracks, any sign of puncture and or abrasion
- Any gloves, boots, or coveralls exhibiting any of the characteristics listed above will be discarded.

ADDITIONAL PPE USAGE GUIDELINES

- Ankles/wrists will be secured tightly with the use of duct tape
- Prescription eyewear used on Site shall be safety glasses equipped with side shields when full-face respirators are not required
- Contact lenses shall not be used
- All Exclusion Zone (EZ) workers will have received training in the usage of full-face air purifying respirators and supplied air respiratory protection equipment
- Steel toe leather footwear shall be covered with neoprene overboots prior to entering the EZ and immediately upon entering the Contaminant Reduction Zone (CRZ)

EXCLUSION ZONE PERSONNEL RESPONSIBILITIES

- EZ personnel also carry certain responsibilities for their own health and safety, are required to observe the following safe work practices:
- Use the "buddy system" when working in a contaminated work zone
- Use the safety equipment in accordance with training received, labeling instructions, and common sense
- Maintain safety equipment in good condition and proper working order
- Refrain from activities that would create additional hazards
- Smoking is prohibited
- Eating is only allowed in designated areas
- Soiled disposable outerwear shall be cleaned, removed, and left in a safe place until reuse or placed into a covered container prior to washing hands and face, eating, using lavatory facilities, or leaving the Site

RESPIRATORY PROTECTION PROGRAM

Prior to arriving at the Site, all personnel will have received training in the use of, and have been fit tested for a full-face piece respirator. All on-Site personnel are required to comply with the Earth Dimensions, Inc. respiratory protection program developed in accordance with OSHA 29 CFR 1910.134, located in the Earth Dimensions, Inc. HSP.

Respiratory protection may be required during some of the project activities. This will be determined by the HSO, On-Site representatives, the client, or the on-Site Engineer/Geologist. The appropriate air purifying respirator cartridge to be used at the Site is a combination organic vapor/acid gases and particulate filter cartridge. The cartridge used must be of the same manufacturer as the respiratory face piece.

SITE CONTROL

Designated work areas will be set up as appropriate during project activities, as required. The purpose of these procedures is to limit access to potentially adversely impacted areas, and prevent the migration of potentially hazardous materials into adjacent non-impacted areas. These areas are described as follows:

THE EXCLUSION ZONE (EZ)

The EZ is the area immediately surrounding the active work area. Sufficient space will be provided for efficient/safe movement of personnel and equipment as well as chemical control. Boundaries are modifiable depending on operational requirements. The HSO will be responsible for maintaining the boundaries of this area. Personnel entering this area are required to wear the PPE as defined previously. A wind direction will be determined during Site activities. All personnel entering the EZ or CRZ using respiratory protection must have successfully passed a qualitative respirator fit test in accordance with OSHA 29 CFR 1910.134. Documentation of fit testing is the responsibility of each employer.

THE CONTAMINANT REDUCTION ZONE (CRZ)

The CRZ will provide a location for removal of used PPE and final removal and decontamination of personnel and equipment. Supplemental safety equipment, such as fire extinguishers, portable eyewash, and extra quantities of PPE may be stored in this area.

THE SUPPORT ZONE (SZ)

The SZ is to be situated in clean areas where there is a minimal risk of encountering hazardous materials or conditions. PPE beyond the basic requirements is, therefore, not required.

ACTIVITY HAZARD/RISK ANALYSIS

Every effort will be made to reduce or eliminate potential health and safety hazards that exist at the Site. Those which cannot be eliminated must be guarded against by the use of engineering controls and/or PPE. In addition to the chemical hazards associated with this site, physical hazards including trip and fall hazards, slippery surfaces, the use of drilling equipment, the use of decontamination equipment, and potential heat and cold stress exist at the Site. It is the responsibility of the HSO to identify the physical hazards posed by the various Site project activities and implement preventative and corrective action.

CHEMICAL EXPOSURE

Preventing exposure to toxic chemicals is a primary concern. Chemical substances can enter the unprotected body by inhalation, skin absorption, and ingestion. A chemical can cause damage at the point of contact or can act systemically, causing a toxic effect at a part of the body distant from the point of initial contact.

