SITE-SPECIFIC HEALTH & SAFETY PLAN FOR CONSTRUCTION ACTIVITIES THE RICHARDSON HILL ROAD LANDFILL SITE SIDNEY, NEW YORK

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APPENDICES

1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been developed for the Richardson Hill Road Landfill site.

This HASP documents the policies and procedures which protect workers and the public from potential hazards posed by work at this site and is a key component in the ***SEI Safety Improvement Process.*** SEI considers safety the highest priority during work at a site containing potentially hazardous materials and has established a goal of **zero incidents** for all projects. All projects will be conducted in a manner which minimizes the probability of near misses, equipment/property damage or personal injury. This HASP is a key element in the proper planning of project work, which is necessary to assure the goal of **zero incidents** is achieved. It will be reviewed prior to initiating each task listed in Section 1.2 and as often as may be necessary to provide for the health and safety of each site worker. The HASP Certification (Appendix A) will be signed by all that actively participate at this project.

Note: This Site Safety and Health Plan has been designed for the methods presently contemplated by Shaw Environmental, Inc. (SEI) for the execution of the proposed work. Therefore, this HASP may not be appropriate if the work is not performed by or using the methods presently contemplated by SEI.

Although this plan focuses on the specific work activities planned for this site, it must remain flexible because of the nature of this work. Conditions may change and unforeseen situations may arise that require modifications from the original plan. Therefore SEI only makes representations or warranties as to the adequacy of the HASP for currently anticipated activities and conditions. This flexibility allows modification by the SEI supervisors and health and safety officials with approval from the Project CIH. All changes to procedures in this plan will be documented in writing using the form provided in Appendix B.

1.1 SITE HISTORY

The Richardson Hill Road Landfill (RHRL) site is located in the Towns of Sidney and Masonville, Delaware County, New York. The site is located in a rural residential area on Richardson Hill Road, approximately 3.3 miles south-southwest of Sidney Center. The RHRL site consists of the main landfill, South Pond, Herrick Hollow Creek, and the North Area.

The main landfill is approximately eight acres in size and is situated along a hillside above a marsh and the South Pond. The landfill was used primarily for the disposal of municipal refuse. Located within the landfill is a waste oil pit, approximately 25 feet wide by 105 feet long by 14 feet deep, which was formerly used for disposal of waste oils. Some of the disposed oils allegedly contained volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs).

The landfill operated from approximately July 1964 until October 1968. Waste materials deposited in the landfill consisted primarily of garbage and municipal refuse from the Town of Sidney. In addition to municipal waste, spent oils from the Scintilla Division of the Bendix Corporation, a predecessor to Honeywell and Amphenol, were disposed in the landfill from approximately July 1964 until July 1966. The spent oils were reportedly disposed as free liquids in the waste oil disposal pit.

Based on the results of a USEPA site investigation and a New York State Department of Environmental Conservation (NYSDEC) Phase II investigation, the RHRL site was listed on the National Priorities List (NPL) on July 1, 1987.

1.2 SCOPE OF WORK

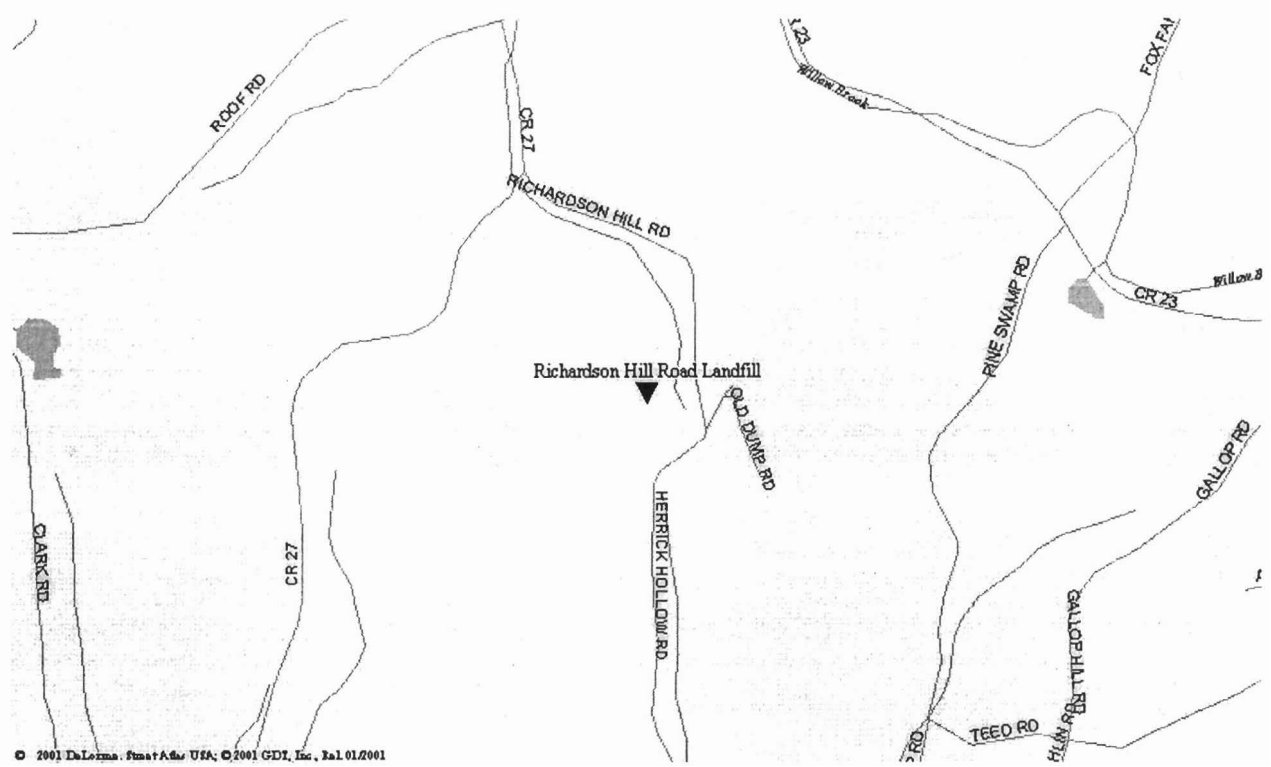
The principal tasks to be conducted are listed below.

- Mobilization/demobilization
- Access road installation/improvement
- Sampling activities
- Survey activities
- Install erosion controls
- Clearing and grubbing
- Water pump and transfer (pump around)
- Soil and sediment excavation
- Soil/sediment stabilization
- Truck load-out activities
- Install groundwater collection trench/pipe installation
- Backfill activities
- Construct TSCA cell
- Install landfill cap
- Well closure
- Equipment decontamination
- Site restoration

These activities have been analyzed for potential hazards for which control measures are provided in Section 3.5 Activity Hazard Analysis.

This HASP has been prepared for the above scope of work. Any changes to the scope of work will require amendment of the plan to remain approved. The Site Health and Safety Amendment Documentation form (Appendix B) will be used for all revisions/amendments to this plan.

FIGURE 1.1
SITE MAP



2.0 KEY PERSONNEL

The Regional Director, Project Director, Project Manager, Site Supervisor (SS), Project Certified Industrial Hygienist (CIH), and Site Safety Officer (SSO) share responsibilities for formulating and enforcing health and safety requirements, and implementing the HASP. This section outlines the responsibilities of each of these key personnel, SEI Employees and Subcontractors. Table 2.1 summarizes Key Requirement Areas for key personnel.

2.1 PROJECT MANAGER (PM)

The PM has the overall responsibility for the project and to assure that the requirements of the contract are attained in a manner consistent with the HASP requirements. The PM will coordinate with the SS and the SSO to assure that the work is completed in a manner consistent with the HASP. The PM will conduct a periodic health and safety audit of the project using the **Project Safety Management Systems Review** form as required (see Appendix G). The PM reports to the Project Director. Specific Key Requirement Areas (KRA's) for safety performance are listed in Table 2.1.

2.2 SITE SUPERVISOR (SS)

The SS is responsible for field implementation of the HASP and Site Emergency Response and Contingency Plan. The SS is responsible for field implementation of the HASP and will act as the SSO in his/her absence. The SS reports to the Project Manager. Specific Key Requirement Areas (KRA's) for safety performance are listed in Table 2.1.

2.3 SITE SAFETY OFFICER

The SSO is authorized to administer the HASP. The SSO's primary operational responsibilities include personal and environmental monitoring, coordination of job safety analyses, selection and care of personal protective equipment, assignment of protection levels, review of work permits and observation of work activities. The SSO is authorized to stop work when an imminent health or safety risk exists. The SSO will review the essential safety requirements with all on-site personnel and will facilitate the daily safety meetings. The SSO reports to the Project CIH. Specific KRAs for SSO performance include:

- Monitoring workers for signs of stress, such as cold exposure, heat stress, and fatigue.
- Reevaluating site conditions on an on-going basis. Coordinating protective measures including engineering controls, work practices and personal protective equipment.
- Assisting the SS in the preparation, presentation and documentation of daily safety meetings.
- Conducting and preparing reports of daily safety inspections of work processes, site conditions, equipment conditions and submitting to SS. Discussing any necessary corrective actions with the SS and reviewing new procedures.
- Initiating revisions of the HASP as necessary for new tasks or modifications of existing operations and submitting to the Project CIH for approval (see Appendix B).
- Performing air monitoring as required by the Site Specific Health and Safety Plan.
- Assisting the PM and SS in incident investigations.

Table 2.1
Commercial Engineering & Construction Group
SAFETY IMPROVEMENT PROCESS
KEY REQUIREMENT AREAS

Key Requirement Areas (KRA's)	Key Personnel		
	Site Supervisor	Project Director / Project Manager / Business Line Lead	Regional Director
Job Safety Analyses (HS045 Appendix M)	Develop/Implement for each task	Assure/Review during site visits	Promote Use; Assure/Review forms during site visits
Safety Observation Program (Appendix J)	Implement As Required (See Procedure)	Assure/Review during site visits	Promote Use; Assure/Review forms during site visits
HASP (HSO 52)	Implement	Request /Review	Assure/Review use during site visits
Incident Reports (HSO 20)	Complete forms; Notify Key Personnel Submit forms to PM and H/S Manager (See Flow Chart/Checklist)	Review/Sign forms; Participate in ARB	Assure/Review; Sign ARB forms
Site Safety Inspection Reports (HSO 21)	Complete 1 x/mo.; Submit to PM and H/S Manager	Complete 1 x/mo. Submit to H/S Manager	Assure/Review forms during site visits
Project Safety Management Systems Review (PSMSR)	Participate in review; Complete any opportunities for improvement	Complete: <1 Month – NA >1<3 Months – 1 Report >3 Months – Every 90 Days; Submit to R.D. & H/S Manager for review	Complete: 1 Report each month (Any Project); Assure PM reports are complete/on time; Review/Sign PM's reports
Safety Councils (HSO 18)	Implement on projects w ≥ 20 personnel & ≥60 days in duration (2 x/month)	Review/Participate in Project Safety Councils; Participate in Office/ Area Safety Councils (1 x/month)	Promote/Assure Project Safety Councils as required; Develop/Implement Area Safety Councils (1 x/month); Participate in Business Line (CE&CG) Safety Council (Every 2 months)
Safety & Health Awareness and Recognition Program (SHARP; Appendix F)	Implement on all projects > 1 month continuous if not participating in an office SHARP	Develop Programs; Sign forms/submit for approval	Promote/Assure Use; Approve Programs for Office SHARP s and Project SHARP s

- Preparing permits for special operations, e.g., hot work, confined spaces, line breaking, etc.
- Maintaining site safety records.

- Conducting weekly inspections of all fire extinguishers, supplied air respirators, first-aid kits and eye washes/emergency showers.
- Ensuring that project management/ purchasing has pre-qualified sub contractors during the bidding stage. Informing subcontractors of the elements of the HASP/contractor pre-job safety checklist.
- Coordinating the preparation of Job Safety Analyses (HS045) with the SS, team leader, and work crew
- Coordinating the daily Safety Observer Program (see Appendix J).
- Coordinating the Site Specific Safety & Health Awareness and Recognition Program (SHARP) with Project Manager and Supervisor (see Appendix F).

  Coordinating the Site Safety Council on an as necessary basis.

2.4 PROJECT CERTIFIED INDUSTRIAL HYGIENIST (CIH)

The Project CIH is responsible for reviewing the HASP and ensuring that the HASP is complete and accurate. The Project CIH provides technical and administrative support and will be available for consultation when required. If necessary, the CIH will direct modifications (Appendix B) to specific aspects of the HASP to adjust for on-site changes that affect safety. The SSO will coordinate with the CIH on necessary modifications to the HASP. The CIH may make periodic site visits to determine compliance. The Project CIH reports to the Vice President Construction and the Corporate Health and Safety Manager.

2.5 EMPLOYEE SAFETY RESPONSIBILITIES

Each employee is responsible for personal safety as well as the safety of others in the work area and is expected to participate fully in the ***Safety Improvement Process***, particularly the Safety Observation Program. Employees will use all equipment provided in a safe and responsible manner as directed by the SS. All SEI personnel will follow the policies set forth in the SEI Health and Safety Procedures Manual, with particular emphasis on the SEI "Cardinal Safety Rules." Site personnel concerned with any aspect of health and safety shall bring it to the attention of the SS/SSO. If not satisfied, they should contact the Director, Health and Safety (see Section 2.7). All project personnel have the authority to stop work if in their judgement serious injury could result from continued activity. The SS and the SSO shall be notified immediately if this becomes necessary. To protect the health and safety of all personnel, employees that knowingly disregard safety policies/procedures will be subject to disciplinary actions.

Specific requirements include:

- Reading the HASP and any amendments prior to the start of on-site work.
- Providing documentation of medical surveillance and training to the SS/SSO prior to the start of work
- Attending the pre-entry briefing prior to beginning on-site work as well as other scheduled safety meetings.

- Bringing forth any questions or concerns regarding the content of the HASP to the SS/SSO prior to the start of work.
- Reporting all potentially dangerous situations, incidents, injuries, and illnesses, regardless of their severity, to the SS/SSO.
- Complying with the requirements of this HASP and the requests of the SS/SSO.
- Participating in the Safety Observer Program.

2.6 SUBCONTRACTOR HEALTH AND SAFETY

This section of the HASP outlines general requirements for subcontractors including adoption of the SEI HASP, correction of safety violations, and other general requirements.

2.6.1 Adoption of Shaw Environmental, Inc. HASP

If a subcontractor of this project chooses to adopt SEI's Health and Safety Plan, the subcontractor shall acknowledge this with the signature of a designated representative on a letter accepting the plan or on the "Subcontractor Health and Safety Plan Acknowledgement" form in Appendix A. The letter (or signed form) must be provided prior to that subcontractor's commencing work activities at the site. The subcontractor must make an independent determination of the applicability of SEI's HASP to his/her work and must comply with all applicable statutes, federal, state and local regulations and codes. SEI Corporation does not warrant that SEI's plan will be sufficient for the subcontractor's work.

If the subcontractor adopts the SEI HASP, this HASP becomes their responsibility to implement as it pertains to their work. The subcontractor assumes all liabilities for such adoption and implementation. All subcontractor personnel will read and sign the Shaw Environmental, Inc. HASP.

If a subcontractor chooses to develop its own HASP, the subcontractor will provide a copy for SEI to review within five (5) days of award of this subcontract or at least 5 days prior to commencement of work activities at the site, which ever occurs last. The subcontractor will insure his/her HASP will be in compliance with SEI's HASP, all appropriate federal, state and local regulations.

In either case, the subcontractor will prepare a written summary of job hazards, e.g., Activity Hazard Analysis or Job Safety Analysis for all major tasks they will perform on site and submit them to the SEI SSO for review prior to the start of that task.

Prior to the starting of work on this project all subcontractor personnel will receive the site orientation from the SSO. The Subcontractor Pre-job Safety Checklist will be completed and signed by the subcontractor field supervisor (see Appendix A). All subcontractor safety related incidents including near misses, shall be reported to the SEI SSO immediately.

2.6.2 Correction of Safety Violations

Every employer on the project site has an obligation to prevent or correct hazards and to protect all employees from exposure to such conditions if they exist. To assure these obligations are being met, subcontractors will be subject to periodic inspection by SEI. The subcontractor will be notified in writing if a safety violation is observed. The subcontractor shall have these violations corrected within the time frame noted and shall sign and enter the date on which the item was corrected and return the signed inspection reports so items can be rechecked. Failure to correct the violations and to return the signed inspection reports may result in termination of contract.

2.6.3 General Safety Requirements:

Additionally, the subcontractor is responsible for assuring the following:

- Designating a safety representative to work with the SEI SSO.
- Providing SEI with written procedures for the specific tasks they will perform; e.g. JSA.
- Issuing confined space entry permits, if necessary, to their employees and submitting copies to the SSO for review.
- Performing all the necessary air monitoring to support confined space entry requirements.
- Ensuring, via daily inspections, that all work conditions, practices and equipment are free of hazards
- Providing SSO with copies of material safety data sheets (MSDS) for all hazardous materials brought on-site.
- Providing all the required personal protective equipment for their employees.
- Participating in the daily safety meeting.
- Reporting all safety incidents, including near misses, first aid, medical, equipment, vehicle, property and environmental to the SEI SSO, immediately.