Chemical exposures are generally divided into two categories: acute and chronic. Symptoms resulting from acute exposures usually occur during or shortly after exposure to a sufficiently high concentration of a chemical. The concentration required to produce such effects varies widely from chemical to chemical. The term chronic exposure generally refers to exposures to low concentrations of a chemical over a long period of time. The low concentrations required to produce symptoms of chronic exposure depend upon the chemical, the duration of each exposure, and the number of exposures. For a given chemical, the symptoms of an acute exposure may be completely different from those resulting from chronic exposure.

For either chronic or acute exposure, the toxic effect may be temporary and reversible, or may be permanent (disability or death). Some chemicals may cause obvious symptoms such as burning, coughing, nausea, tearing eyes, or rashes. Other chemicals may cause health damage without any such warning signs (this is a particular concern for chronic exposures to low concentrations). Health effects such as cancer or respiratory disease may not manifest for several years or decades after exposure. In addition, some toxic chemicals may be colorless and/or odorless, may dull the sense of smell, or may not produce any immediate or obvious physiological sensations. Thus, a worker's senses or feelings cannot be relied upon in all cases to warn of potential toxic exposure.

An important exposure route of concern at the Site is inhalation. 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. Some toxic chemicals present in the atmosphere may not be detected by human senses. Respiratory protection is therefore, extremely important if there is a possibility that the work site atmosphere may contain such hazardous substances.

Direct contact of the skin and eyes by hazardous substances is another important route of exposure. Some chemicals directly injure the skin. Some pass through the skin into the bloodstream where they are transported to vulnerable organs. Skin absorption is enhanced by abrasions, cuts, heat, and moisture. 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. Wearing protective equipment, not using contact lenses, keeping hands away from the face, and minimizing contact with liquid and solid chemicals can help protect against skin and eye contact.

It is important to be aware of how exposure due to ingestion can occur. Personal habits such as chewing gum or tobacco, drinking, eating, and smoking at the Site may provide a route of entry for chemicals.

AIR MONITORING

The need for air monitoring on Site shall be determined by the HSO, client, Site representative, or the on-Site Engineer/Geologist.

DECONTAMINATION

In general, everything that enters the EZ at the Site must either be decontaminated or properly discarded upon exit from the EZ. All personnel must enter and exit the EZ through the decontamination area. Prior to demobilization, potentially contaminated equipment will be decontaminated and inspected by the HSO before it is moved into the clean zone. Any material that is generated by decontamination procedures will be stored in a designated area until disposal arrangements are made.

All equipment must be decontaminated within the CRZ by a high-pressure washer upon exit from the EZ. Decontamination procedures should include: knocking soil/mud from machines, water rinsing using a solution of water and soap, and a final water rinse. Contact the project engineer, Environmental Engineering Group, or the GM Host for direction as to location for final decontamination of equipment upon completion of activities . Personnel shall wear appropriate PPE when decontaminating equipment. Runoff will be collected and stored until appropriate disposal arrangements are made. The HSO shall be responsible for ensuring that the item has been sufficiently decontaminated.

GENERAL SAFETY AND PERSONAL HYGIENE

- Eating at the Site is only allowed in designated areas. Designation of eating areas will be the responsibility of the HSO in conjunction with the facility manager or on-Site representative
- Smoking is prohibited
- Individuals getting wet from decontamination or washing operations must wash affected area immediately
- If clothes in contact with skin are wet, then they must be changed
- Hands must be washed before eating, drinking, and using the toilet
- Waste will be properly stored until such time that it is disposed of during completion of project activities

MEDICAL SURVEILLANCE

In accordance with the requirements detailed in 29 CFR 1910.120 and 29 CFR 1910.134, all Site personnel who will come in contact with potentially hazardous materials will have received medical surveillance. Earth Dimensions, Inc. Medical Surveillance program is covered in the Earth Dimensions, Inc. Health and Safety Program.

EMERGENCY CONTINGENCIES

It is essential that Site personnel be prepared in the event of an emergency. Emergencies can take many forms: illness or injuries, chemical exposure, fires, explosions, or sudden changes in weather. Emergency information should be posted as appropriate.