2.7 KEY SAFETY PERSONNEL - PHONE NUMBERS

The following individuals share responsibility for health and safety at the site.

Project Manager:	Sid Archinal 609-588-6305 (office)
Site Supervisor:	Scott Sutton
Site Safety Officer:	Charles Green 908-623-0748 (cellular)
Director, Health and Safety/ Project CIH:	Kevin McMahon, M.S., CIH 609-588-6375 (office) 609-273-1457 (cellular) 609-588-6399 (fax)
Corporate Health and Safety Manager:	Troy Allen, CSP 225-932-2579 (office)

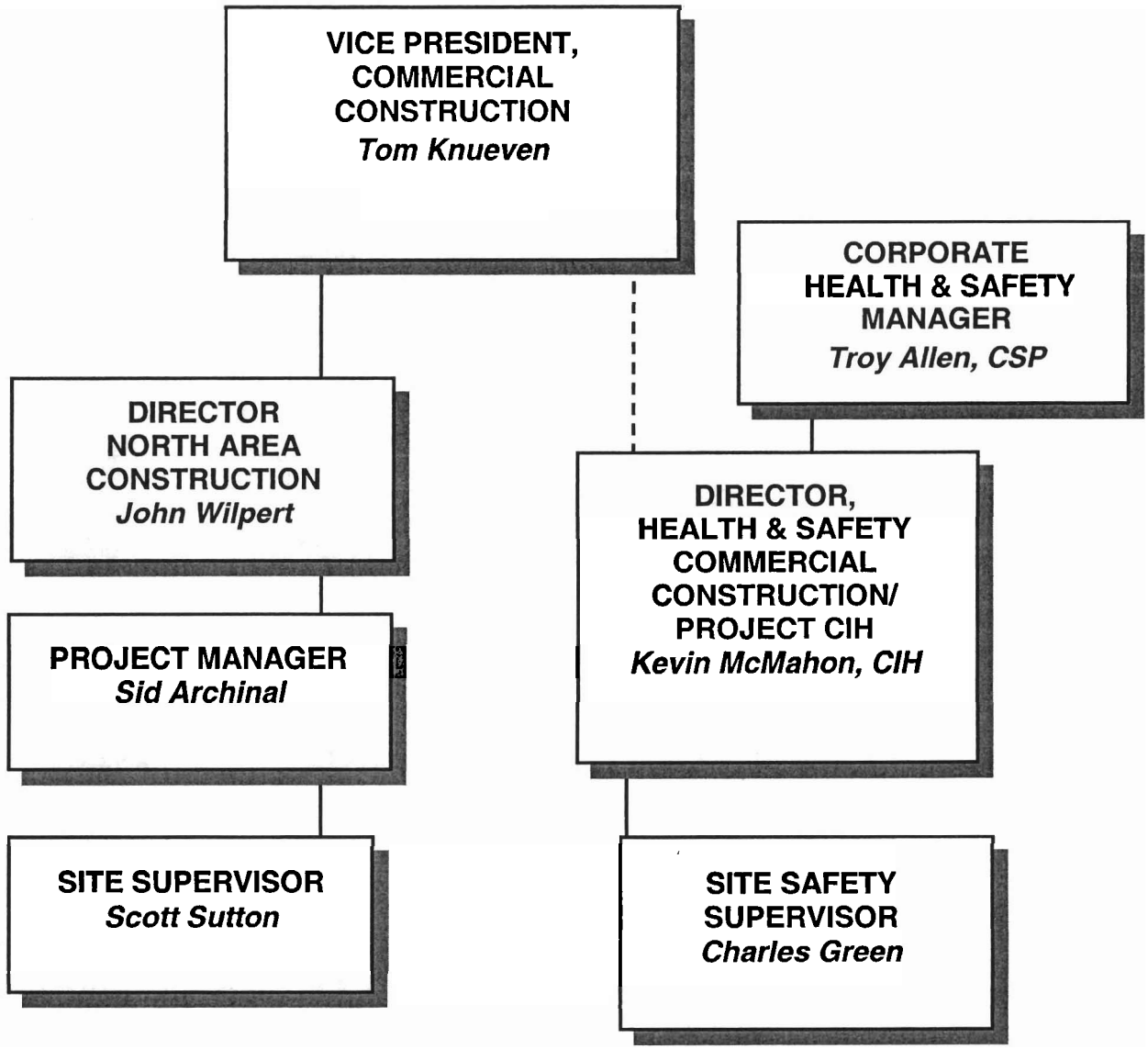


FIGURE 2.1

HEALTH & SAFETY ORGANIZATION
FOR
Richardson Hill Road Landfill
Sidney, New York

Prepared for:
Parsons Engineering Science
Liverpool, New York

3.0 ACTIVITY HAZARD ANALYSIS

This section outlines the potential chemical and physical hazards which workers may be exposed to during work on this project. The assessment of chemical and physical hazards in this section is based on the information provided from project documents. This is a representative list of hazardous materials present at this site. Other chemicals which may be present at the site, which have not yet been identified, shall be considered as unknown, and handled as such unless valid labels or analytical testing results identify the materials. A list of chemicals which may be brought to the site for which an MSDS is necessary is included in Appendix D.

3.1 CHEMICAL HAZARDS

Work at this site may expose workers to VOCs including 2-butanone, carbon disulfide, chlorobenzene, ethylbenzene, toluene, xylene, as well as chlorinated VOCs including 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, tetrachloroethene, 1,1,1-trichloroethane, trichloroethene, vinyl chloride and poly-chlorinated biphenyls and dust. Exposures are possible from inhalation of vapors/particulates and skin contact associated with soil/sediment excavation, sampling, materials load-out and/or placement in TSCA cell during site intrusive activities. Hazard information for these compounds is listed below.

CHEMICAL	EXPOSURE ROUTES	PEL/ TLV	HEALTH HAZARDS/ PHYSICAL HAZARDS
2-Butanone (Methyl Ethyl Ketone)	Skin, eye, inhalation, ingestion	200 ppm 300 ppm STEL	A strong skin and eye irritant; absorbed through intact skin; headache, dizziness, coughing, burning of nose and throat, chronic CNS, liver and kidney damage
			Reacts strongly with oxidizers, acids and organic peroxides; a dangerous fire and explosion hazard, combustion releases toxic gases
Carbon Disulfide	Skin, eye, inhalation, ingestion	1.0 ppm SKIN	A corrosive irritant to skin, eyes, respiratory tract, mucous membranes; dizziness, headache, fatigue, anorexia, psychosis; Parkinson-like syndrome; reproductive effects
			Pyrophoric (can ignite in air), reacts with strong oxidizers, chemically-active metals (sodium, potassium), rust, halogens, amines; releases toxic gases during combustion
Chlorobenzene	Skin, eye, inhalation	10 ppm	Irritation of skin, eyes, mucous membrane, upper respiratory tract; drowsiness, incoherence; CNS depression;
			Reacts with strong oxidizers; emits toxic gases during thermal decomposition
1,1 Dichloro ethane	Skin, Eye, Inhalation, Ingestion	100 ppm	A skin and eye irritant; an experimental carcinogen
			A dangerous fire hazard, heating or combustion will release toxic, phosgene gas

CHEMICAL	EXPOSURE ROUTES	PEL/ TLV	HEALTH HAZARDS/ PHYSICAL HAZARDS
Vinylidene Chloride (1,1-Dichlorothene)	Skin, eye, inhalation, ingestion	5 ppm	Headache, nausea, dizziness, vomiting, drowsiness, unconsciousness; a suspected carcinogen; a systemic poison; a skin, eye, respiratory irritant; contact causes defating of skin tissue
			A dangerous fire and explosion hazard, combustion releases toxic gases; heated gases, vapors from explosive peroxides in contact with air; reacts, forms reactive byproducts in contact with oxidizers, oxidizing acids
1,2 Dichloroethene	Skin, eye, inhalation, ingestion	200 ppm	Irritation from skin contact; headache, nausea, vomiting, dizziness, and central nervous system depression; Long term exposure can effect the kidneys and liver
			Flammable liquid, keep away from sources of ignition. Will liberate toxic phosgene gas and hydrogen chloride when heated; Avoid contact with strong oxidizers and bases, aluminum, ammonia, and nitric acid
Dust, nuisance	Skin, eye, inhalation, ingestion	10.0 mg/m^3 total 3.0 mg/m^3 respirable fraction	A skin, eye and respiratory irritant
			Depending on the composition; may be potentially explosive in confined/contained areas (flour/grain) or relatively inert (sand); can react with strong oxidizers and organic peroxides; thermal decomposition can produce airborne silica and/or toxic gases (depending on the composition)
Ethylbenzene	Skin, eye, inhalation, ingestion	100 ppm STEL 125 ppm	A carcinogen, a strong eye, skin mucous membrane irritant; dermatitis, headache, dizziness, sleepiness, narcosis, coma; CNS depression
			Reacts with strong oxidizers, flammable liquid, releases toxic gases during combustion
Polychlorinated Biphenyls	Skin, eye, inhalation, ingestion	0.5mg/m^3	Irritation of eyes, skin; acne-form dermatitis; potential carcinogen; liver damage
			Reacts with strong oxidizers
Perchloroethylene (Tetrachloroethene)	Skin, eye, inhalation	25 ppm	An animal carcinogen; headache, dizziness, vertigo, narcosis, unconsciousness; a skin and eye irritant, defats skin tissue; affects the CNS
			Hazardous chemical reactions with barium, lithium, beryllium; forms highly toxic and corrosive byproducts from sunlight, thermal decomposition, and exposure to electric arcs
Toluene	Skin, eye, inhalation, ingestion	50 ppm SKIN	Fatigue, weakness, confusion, euphoria, dizziness, headache, dilated pupils, insomnia, numbness/tingling in hands, feet, dermatitis
			Reacts with strong oxidizers; flammable liquid; releases toxic gases during combustion