911

Hospital:	585-593-1100	Jones Memorial Hospital, Wellsville, NY

For Map & Directions to Hospital – See Figure 2

EDI CONTACTS

Earth Dimensions, Inc. Main Office:	716-655-1717
Brian Bartron, EDI Health & Safety Officer:	716-491-1847
Brian Bartron, Head Driller & OnSite HSO:	716-491-1847
Harold Kleever, Driller OnSite:	716-491-1847

FISHER ASSOCIATES CONTACT INFORMATION

Joseph Dorety 585-329-7188
Environmental Project Manager and Fisher Associates Health and Safety Officer

Christina Beyer 585-472-1240
Environmental Technician

Mark Stein 585-353-4731
Environmental Scientist

SUNY ALFRED CONTACT INFORMATION

Craig Clark 607-587-3913

FIGURE 1 SITE LOCATION MAP

Figure 1: Site Map/Location Map

SUNY ALfred - Williamsville Campus,

2530 River Road

Wellsville, NY

Figure 2: Map and Directions to Jones Memorial Hospital, Wellsville

585-593-1100

From SUNY Alfred, Wellsville, NY

Drive 1.3 miles, 4 min

○ 2530 River Rd
Wellsville, NY 14895

Take S Brooklyn Ave and W State St to NY-417 W in Wellsville
0.9 mi / 3 min

Take the 1st left onto NY-417 W
0.2 mi / 27 s

Drive to N Main St
0.2 mi / 1 min

7. Take the 1st right onto W Madison St
420 ft

8. Take the 2nd left onto N Main St
0.1 mi

◉ 191 N Main St
Wellsville, NY 14895

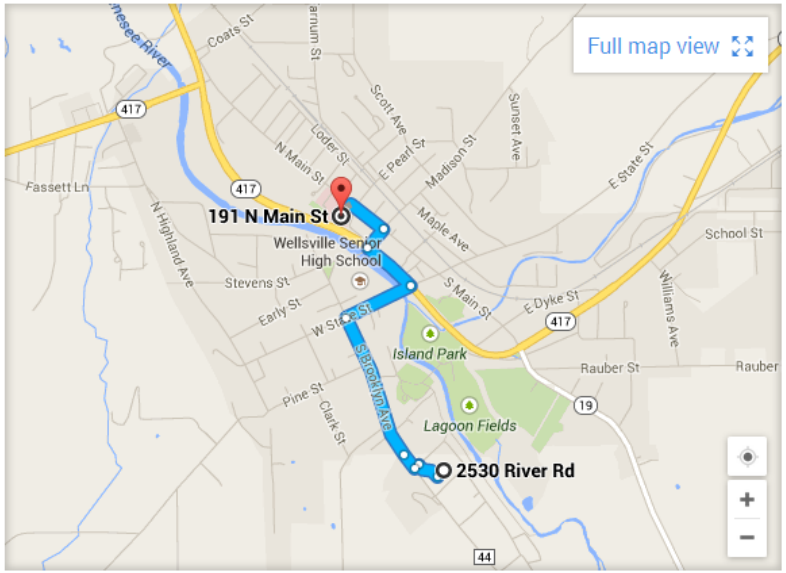

FIGURE 2 MAP TO HOSPITAL WITH DIRECTIONS

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineation
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • Fax (716) 655-2915

SUNY Alfred Wellsville 3L88a

Date: _____

ATTACHMENT A - DAILY SITE SIGN-IN SHEET

Date ->								
Name	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**

Special Instructions or Notes

_____

_____

_____

_____

_____

_____

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineation
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • Fax (716) 655-2915

SUNY Alfred Wellsville 3L88a

Date: _____

ATTACHMENT B - DAILY HEALTH & SAFETY MEETING

Safety Gear / Personal Protective Equipment (PPE)

- Appropriate PPE shall be worn by all members of the working party at all times.
- All safety gear will be clean and in good repair.
- Ripped or torn clothing which may catch in equipment will not be worn onsite.

Rig and Site Inspection

- The rig and equipment will be inspected daily to determine its structural and mechanical integrity, correctness of tension in chain drives, secureness of nuts and bolts, and soundness of hoses.
- Emergency kill switches will be tested before drilling operations commence.
- All wire ropes and fittings will be inspected for signs of abrasion, wear, reduction in diameter, heat damage, corrosion, jamming, kinking and reeving.
- The cat-head and ropes will be carefully inspected for safe operation.
- The drill site will be inspected for cleanliness; tripping, slipping and bump hazards; and proper storage/placement of tools and supplies.

Checklist

- ☐ Personal Protection Equipment
- ☐ Fire Extinguisher
- ☐ First Aid Kit
- ☐ Site Contact Information and Emergency Phone Numbers
- ☐ Complete Equipment and Site Inspection

I have participated in the daily safety meeting and understand everything that has been discussed. All of my questions have been answered and I feel confident that I will follow the safety guidelines as written and discussed. I realize that everyone is responsible for on-site safety and agree do my part to maintain a safe work environment.

Print Name	Sign Name	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

One or more of the following procedures may be required to complete the described project.

The Head Driller on-site is a Competent Person with responsibility for all decisions as to procedures and PPE. Both the Head Driller and Assistant Driller on-site have authority to Stop Work due to unsafe conditions or to re-evaluate any/all aspects of the task at hand. All EDI field employees are current in Red Cross Adult First Aid/CPR/AED training.

EDI Project Code: 3L88a | **Job Safety Analysis** | **Earth Dimensions, Inc**
FA# 143011 | **Project Location: SUNY Alfred Wellsville** | **716-655-1717**

Activity	Potential Hazards	Corrective Measures
		1) Mobilization, Site Set-Up
Mobilization	**Pinch Points**	Appropriate PPE for activity: leather gloves, steel toe shoes, or equivalent
		Avoid placing body parts in pinch point locations
	Lifting: Heavy lifting, Carrying, Manual Material Handling	Use proper lifting techniques to prevent injury
		Lift with the legs (bend at the knees and use the leg muscles) to protect the lower back and keep lower back in neutral position
		Assess the load before attempting a lift. If the object is too large or oddly shaped, OR in excess of 50lbs (23kg), then assistance (mechanical or buddy lift) will be required
		Avoid one-handed carrying if possible and maintain awareness of footing
		Reduce distance needed to travel when carrying materials/equipment
	Manual Material Handling	Wear leather/cotton gloves when setting up barricades
	Spills/Splashes	Use proper fueling techniques, appropriate funnels, hoses, pumps and containers
		Know location and proper use of spill kit
		Wear appropriate PPE for activity: gloves for spill protection
	Slips/Trips/Falls	Neatly organize equipment for loading and properly secure all
		Organize site to eliminate as many trip hazards as possible and Keep unused tools/equipment put away
	Equipment Drops/Falls	Appropriate PPE for activity: steel toe, or equivalent, shoes to prevent foot injury
		Use adequate straps and techniques to secure loads
	Equipment Drops/Falls from sides of rig during leveling	Keep equipment secured on the side of the rig until after leveling
	Vehicle/equipment breakdown causing accident or roadside repairs	Keep vehicles/equipment properly maintained and perform appropriate pre-trip inspection
		Proper safety equipment on-board (flares, flags, safety triangles, fire extinguishers
	General Traffic and Driving Hazards	Use heavy truck driving training
		Discuss travel route and potential travel hazards prior to mobilization
Placement of tools and work area set-up	**On-Site Traffic Hazards**	Use heavy truck driving training
		Maintain awareness of on-site traffic, work zones, walking surfaces, overhead hazards (e.g.: canopy and low hanging overhead lines)
		Utilize barricades/cones/caution tape to define work zone and direct traffic
		Discuss site-specific traffic patterns/expectations with regular on-site personnel prior to moving within the site
	Heat/Cold Stress	In extreme temperatures, ensure that all personnel have proper clothing, hydration, and heat/cold protection (e.g.: canopy, fan, glove warmers
	Biological Hazard	Be aware of any sensitive receptors and verify that all personnel are aware of the location, and proper use, of the spill kit