CHEMICAL	EXPOSURE ROUTES	PEL/ TLV	HEALTH HAZARDS/ PHYSICAL HAZARDS
1,1,1, Trichloro-ethane	Skin, eye, inhalation, ingestion	350 ppm 450 ppm STEL	Headache, dizziness, visual disturbances, tremors, sleepiness, nausea, vomiting, irritation of eyes, dermatitis, cardiac arrhythmia, numbness/tingling of hands, feet, potential carcinogen
			Reacts with strong acids and bases, metals; flammable liquid
Trichloroethylene (Trichloroethene)	Skin, eye, inhalation, ingestion	50 ppm	A skin and eye irritant; dermatitis; headache, vertigo, visual distortion, fatigue, nausea, vomiting, irregular heart rhythm
			A dangerous fire hazard, reacts with strong caustics and chemically reactive metals, will emit toxic phosgene gas when heated
Vinyl Chloride	Skin, eye, inhalation, ingestion	1 ppm	A carcinogen; headache, vertigo, narcosis, collapse; affects CNS; skin and eye irritation
			A severe fire and explosion hazard; reacts with copper, aluminum, and hydroquinone; forms toxic decomposition products when involved with fires or heat; HCl, carbon monoxide, and phosgene
Xylene	Skin, eye, inhalation, ingestion	100 ppm STEL 150 ppm	Dizziness, excitement, drowsiness, incoherent, staggering walking; eye, nose, throat irritation; nausea, vomiting, dermatitis
			Flammable; reacts with strong oxidizers; thermal decomposition releases toxic gases

The following general symptoms may indicate exposure to a hazardous chemical. Personnel will be removed from the work site and provided immediate medical attention if the following symptoms occur:

- Dizziness or stupor
- Nausea, headaches, or cramps
- Irritation of the eyes, nose, or throat
- Euphoria
- Chest pains and coughing
- Rashes or burns

3.2 PHYSICAL HAZARDS

To minimize physical hazards, standard safety protocols will be followed at all times. Failure to follow safety protocols will result in removal of the employee from the site. All personnel shall be familiar with the physical hazards presented by each of the tasks they perform. Task specific hazard analyses are provided in Section 3.5. These hazard analyses shall be reviewed prior to beginning each task and periodically throughout the task. It must be noted that these activity hazard analyses are general in nature. It is the responsibility of the SS to revise and adapt them as necessary to reflect site-specific conditions.

The SS and SSO will observe the general work practices of each crew member and equipment operator, and enforce safe procedures. Work areas will be inspected by the crew leaders, SS and SSO. All hazards will be corrected in a timely manner. A variety of physical hazards may be encountered during work activities at this site. Job Safety Analyses will be developed for each principal activity and will identify all major hazards to which employees may be exposed. Hard hats, safety glasses, and steel-toe safety boots are required in all areas of the site. Site-specific hazards and all necessary precautions will be discussed at the daily safety meetings. The SEI Health and Safety Procedures Manual will be maintained at the project site (or be available electronically) as a reference document.

3.3 ENVIRONMENTAL HAZARDS

Environmental factors such as weather, wild animals, insects, and irritant plants may pose a hazard when performing outdoor tasks. The SSO and SS will take necessary actions to alleviate these hazards should they arise.

3.3.1 Heat Stress

The combination of warm ambient temperature and protective clothing increases the potential for heat stress. Heat stress disorders include:

- Heat rash
- Heat cramps
- Heat exhaustion
- Heat stroke

Heat stress prevention is outlined in procedure HS400 of the SEI Health and Safety Procedures Manual. This information will be reviewed during safety meetings. Workers are encouraged to increase consumption of water and electrolyte-containing beverages; e.g. Gatorade. Heat stress can be prevented by assuring an adequate work/rest schedule. Guidelines are presented below.

In addition, workers are encouraged to take rests and report symptoms whenever they feel any adverse effects that may be heat-related. The frequency of breaks may need to be increased based on worker recommendation to the SSO and SS. Heat stress can be prevented by assuring an adequate work/rest schedule and adequate fluid consumption. A guide for work-rest schedules for various protection levels are given below. The number of hours before a work-rest period is based on experience with similar work. The time periods should be considered maximum. It must also be remembered that individual physical variabilities and differences in physical work activities may require revisions to site plans. This table should be used as a guide. Professional judgment (evaluation of individual work load, ambient weather conditions, worker acclimatization and PPE levels) of the SS and SSO is necessary to assure a fully protective plan to prevent heat stress disorders.

GUIDELINES FOR WORK-REST PERIODS PROTECTION LEVEL NUMBER OF HOURS BEFORE REST PERIOD				
Temperature	**Level D**	**Level C**	**Level B**	**Level A**
90+ F*	2.0	1.5	1.0	0.5
87.5 F	2.5	2.0	1.5	1.0
82.5 F	3.0	2.5	2.0	1.5
77.5 F	3.5	3.0	2.5	1.5
72.5	4.0	3.5	2.5	1.5

**Work above 100 ° F will be reviewed with the Project CIH to determine specific requirements.*

Alternately the work/rest schedule can be calculated based on heat stress monitoring results. Monitoring consists of taking the radial pulse of a worker for 30 seconds immediately after exiting the work area. The frequency of monitoring is described below.

If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by 1/3 and keep the rest period the same. If the heart rate still exceeds 110 beats per minute at the next rest period, increase the following rest period by 1/3. The initial rest period should be at least 5 minutes.

Body temperature, measured orally or through the ear canal, may also be monitored to assess heat stress. Workers should not be permitted to continue work when their body temperature exceeds 100.4 F (38C). Monitoring should be conducted at the beginning of each break period as noted above.

Monitoring for heat stress will begin when the ambient temperature reaches or exceeds 72.5 degrees Fahrenheit when wearing chemical protective clothing (Level C, B, A), or 80 degrees Fahrenheit for site activities performed with no chemical protective clothing (Level D). Monitoring will include pulse rate, weight loss, oral/ or ear canal temperature, signs and symptoms of heat stress and fluid intake. See Procedure HS400 Health and Safety Procedures Manual.

3.3.2 Exposure to Cold

With outdoor work in the winter months, the potential exists for hypothermia and frostbite. Several forms of cold stress as well as preventative measures are described in this section of the HASP.

3.3.2.1 Cold Stress Conditions and Symptoms

Typical cold stress conditions are included in the tables below, including symptoms and first aid precautions. If cold stress conditions develop, professional medical attention will be sought.

TABLE 3.3.1A
COLD WEATHER INJURIES

Cause	Symptoms	First Aid
Frostbite		
Freezing of tissue, normally due to exposure below 32°F	Numbness in affected area. Tingling, blistered, swollen or tender areas. Pale, yellowish waxy-looking skin.	Warm affected area with direct body heat. Consult with medical personnel ASAP. **Do not** thaw frozen area if treatment will be delayed. **Do not** massage or rub affected area. **Do not** wet area or rub with snow or ice.
Chilblain		
Repeated exposure of bare skin for prolonged periods to temperatures 20° to 60°F (for those not acclimated to cold weather).	Swollen, red skin. Tender, hot skin, usually accompanied by itching.	Warm affected area with direct body heat. **Do not** massage or rub. **Do not** wet area or rub with snow or ice. Do not expose affected area to open fire, stove or any other intense heat source.
Immersion Foot (Trench Foot)		
Prolonged exposure of the feet to wet conditions at temperatures between 32° to 50°F. Inactivity and damp socks (or tightly laced boots that impair circulation) speed onset and severity.	Cold numb feet may progress to hot with shooting pains. Swelling redness and bleeding.	Rewarm feet by exposing them to warm air. Evacuate victim to a medical facility. **Do not** massage, rub, moisten or expose affected area to extreme heat source.
Dehydration		
Depletion of body fluids.	Dizziness. Weakness.	Replace lost water. Water should be sipped not gulped. Get medical treatment.
Hypothermia		
Prolonged cold exposure and body heat loss. May occur at well above freezing, especially when a person is immersed in water.	Lack of shivering. Drowsiness, mental slowness, lack of coordination. Can progress to unconsciousness, irregular heartbeat and death.	Strip off clothing and wrap victim in blankets or a sleeping bag. Get victim to a heated location and medical treatment as soon as possible.