Activity	Potential Hazards	Corrective Measures
Placement of tools and work area set-up *(cont)*		Knowledge of Chemicals Previously Identified On-Site, follow the EDI Health & Safety Plan for proper procedures and use appropriate PPE for site-specific hazards
	Overhead/Underground Hazard	Inspect area for visible hazards, e.g.: overhead canopy, power lines, roof/ceiling clearance, buildings, overhangs
		Verify that the underground utilities have been cleared and/or marked before drilling
	Moving of heavy equipment on a job site: hitting workers, equipment and pre-existing obstructions	Inspect area for hazards, remove all removable obstacles, use backup alarm, use assistant when moving rig around site
		Keep others clear of the mast and rig during raising and lowering of the mast
	Overturning rig	Choose a direction to well allowing a level area to raise rig
		Use additional pads to keep rig from sinking
		Level rig slowly, in gentle stages
	Hydraulic hose or fitting failure	Know location and proper use of spill kit
		Keep vehicles/equipment properly maintained and perform appropriate pre-trip inspection
	Hydraulic hose or fitting failure	Check all hoses and fittings for leaks and/or signs of wear
		Replace worn hose washers
		Use lock pins on hoses
		Know location and proper use of spill kit
	Leaking drums or tubs allowing contact with contents, and slip hazards	Use only containment vessels in good condition
	Spills from unsecure drums or during pumping activities	Place drums on level ground for filling/storage
		Secure drums containing product/waste with proper lid, o-ring and locking ring
	Lifting Hazard: drums	Move/load drums only with proper equipment
		Only move properly secured drums
		Use appropriate straps/ropes, safety latches and hooks
	Lifting and Drum Handling Hazards	Use pails to bail drums
	Spill and splash Hazards	Wear appropriate PPE for activity: gloves for spill protection
	Lifting and moving of pipe by hand and with rig winch	Use proper lifting techniques to prevent injury
	Overhead dropping/falling hazards	Use appropriate lifting bail and hook assemblies
		Check winch lines for kinks and frays (replace, if necessary)
	Pinch Points	Wear proper PPE (gloves, hard hat)

Activity	Potential Hazards	Corrective Measures
Placement of tools and work area set-up (cont)	Sharp steel, cuts, burns from cutting and welding Damage to eyes from bright light created during cutting and welding	Use proper PPE, including welding gloves, helmet and smock
	Sparks/Fire Hazard	Remove potential fuel/flammable materials from work area Employ a fire watch with fire extinguisher
	Damage to lungs from cutting and welding fumes	Work in an area with proper ventilation, and use respirator if necessary
	Bumping equipment	Check site for equipment in the way while lowering mast
		Keep all persons clear of rig while lowering the mast
		lower the mast slowly
	Equipment/tooling falling off rig	Check all equipment on rig for securedness
		Clear the rig and surrounding area of tools and/or supplies before lowering
2) Auger and Casing Drilling Using Drilling Rig Designed for Rotary Drilling, Previously Inspected and Safe to Operate		
Moving augers and drill rods from storage to work zone staging area	Pinch points	Avoid placing body parts in/near pinch points
		Wear proper PPE
	Lifting and carrying	Use proper lifting techniques. Lift appropriate weight.
		Use help when moving heavy tools
	Trip/slip/fall hazard	Keep work area neat.
		Place tooling in designated location.
		Limit amount of drilling tools in work area
Attaching drill rod to string	Pinch points	Avoid placing body parts in/near pinch points
		Wear proper PPE
	Lifting and carrying	Use proper lifting techniques. Lift appropriate weight.
		Use help when moving heavy tools
	Trip/slip/fall hazard	Keep work area neat.
		Place tooling in designated location.
		Limit amount of drilling tools in work area
	Muscle strain due to repetitive motion and difficult threads	Use alternate motions for threading rods
		Keep drill rod threads clean and free of metal burrs
		Use pipe wrenches when appropriate
Attaching auger to drill string	Pinch points	Avoid placing body parts in/near pinch points
	Falling tools	Use threaded clevis when lifting augers with drilling rig winch
		use only cables with functioning hook latches and cables free of frays and kinks
		Do not lift with cables far forward or sideways, allowing cables to come off shiv block

Activity	Potential Hazards	Corrective Measures
	Slips while attaching augers (use of bolts and wrenches)	Use wrenches and sockets in good condition
		Use auger bolts free of debris, without burrs and having shoulders in good condition
Attaching drilling rig rotary head to drill string	Pinch points (guiding rotary head while using hydraulic pressure), rig or operator malfunction causing inadvertant pressure or rotation	Adjust cap and rotary head while rig is in neutral while applying no pressure
		Keep hands clear while lowering drill head onto drill string
		Attach bolts while rig is in neutral
		Communication between operator and assistant when using rig hydraulics to move tooling
Rotating augers and applying downward pressure for augers to penetrate formation	Catching equipment, clothing or persons on equipment	Use long handle shovel in good condition to move cuttings
		Do not wear loose or torn clothing or tyveks in bad condition, wear no jewelry
		Keep people, tooling and equipment as far from moving parts as is possible
	Equipment breaking, causing parts to be jettisoned from the drill rig	Do not stand directly behind rig
		Wear proper PPE: hard hat & Safety glasses
		Use drill tooling of appropriate size for the project
		Keep the rig in good working condition
	Exposure to potential vapors from soil	Stay up-wind of vapors coming off soils.
		Use respirators when appropriate
	Contact with contaminated soils	Use a long handle shovel in good condition
		Use proper shoveling techniques
		Limit spills
		Keep soil cleaned up from the work area
		Wear appropriate PPE: tyvek, boots, gloves, etc
Removal of auger cuttings from around augers and placing in drums or other container	Contact with contaminated soils - using shovel	Use a long handle shovel in good condition
		Use proper shoveling techniques
		Limit spills
		Keep soil cleaned up from the work area
		Wear appropriate PPE: tyvek, boots, gloves, etc
	Exposure to potential vapors from soil	Stay up-wind of vapors coming off soils.
		Use respirators when appropriate
	Lifting and carrying	Use proper lifting techniques. Lift appropriate weight.
		Use help when moving heavy tools
	Trip/slip/fall hazard	Keep work area neat.
		Place tooling in designated location.
		Limit amount of drilling tools in work area
Removing drill rod string from bore hole,	Cuts and burns from steel bars and hot rods	Keep drill tooling free of burs
		Do not rub hands along tooling
		Wait for tooling to cool before handling

Activity	Potential Hazards	Corrective Measures
disassembling and storing for transport to decontamination pad		Wear proper PPE: gloves
	Slips while attaching augers (use of bolts and wrenches)	Use wrenches and sockets in good condition
		Use auger bolts free of debris, without burrs and having shoulders in good condition
	Pinch points	Avoid placing body parts in/near pinch points
		Wear proper PPE
	Lifting and carrying	Use proper lifting techniques. Lift appropriate weight.
		Use help when moving heavy tools
	Falling tools	Use threaded clevis when lifting augers with drilling rig winch
		use only cables with functioning hook latches and cables free of frays and kinks
		Do not lift with cables far forward or sideways, allowing cables to come off shiv block
		Use appropriate pulling plug with good threads and hoop to pull rods
Removal of augers from bore hole, disassembling and storing for transport to decontamination pad	Slipping wrenches	Use wrenches and sockets in good condition
		Use auger bolts free of debris, without burrs and having shoulders in good condition
	Pinch points	Avoid placing body parts in/near pinch points
		Wear proper PPE
	Lifting and carrying	Use proper lifting techniques. Lift appropriate weight.
		Use help when moving heavy tools
	Contact with contaminated soils	Use a long handle shovel in good condition
		Use proper shoveling techniques
		Limit spills
		Keep soil cleaned up from the work area
		Wear appropriate PPE: tyvek, boots, gloves, etc
	Exposure to potential vapors from soil	Stay up-wind of vapors coming off soils.
		Use respirators when appropriate
	Cuts and burns from steel bars and hot rods	Keep drill tooling free of burs
		Do not rub hands along tooling
		Wait for tooling to cool before handling
		Wear proper PPE: gloves
3) Split Spoon Sampling Driving a 2" or 3" Split Spoon Sampler with a 140# Weight Dropping 30" per Blow		
Pulling drill rods from hole	Pinch points	Avoid placing body parts in/near pinch points
		Wear proper PPE
	Falling tools	Use only appropriate pulling plug with good threads and hoop to pull rods
		Use only cables with functioning hook latches and cables free of frays and kinks

Activity	Potential Hazards	Corrective Measures
		Do not lift with cables far forward or sideways, allowing cables to come off shiv block
	Slipping Pipe Wrench (use of bolts and wrenches)	Use proper size wrenches in good working order.
	Cuts and burns from steel bars and hot rods	Keep drill tooling free of burs
		Do not rub hands along tooling
		Wait for tooling to cool before handling
		Wear proper PPE: gloves
Removing the inner string plug and installing the split spoon sampler	Slipping Pipe Wrench (use of bolts and wrenches)	Use proper size wrenches in good working order.
	Cuts and burns from steel bars and hot rods	Keep drill tooling free of burs
		Do not rub hands along tooling
		Wait for tooling to cool before handling
		Wear proper PPE: gloves
	Muscle strain due to repetitive motion and difficult threads	Use alternate motions for unthreading plug from rods
		Keep drill rod threads clean and free of metal burrs
		Use pipe wrenches when appropriate
Lowering the split spoon into the hole	Pinch points	Avoid placing body parts in/near pinch points
		Wear proper PPE
	Falling tools	Use threaded clevis when lifting augers with drilling rig winch
		use only cables with functioning hook latches and cables free of frays and kinks
		Do not lift with cables far forward or sideways, allowing cables to come off shiv block
		Use appropriate pulling plug with good threads and hoop to move rods
Attaching the hammer and pounding the sample	Use of cat head with manual rope	Keep cat head clean and dry
		Use only rope in good condition, free of oil and grease, and without frays
	Falling tools (hammer)	Check that knot is secured properly
		Keep rope shiv clear of debris
		Keep work area clean and dry, allowing for good footing.
	Pinch points	Avoid placing body parts in/near pinch points
		Wear proper PPE
	Muscle strain due to repetitive motion and difficult threads	Use alternate motions for unthreading plug from rods
		Keep drill rod threads clean and free of metal burrs
		Use pipe wrenches when appropriate
Removing the sampler from the boring and	Pinch points	Avoid placing body parts in/near pinch points
		Wear proper PPE
	Falling tools	Use threaded clevis when lifting augers with drilling rig winch