In cold weather, the potential for frostbite exists, especially in body extremities. Personnel will be instructed to pay particular attention to hands, feet, and any exposed skin when dressing. Personnel will be advised to obtain more clothing if they begin to experience loss of sensation due to cold exposure.

3.3.2.2 Monitoring and Preventative Actions

Typical cold stress monitoring procedures are included in the tables below, including temperatures to initiate monitoring, protective clothing uses and administrative practices to prevent or reduce the potential for cold stress related injury/illness. For weather conditions below -43 °C or -45 °F with no wind and/or similar conditions (see Work/Warm-up Table) all work will cease.

TABLE 3.3.1B COLD STRESS PREVENTION*		
	Temperature	**Preventative Action**
1	<61°F	Use thermometer to measure ambient temperature.
2	<40°F	Cold weather protective clothing available; check core body temperature at breaks using oral or ear canal thermometer. Maintain core body temperature above 96.8°F to avoid hypothermia.
3	<30°F	Record ambient temperature and wind speed every 4 hours; compare to wind chill chart when below 19.4°F.
4	<19°F	Provide and use heated warming shelters for work breaks and when cold stress symptoms appear.
5	<10°F	Constant observation of workers, i.e. "buddy system"; rest in heated shelters (see work-rest schedule); dry clothing available for changeout; acclimate new workers.
6	<0°F/ >5 mph winds	Obtain medical certification for workers subject to hypothermia risk.

* *Based on "1998 ACGIH Threshold Limit Values... for Physical Agents."*
Note: refer to wind-chill and work-warmup charts attached

TABLE 3.3.1C COLD WEATHER CLOTHING REQUIREMENTS	
1	If wind chill is a factor at a work location, the cooling effect of the wind shall be reduced by shielding the work area or providing employees an outer windbreak layer garment.
2	Extremities, ears, toes, and nose shall be protected from extreme cold by protective clothing.
3	Employees performing light work whose clothing may become wet shall wear an outer layer of clothing which is impermeable to water.
4	Employees performing moderate to heavy work whose clothing may become wet shall wear an outer layer of clothing which is impermeable to water.
5	Outer garments must provide for ventilation to prevent wetting of inner clothing by sweat, or if not possible, a heated shelter for warming/drying clothing, or a change of clothing, shall be provided prior to returning to work in a cold environment.

Protective clothing greatly reduces the possibility of hypothermia in workers. However, personnel will be instructed to wear warm clothing and to stop work to obtain more clothing if they become too cold. Employees will also be advised to change into dry clothes if their clothing becomes wet from perspiration or from exposure to precipitation.

Employees will be instructed to use heated shelters on site, at regular intervals, depending upon the severity of ambient temperatures. Symptoms of cold stress, including heavy shivering, excessive fatigue, drowsiness, irritability, or euphoria necessitate immediate return to the shelter.

TABLE 3.3.1D
COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS EQUIVALENT TEMPERATURE *(under calm conditions)**

Estimated Wind Speed (in MPH)	Actual Temperature Reading (F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind Speeds greater than 40 mph have little additional effect.)	***Little Danger*** In < hr with dry skin. Maximum danger of false sense of security				***Increasing Danger*** Danger of freezing of exposed flesh within one minute.				***Great Danger*** Flesh may freeze within 30 seconds.			
	Trenchfoot and immersion foot may occur at any point on this chart.											

** Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA. (Shaded area) Equivalent chill temperature requiring dry clothing to maintain core body temperature above 36 C (98.6 F) per cold stress TLV.*

TABLE 3.3.1E
TLVS WORK/WARM-UP SCHEDULE FOR FOUR-HOUR SHIFT*

Air Temperature – Sunny Sky		No Noticeable Wind		5 mph wind		10 mph wind		15 mph wind		20 mph wind	
C (appx.)	F (appx.)	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-26 to -28	-15 to -19	Normal	1	Normal	1	75 min	2	55 min	3	40 min	4
-29 to -31	-20 to -24	Normal	1	75 min	2	55 min	3	40 min	4	30 min	5
-32 to –34	-25 to -29	75 min	2	55 min	3	40 min	4	30 min	5	Non-Emergency work should cease	
-35 to –37	-30 to -34	55 min	3	40 min	4	30 min	5	Non-emergency work should cease			
-38 to –39	-35 to -39	40 min	4	30 min	5	Non-emergency work should cease					
-40 to –42	-40 to -44	30 min	5	Non-emergency work should cease							
< -43	< -45	Non-emergency work should cease									

** Adapted from Occupational Health and Safety Division, Saskatchewan Department of Labor*

3.3.3 Biological Hazards

POISON IVY (*Rhus Radicans*)

Poison Ivy may be found at the site. It is highly recommended that all personnel entering into an area with poison ivy wear a minimum of a tyvek coverall, to avoid skin contact.

The majority of skin reactions following contact with offending plants are allergic in nature and characterized by:

- General symptoms of headache and fever
- Itching
- Redness
- A rash

Some of the most common and most severe allergic reactions result from contact with plants of the poison ivy group, including poison oak and poison sumac. Such plants produce severe rash characterized by redness, blisters, swelling, and intense burning and itching. The victim may develop a high fever and feel very ill. Ordinarily, the rash begins within a few hours after exposure, but may be delayed 24 to 48 hours.

A barrier cream, e.g. Stokogard Outdoor Cream (*Stockhausen, Inc.* 1-800-334-0242) should be applied to the exposed skin before entering and working in areas with possible poisonous plants.

Distinguishing Features of Poison Ivy Group Plants

The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each. Both plants have greenish-white flowers and berries that grow in clusters.

First Aid

- Remove contaminated clothing; wash all exposed areas thoroughly with soap and water, followed by rubbing alcohol. 1% hydrocortisone cream (over-the-counter) will aid in healing and reducing itch.
- Apply calamine or other soothing lotion if rash is mild.
- Seek medical advice if a severe reaction occurs, or if there is a known history of previous sensitivity.

Contaminated Clothing

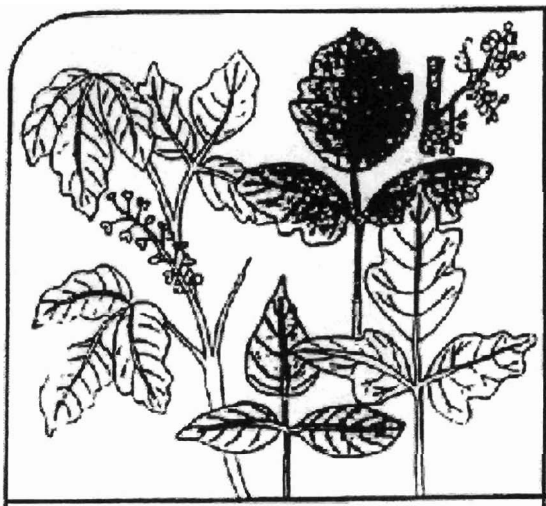
The irritating substances emitted by poison ivy group plants will remain on clothing for prolonged periods of time - up to weeks or months, if not washed thoroughly. It may be necessary to wash contaminated clothing separately and more than once before reusing.

TICKS

Heavily vegetated areas of a site may have ticks. It is highly recommended that all personnel walking through such areas wear a minimum of a tyvek and latex boot covers. The ticks will stand out against the light colors. A tick repellent or insect containing DEET is also recommended.

Ticks can transmit several diseases, including Rocky Mountain spotted fever, a disease that occurs in the eastern portion of the United States as well as the western portion, and Lyme disease. Ticks adhere tenaciously to the skin or scalp. There is some evidence that the longer an infected tick remains attached, the greater is the chance that it will transmit disease.

FIGURE 3.1
POISONOUS PLANTS



COMMON POISON IVY
(RHUS RADICANS)

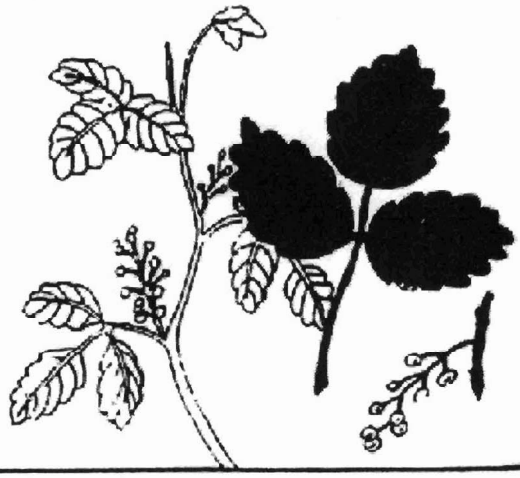
- Grows as a small plant, a vine, and a shrub.
- Grows everywhere in the United States except California and parts of adjacent states. Eastern oak leaf poison ivy is one of its varieties.

Leaves always consist of three glossy leaflets.

- Also known as three-leaf ivy, poison creeper, climbing sumac, poison oak, markweed, picry, and mercury.

WESTERN POISON OAK
(RHUS DIVERSILOBA)

- Grows in shrub and sometimes vine form.
- Grows in California and parts of adjacent states.
- Sometimes called poison ivy, or yeara.
- Leaves always consist of three leaflets.



POISON SUMAC
(RHUS VERNIX)

- Grows as a woody shrub or small tree from 5 to 25 feet tall.
- Grows in most of eastern third of United States.
- Also known as swamp sumac, poison elder, poison ash, poison dogwood, and thunderwood.

First Aid

- Carefully (slowly and gently) remove the tick with tweezers, taking care that all parts are removed.
- With soap and water, thoroughly, but gently, scrub the area from which the tick has been removed, because disease germs may be present on the skin; also wipe the bite area with an antiseptic.
- If you have been bitten, place the tick in a jar labeled with the date, location of the bite, and the location acquired. If any symptom appears, such as an expanding red rash, contact a physician immediately.
- Report any embedded ticks to your SS and SSO.

LYME DISEASE

Lyme disease may cause a number of medical conditions, including arthritis that can be treated if you recognize the symptoms early and see your doctor. Early signs may include a flu-like illness, an expanding skin rash and joint pain. If left untreated, Lyme disease can cause serious nerve and heart problems as well as a disabling type of arthritis.

You are more likely to spot early signs of Lyme disease rather than see the tick or its bite. This is because the tick is so small (about the size of the head of a common pin or a period on this page and a little larger after they fill with blood), you may miss it or signs of a bite. However, it is also easy to miss the early symptoms of Lyme disease.

In its early stage, Lyme disease may be a mild illness with symptoms like the flu. It can include a stiff neck, chills, fever, sore throat, headache, fatigue, and joint pain. But this flu-like illness is usually out of season, commonly happening between May and October when ticks bite.

Most people develop a large, expanding skin rash around the area of the bite. Some people may get more than one rash. The rash may feel hot to the touch and may be painful. Rashes vary in size, shape, and color, but often look like a red ring with a clear center. The outer edges expand in size. It's easy to miss the rash and the connection between the rash and the tick bite. The rash develops from three days to as long as a month after the tick bite. Almost one third of those with Lyme disease never get the rash.

Joint or muscle pain may be another early sign of Lyme disease. These aches and pains may be easy to confuse with the pain that comes from other types of arthritis. However, unlike many other types of arthritis, this pain seems to move or travel from joint to joint.

In later stages, Lyme disease may be confused with other medical problems. These problems can develop months to years after the first tick bite.

Early treatment of Lyme disease symptoms with antibiotics can prevent the more serious medical problems of later stages. If you suspect that you have symptoms of Lyme disease, report it to your supervisor and seek medical attention.

Lyme disease can cause problems with the nervous system that look like other diseases. These include symptoms of stiff neck, severe headache, and fatigue usually linked to meningitis. They may also

include pain and drooping of the muscles on the face, called Bell's Palsy. Lyme disease can also mimic symptoms of multiple sclerosis or other types of paralysis.

Lyme disease can also cause serious but reversible heart problems, such as irregular heartbeat. Finally, Lyme disease can result in a disabling, chronic type of arthritis that most often affects the knees. Treatment is more difficult and less successful in later stages. Researchers think these more serious problems may be linked to how the body's defense or immune system responds to the infection.

3.3.4 Lightning

The procedures provided below will be used to protect site personnel from lightning related injuries.

Training

A tailgate safety meeting will be conducted to increase awareness to the hazards and prevention of lightning related incidents.

Detection of Lightning

The Site Supervisor will be proactive in monitoring conditions that may produce thunderstorms and lightning. A daily and weekly weather forecast will be tracked and communicated to site personnel. When signs of impending storms, i.e., increasing wind, darkening skies, or lightening appear, local weather monitoring will be increased. The National Weather Service (www.nws.noaa.gov/) should be consulted frequently. Personnel will be notified when thunderstorms may impact the site.

The "flash/bang" (f/b) technique of measuring the distance to lightning will be reviewed with all personnel. The f/b technique is defined as: for each five seconds from the time of observing the lightning flash to hearing the associated thunder, the lightning is one mile away.

Suspension/Resumption of Activities

All outside activities will be suspended when a lightning flash is immediately in the area or a f/b of 20 seconds (4 miles away) is noted. Personnel may continue indoor work activities. Outdoor activities will resume when 30 minutes have passed since the last observable f/b is 20 seconds or greater.

Lightning Protection

When notification is given, all outside work activities will stop and personnel will gather in the support zone for a head count and further instructions. Indoor work will continue, except for the use of electrical equipment, telephones and computers. When a safe location is not present and personnel are caught by a sudden lightning event, employees should seek the lowest possible area, away from large objects which might attract lightning or fall over, e.g., trees, utility poles. The employee should assume a crouching position with their head lowered and hands over their ears. AVOID: WATER, HIGH GROUNDS, HEAVY EQUIPMENT AND TALL, ISOLATED OBJECTS.

First Aid

An employee that is struck by lightning needs immediate assistance (call 911). The body will not carry an electrical charge, but receives a sever electrical shock and may be burned. Personnel certified in

first aid/CPR should inspect for shock and burns around fingers, toes, buckles and jewelry. Stay with the injured employee until medical help arrives.

3.3.5 Exposure to Ultra-violet (UV) Radiation (Sunlight)

Exposure to UV radiation can cause skin cancer, premature aging, cell and tissue damage, and eye damage, in the form of cataracts. According to the US Environmental Protection Agency, "scientists have found that overexposure to UV radiation may suppress proper functioning of the body's immune system and the skin's natural defenses.

The procedures provided below will be used to protect site personnel working in outdoor environments from skin burns from exposure to UV radiation (sunlight).

Training

A tailgate safety meeting will be conducted to increase worker awareness to the hazards of over-exposure to UV radiation while working outdoors and the means to reduce the exposure. A review will be conducted of the UV exposure index in the following table. Note: The higher the index number the less exposure to the sun is recommended. The SS should consult the National Weather Service (NWS) for daily forecasts.

NWS / USEPA UV Radiation Index

Index Number	Exposure Level
0 – 2	Minimal
3 – 4	Low
5 – 6	Moderate
7 – 9	High
10+	Very High

Limiting Exposure

The Site Supervisor will be proactive in monitoring conditions that may cause over-exposure to sunlight. A daily UV exposure forecast is issued by the National Weather Service (www.nws.noaa.gov/) and will be communicated to site personnel. Sunscreen will be maintained on site for personnel whose duties require more than 1 hour per day outdoors between 10:00 AM and 4:00 PM (peak sun intensity).

OSHA's recommendations for limiting harmful sun exposure includes: wearing protective clothing that doesn't transmit visible light; broad brimmed hats to protect the face, ears, and neck; and UV ray blocking sun glasses. Workers should also frequently apply sunscreen with a Sun Protection Factor (SPF) of 15 or higher and seek shade if possible when the sun's intensity is at its peak.

According to OSHA, "outdoor workers with fair skin and hair, freckles, numerous moles, and persons who perspire heavily are most susceptible." High altitude locations also increase exposure risk.

Sunscreen

OSHA recommends a sunscreen with a SPF of 15 or higher. The sun protection factor is an indicator of how long you can stay out in the sun without burning. For example, a SPF 15 would increase the time of exposure by 15 times the normal (unprotected) period before burning would occur. The American Academy of Dermatology guideline suggests to get the most out of sunscreen to "re-apply

every two hours, using 1 ounce per application to cover the entire body." Sunscreen should be applied initially 30 minutes before going outside. Some sunscreen products are available that also contain an insect repellant (*Stockhausen* offers sunscreens (SPF 23 and 30) marketed under the Smart Shield brand that contain natural cedar oil rather than the chemical DEET).