Activity	Potential Hazards	Corrective Measures
unthreading from the drill rods		use only cables with functioning hook latches and cables free of frays and kinks
		Do not lift with cables far forward or sideways, allowing cables to come off shiv block
		Use appropriate pulling plug with good threads and hoop to move rods
	Cuts and burns from steel bars and hot rods	Keep drill tooling free of burs
		Do not rub hands along tooling
		Wait for tooling to cool before handling
		Wear proper PPE: gloves
Removing the sampler from the boring and unthreading from the drill rods	Muscle strain due to repetitive motion and difficult threads	Use alternate motions for unthreading plug and/or sampler from rods
		Keep drill rod threads clean and free of metal burrs
		Use pipe wrenches when appropriate
	Exposure to potential vapors from soil	Stay up-wind of vapors coming off soils.
		Use respirators when appropriate
	Contact with contaminated soils	Use a long handle shovel in good condition with proper shoveling techniques
		Limit spills
		Keep soil cleaned up from the work area
		Wear appropriate PPE when handling the split spoon sampler
		Allow excess water and soil to be removed over the hole
Opening the spoon and placing the sample for field technical inspection	Cuts and burns from steel bars and hot rods	Keep drill tooling free of burs
		Do not rub hands along tooling
		Wait for tooling to cool before handling
		Wear proper PPE: gloves
		Use proper shoveling techniques
		Limit spills
		Keep soil cleaned up from the work area
		Wear appropriate PPE: tyvek, boots, gloves, etc
	Muscle strain due to repetitive motion and difficult threads	Use alternate motions for unthreading ends from split spoon sampler
		Keep sampler threads clean and free of metal burrs
		Use pipe wrenches when appropriate
	Contact with contaminated soils	Wear appropriate PPE when handling the split spoon sampler
		Limit spills
		Allow excess water and soil to be removed over the hole
	Exposure to potential vapors from soil	Stay up-wind of vapors coming off soils.
		Use respirators when appropriate
Cleaning the spoon and/or other small tools	Splash Hazard	Use appropriate PPE: gloves, tyvek, safety glasses and shield
		Minimize aggressive washing
	Slips/Trips/Falls	Place bucket in close proximity to work area, but out of traffic lanes