First Aid

Workers who are over-exposed to the sun should be given the same treatment as someone who has had a typical 1st degree burn. Workers with 2nd degree burns require medical attention.

3.3.6 Noise

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

Noise monitoring should be conducted during the beginning of each activity, as well as, any time modifications lead to increased noise levels e.g. adding additional equipment. A sound level meter will be used to measure noise levels at selected locations in the work area and on the site perimeter when treatment equipment is operating normally. When used, noise monitoring equipment must be calibrated before and after each shift.

If continuous noise levels are found to exceed 85 dBA at any location within the work area, warning signs will be posted. Workers and visitors will be notified that hearing protection is required. Appropriate hearing protection (e.g., ear plugs) will be worn whenever personnel or visitors are working in that location. A supply of ear plugs will be maintained on site.

Action levels in the following table will trigger the use of appropriate hearing protection (plugs or muffs). Hearing protection must be able to attenuate noise below 90 dBA (8 hour TWA). Each hearing protection or device has a Noise Reduction Rating (NRR) assigned by the USEPA. The calculation for a hearing protection device's effectiveness is: Noise reading dBA – (NRR – 7dB) < 90 Dba

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

3.4 VEHICLE AND HEAVY EQUIPMENT SAFETY MANAGEMENT

3.4.1 Vehicle Safety

Motor vehicle incidents are the number one cause of occupational fatalities, accounting for one in three deaths. Fifty percent or more of vehicle safety incidents occur while backing up. SEI employees involved in the operation and use of SEI and/or leased or rented vehicles will comply with the ***SEI Motor Vehicle/Commercial Vehicle Operation and Maintenance Procedures*** (HS800/810). SEI requires employees to use seat belts at all times when traveling in SEI owned or leased/rented vehicles. The SS and/or SSO will develop a parking area plan, including backing vehicles into parking spaces, using spotters for backing vehicles and policy mandated vehicle inspections.

SEI employees are expected to incorporate safe actions and preparations to avoid vehicle accidents and personal injury during work and off-hours. Breaks should be planned into lengthy job mobilizations and demobilizations, including rotation of drivers at regular intervals. If parking areas are busy or crowded and more than one worker is traveling in the same vehicle, one worker should remain outside the vehicle as it leaves the parking space to assist the driver with traffic observation. Vehicles traveling before dawn and at dusk in rural or wooded areas should be prepared to brake for wildlife, e.g. deer crossing roadways.

SEI employees arriving at work areas should park vehicles away from delivery, heavy equipment and vehicle loading/unloading locations to prevent parked vehicles from damage by various deliveries. Heavy equipment operators should inspect areas and request vehicles to be moved or spotters used if necessary, to maneuver equipment in tight areas. Employees who observe near misses or potential risks to parked or moving vehicles must report these to the SS or SSO immediately.

SEI employees are expected to use the vehicle inspection form and check/test the safety systems on the vehicle on a daily basis. Check the following: brakes, mirrors, seat belts, tires, leakage from the undercarriage, lights and turn signals. Vehicles with safety deficiencies must be reported immediately and not driven until properly repaired. Vehicles running errands from different project sites should have telephone numbers of the job site in the vehicle in case calls for assistance are required.

Because of the different ways alcohol can affect behavior, even in very small amounts, the best and safest course is not to drink before driving. At SEI, a driver with blood alcohol concentration (BAC) over 0.04% is considered to be under the influence and subject to disciplinary action. Personnel involved in motor vehicle incidents are subject to drug and alcohol testing.

Weather conditions can have a profound effect on driving. On slippery roads, drive more slowly. Stop and turn with care. Keep several car lengths from other vehicles. At speeds in excess of 35 mph, the chances of hydroplaning increase with speed. In general, keep back 1 car length for every 10 mph to prevent striking the car ahead.

Vehicles will be operated in accordance with the requirements listed below:

- Seatbelt use is mandatory for all passengers;
- Personnel may not ride in the back of cargo vehicles;
- The driver must make a 360 degree walk around the assigned vehicle prior to vehicle movement;

- A ground guide is used to back up any vehicle;
- Vehicle speed is limited to the posted speed limits for developed roadways, 25 mph maximum on dirt roads and 10 mph maximum off-road (based on conditions);
- Vehicle driven in four wheel low and low gear when on dirt roads or off road driving where steep grades dictate;
- All operators must possess a valid drivers license;
- Fuel or gasoline are not transported inside the passenger compartment;
- No vehicle is left running when unattended; and
- Parking brakes are used when vehicles are parked.

In the event of a vehicle incident, notify your Site Supervisor ***immediately*** and complete all required reports.

3.4.2 Heavy Equipment Safety

Cranes, aerial lifts, forklifts, excavation and other material handling equipment present various physical hazards on remediation sites. The following critical safety practices shall be followed to prevent safety incidents during heavy equipment operation.

- All equipment will be inspected prior to each use.
- All operators will have training or equivalent experience to be permitted to operate heavy equipment.
- Spotters will be used to back-up equipment and direct traffic in all "blind" areas.
- Standard hand signals will be used to communicate between operators and ground crew.
- All heavy equipment will have operable back-up alarms.
- Heavy equipment will be parked in areas where operators will not be exposed to strains or slip/trip/fall hazards during mounting and dismounting of equipment.
- All heavy equipment will be equipped with operable seat belts; belts will be used by all operators.
- Written lifting plans will be developed and reviewed for all critical lifts.

3.5 TASK-SPECIFIC ACTIVITY HAZARD ANALYSES (AHA)

This section of the Site-Specific HASP provides a breakdown of the hazards and control measures for each principal task. These Activity Hazard Analyses are general in nature and must be made project specific by the Site Supervisor prior to each task, using H&S Procedure HS045 (Appendix M). The AHAs will be field checked by the supervisor on an ongoing basis and revised as necessary. All revisions will be communicated to the work crew.

ACTIVITY HAZARD ANALYSIS FOR SITE PREPARATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Equipment/ Facility Set-up	Slips, Trips, Falls	• Clear walkways work areas of equipment, tools, vegetation, excavated material and debris • Mark, identify, or barricade other obstructions • Evaluate fall hazards above 4 ft.; use fall protection equipment (harness/lanyard), standard guardrails or other fall protection systems when working on elevated platforms above 6 ft. • Use "heavy duty industrial" (type IA) ladders • Install and inspect scaffolds according to manufacturers requirements • Only trained operators are permitted to use aerial lifts • Tie-off all straight/extension ladders or manually hold by co-worker at base • Anchorage points for fall arrest systems must support at least 5,400 pounds for each worker • Halt roof, exterior scaffold work in high winds, severe weather	Body harnesses/ lanyard (elevated platforms above 6 ft.)	
	Struck By/ Against Heavy Equipment	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals	Warning vests, Hard hat, Safety glasses, Steel toe work boots	
	Burns	• Wear proper work gloves, face shield/safety goggles, and leather apron to protect workers from skin burns when welding, cutting, and burning • Inspect burning/welding equipment, lines, valves, hoses before using equipment • Post fire watch for remote locations • Follow Hot Work permit procedures included in HS314	Tinted face shield (see Section 5.0)	

ACTIVITY HAZARD ANALYSIS FOR SITE PREPARATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Equipment/ Facility Set-up (Continued)	Sharp Objects	• Wear cut resistant work gloves when lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	Electrical Shock	• De-energize or shut off utility lines at their source before work begins • Use double insulated or properly grounded electric power-operated tools • Maintain tools in a safe condition • Provide an equipment-grounding conductor program or employ ground-fault circuit interrupters • Use qualified electricians to hook up electrical circuits • Inspect all extension cords daily for structural integrity, ground continuity, and damaged insulation • Cover or elevate electric wire or flexible cord passing through work areas to protect from damage • Keep all plugs and receptacles out of water • Use approved water-proof, weather-proof type if exposure to moisture is likely • Inspect all electrical power circuits prior to commencing work • Label all electrical boxes > 200 volts with circuit voltage • Follow Lockout-Tagout procedures in accordance with SEI Health and Safety Procedures # HS315	Lockout/Tagout Devices	Voltage Meter or Tic Tracer
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists to exceed 85 db A TWA	Ear plugs	Sound Level Meter

ACTIVITY HAZARD ANALYSIS FOR SITE PREPARATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Equipment/ Facility Set-up (Continued)	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads • Avoid carrying heavy objects above shoulder level • Avoid actions/activities that contribute to overexertion • Warm up muscles before engaging in manual lifting activities • Review lifting posture/techniques regularly at safety meeting		
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