Activity	Potential Hazards	Corrective Measures
in Alconox wash bucket		Use good housekeeping techniques
		Keep area around bucket free of excess soil and water
Closing the spoon and storing until ready to take the	Muscle strain due to repetitive motion and difficult threads	Use alternate motions for threading ends on sampler
		Keep sampler threads clean and free of metal burrs
		Use pipe wrenches when appropriate
4) Grout Casing Well or Bore Hole - Pumping a Cement Bentonite Mixture by Tremmie Method to Seal Casing Well or Bore Hole		
Install tremmie pipe or hose to desired depth	Trip/slip/fall hazard	Keep work area neat.
		Place tooling in designated location.
		Limit amount of drilling tools in work area
	Muscle strain due to repetitive motion and difficult threads	Use alternate motions for threading tremmie pipe
		Keep tremmie pipe threads clean and free of metal burrs
Connect hoses to pump and water source	Pinch points	Avoid placing body parts in/near pinch points
	Lifting and carrying	Use proper lifting techniques. Lift appropriate weight.
		Use help when moving heavy items
	Trip/slip/fall hazard	Keep work area neat.
		Place tooling in designated location.
		Limit amount of drilling tools in work area
Set mixing container	Lifting and carrying	Use proper lifting techniques. Lift appropriate weight.
		Use help when moving heavy items
	Trip/slip/fall hazard	Keep work area neat.
		Place tooling in designated location.
		Limit amount of drilling tools in work area
Move portland cement from storage area to work zone staging area	Lifting and carrying	Use proper lifting techniques. Lift appropriate weight.
		Use help when moving heavy items
	Trip/slip/fall hazard	Keep work area neat.
		Place tooling in designated location.
		Limit amount of drilling tools in work area
Mix grout	Falling/Flailing: fluid hose can build pressure and burst, or become	Use hose connectors with mechanical pins and whip straps
		Monitor pressure gauges and flow rate to prevent pressure build up
	Cement and Bentonite Dust Inhalation	Keep clear of dust as much as possible and wear a dust mask
	Trip/slip/fall hazard	Keep work area neat.
		Place tooling in designated location.
		Limit amount of drilling tools in work area
Pump grout	Falling/Flailing: fluid hose can build pressure and burst, or become	Use hose connectors with mechanical pins and whip straps
		Monitor pressure gauges and flow rate to prevent pressure build up
	Trip/slip/fall hazard	Keep work area neat.

Activity	Potential Hazards	Corrective Measures
		Place tooling in designated location.
		Limit amount of drilling tools in work area
	Contact with contaminated fluids as they are removed from bore hole while	Keep clear of fluid discharge from wash T
		Wear appropriate PPE: tyvek, boots, gloves, etc
Remove tremmie pipe and clean equipment	Contact with contaminated grout	Keep clear of grout discharge
		Wear appropriate PPE: tyvek, boots, gloves, etc
	Muscle strain due to repetitive motion and difficult threads	Use alternate motions for threading tremmie pipe
		Keep tremmie pipe threads clean and free of metal burrs
5) Demobilization and Decontamination		
Lower mast, Raise jacks, Move off hole	Pinch points, bumping equipment	Check site for equipment in the way while lowering the mast
	Equipment/tooling falling off rig	Keep all persons clear of rig while lowering the mast
	Turning over of rig	Lower slowly
	Hydraulic line or fitting failure	Check all equipment on side of rig for securedness
		Clear the rig and surrounding area of tools and/or supplies before lowering
		Keep spill kit handy
Pick up all tools and supplies on-site	Pinch points	Proper lifting techniques
Cleaning and disposal of PPE, absorbent pads and used poly	Heavy lifting	Appropriate PPE for clearing tools, leather gloves, steel toe shoes
	Slip/trip hazards	Site Housekeeping, proper placement of tooling
	Contact with contaminants on used PPE, absorbent pads and/or poly sheeting	Appropriate PPE for contaminant, poly sheeting and absorbent pads
		Use proper PPE removal and disposal techniques
Cleaning of drill and tooling with hot water and steam heat	Contact with contaminants	Use of proper PPE: poly coated tyvek inner and outer gloves, boots and face shield
	Slip/trip/fall hazards	Use proper site housekeeping
	Burns from steam	Keep steam pad neat and organized
	Leaking hose and fittings	Secure equipment from moving while cleaning
		Use proper PPE while using hot water and steam
		Inspect hose and fittings prior to use
Loading and securing of equipment and tooling	Trips/falls	Load rig in an organized manner to reduce trip/fall hazards
	Lifting injuries	Avoid pinch points
	Pinch points	Use proper PPE (leather gloves and steel toe, or equivalent, shoes)
	Dropping of equipment/tools	Keep equipment secure while loading
		Use proper lifting techniques

EDI Project Code: 3L88a **Job Safety Analysis** **Earth Dimensions, Inc**
FA# 143011 **Project Location: SUNY Alfred Wellsville** **716-655-1717**

Activity	Potential Hazards	Corrective Measures
Removing equipment from project location and move to EDI, or next project location	Equipment breakdown causing accident or requiring roadside repairs	Keep vehicles/equipment properly maintained and perform appropriate pre-trip inspection
	General traffic and driving hazards	Use heavy truck driving training
	Equipment falling off rig while driving	Proper safety equipment on-board(flares, flags, safety triangles, fire extinguishers)
		Discuss travel route and potential travel hazards prior to mobilization
		Use adequate straps and techniques to secure loads