JOB SAFETY ANALYSIS FOR ACCESS ROAD CONSTRUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Access Road Construction	Struck by/ Against Heavy Equipment, Protruding Objects	• Wear reflective warning vests when exposed to vehicular traffic • Avoid equipment swing areas • Make eye contact with operators before approaching equipment • Barricade or enclose the work area • Restrict entry to the work area to authorized personnel during paving activities • Understand and review hand signals	Warning vests, Hard hat, goggles, face shield, Steel-toe work boots	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Slips, Trips, Falls	• Clear walkways, work areas of equipment, tools, debris, & other materials • Mark, identify, or barricade other obstructions • Use 3 point contact when ascending/descending heavy equipment • Park heavy equipment on level ground to avoid potential sprains/strains when ascending/descending		
	Inhalation and Contact with Dusts and Particulates, Contact Dermatitis	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Apply water spray to road surfaces to minimize/eliminate fugitive dust • Wear PPE to avoid skin contact with contaminated soil, or other skin irritants • Monitor breathing zone air to determine levels of contaminants	Tyvek coveralls, Cotton or equivalent gloves, duct tape bottom of coveralls to boots or latex boot covers* Hard hat, Steel-toe boots, (See Section 5.0 HASP) *Required for clear and grub activities only	

JOB SAFETY ANALYSIS FOR ACCESS ROAD CONSTRUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Access Road Construction (Continued)	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

ACTIVITY HAZARD ANALYSIS FOR SOIL AND SEDIMENT SAMPLING				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Soil and Sediment Sampling	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Slips, Trips, Falls	• Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris • Mark, identify, or barricade other obstructions		
	Inhalation and Skin Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin • Monitor breathing zone air to determine levels of contaminants • Follow proper procedures for handling/preserving/ packaging/labeling analytical samples; chemicals/ preserving agents • Follow proper decontamination procedures to prevent ingestion of contaminants	Tyvek coveralls, latex or neoprene boots, nitrile gloves (see Section 5.0 HASP)	PID, Mini-RAM, Air sampling sump* (see Section 7.0) *for oil disposal pit excavation and sampling activities
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

ACTIVITY HAZARD ANALYSIS FOR SITE SURVEY ACTIVITIES				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Survey of Site	Struck By/ Against Motor Vehicles/ Operating Equipment	• Wear reflective warning vests when exposed to vehicular traffic • Isolate potential equipment swing areas • Avoid/isolate survey activities in high traffic areas, warehouse ship/receive areas • Make eye contact with vehicle operators before approaching/crossing high traffic areas • Understand and review hand signals • Emphasize The Buddy System where injury potential exists	Hard hat, safety glasses, steel toe work boots	
	Slips, Trips, Falls	• Clear walkways, work areas of equipment and tools • Mark, identify, or barricade other obstructions		
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use • Close doors, windows on heavy equipment to prevent injuries from tree branches and other vegetation	Leather gloves	
	Insect/ Animal Bites	• Review injury potential with workers • Avoid insect nests areas, habitats outside work areas • Emphasize The Buddy System where such injury potential exists • Use insect repellant to protect against sting injuries	Tyvek coveralls, duct tape bottom of coveralls to boots or latex boot covers	

ACTIVITY HAZARD ANALYSIS FOR SITE SURVEY ACTIVITIES				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Survey of Site (Continued)	Contact Dermatitis	• Wear long sleeveshirts / trousers to avoid skin contact with plants or other skin irritants • Identify and review poisonous plants with workers • Avoid unnecessary clearing of plant/vegetation areas • Cover vegetation with plastic(visqueen) where survey position raises exposure potential • Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions	Tyvek coveralls, duct tape bottom of coveralls to boots or latex boot covers (required in areas where poisonous plants may exist)	
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

JOB SAFETY ANALYSIS FOR EROSION CONTROL INSTALLATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Silt Fence, Hay Bale Installation	Slips, Trips, Falls	• Clear walkways, work areas of equipment, tools and debris • Mark, identify, or barricade other obstructions		
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Alergic Reaction	• Identify and review poisonous plants with workers • Provide workers proper skin protection to prevent skin allergic reaction from exposure to hay, contaminated soil, plants, or other skin irritants	Tyvek coveralls, duct tape bottom of coveralls to boots; latex gloves within cotton gloves, if required	
	Struck-by Hand Tools, Flying Debris	• Hold stakes in place with tongs, vice-pliers or other remote grasping tools • Wear safety goggles when using sledge hammer, hatchet, maul or axe	Leather gloves, face shield and goggles	
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter

JOB SAFETY ANALYSIS FOR EROSION CONTROL INSTALLATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Silt Fence, Hay Bale Installation (Continued)	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

JOB SAFETY ANALYSIS FOR CLEARING AND GRUBBING				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Clearing, Grubbing	Struck By/ Against Heavy Equipment	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals	Warning vests, Hard hat, safety glasses, Steel toe work boots	
	Slips, Trips, Falls	• Clear walkways work areas of equipment, tools, vegetation, excavated material and debris • Mark, identify, or barricade other obstructions • Maintain 3 point contact when ascending/descending ladders/ mounting/dismounting from heavy equipment • Halt exterior work in high winds, lightning, severe weather		
	Handling Heavy Objects	• Observe proper lifting techniques • **Obey sensible lifting limits (60** lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Eye Injuries	• Wear face shield, goggles when operating powered clearing / grubbing equipment	Face shield, goggles	
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use • Close doors, windows on heavy equipment to prevent injuries from tree branches and other vegetation	Leather gloves	
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85 dB A TWA	Ear plugs	Sound Level Meter

JOB SAFETY ANALYSIS FOR CLEARING AND GRUBBING				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Clearing, Grubbing (Continued)	Insect/ Snake Bites	• Review injury potential and types of snakes with workers • Avoid insect nests areas, likely habitats of snakes outside work areas • Emphasize The Buddy System where such injury potential exists • Use insect repellant, wear PPE to protect against sting/bite injuries	Tyvek coveralls, duct tape bottom of coveralls to boots or latex boot covers	
	Contact Dermatitis	• Wear PPE to avoid skin contact with contaminated soil, plants, or other skin irritants • Identify and review poisonous plants with workers • Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions	Tyvek coveralls, duct tape bottom of coveralls to boots or latex boot covers (See Section 5.0 HASP)	
	Operations of power clearing tools (brush saws, weed wackers)	• Wear eye, face, hand & hearing protection when operating power clearing equipment • Shut-off / idle power tools walking between work areas • Store flammable liquids in well ventilated areas, away from work areas • Shut off equipment during re-fueling • Allow equipment to cool before re-fueling • Use funnels to avoid fuel spillage • Prohibit smoking while operating clearing equipment • Provide ABC (or equivalent) fire extinguishers for all work areas	Face shield, goggles, leather gloves, ear plugs, Steel toe work boots	
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

ACTIVITY HAZARD ANALYSIS FOR COFFER DAM / PUMP AROUND CONCSTUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Coffer Dam Construction	Slips, Trips, Falls	• Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris • Mark, identify, or barricade other obstructions		
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Struck/ Struck-by Hand Tools, Flying Debris	• Hold stakes in place with tongs, vice-pliers or other remote grasping tools • Wear safety goggles when using sledge hammer, hatchet, maul or axe	Leather gloves, face shield and goggles, steel toe work boots	
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use • Close doors, windows on heavy equipment to prevent injuries from tree branches and other vegetation	Leather gloves	
	Insect/ Snake Bites	• Review injury potential and types of snakes with workers • Avoid insect nests areas, likely habitats of snakes outside work areas • Emphasize The Buddy System where such injury potential exists • Use insect repellant, wear PPE to protect against sting/bite injuries	Tyvek coveralls, duct tape bottom of coveralls to boots or latex boot covers	
	Contact Dermatitis	• Wear PPE to avoid skin contact with contaminated soil, plants, or other skin irritants • Identify and review poisonous plants with workers	Tyvek coveralls, duct coveralls to boots or latex boot covers	

ACTIVITY HAZARD ANALYSIS FOR COFFER DAM / PUMP AROUND CONCSTUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Coffer Dam Construction (Continued)	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment
Water Pump and Transfer	Inhalation and Contact with Hazardous Substances, Splash, Spill and Pressurized Lines and Discharge	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin • Wire tie hose connections closed • Release head pressure before opening hose connections • Monitor breathing zone air to determine levels of contaminants	Poly ethylene-coated Tyvek coveralls, PVC gloves, latex or neoprene boots, air purifying respirator (See Section 5.0 HASP)	LEL/O_2, PID
	Fire/ Explosion from Ignition of flammable vapors	• Test atmospheres with combustible gas meter in areas where flammable materials are handled • Eliminate sources of ignition from the work area • Prohibit smoking • Provide ABC (or equivalent) fire extinguishers in all work and flammable storage areas • Store flammable liquids in well ventilated areas • Prohibit storage, transfer of flammable liquids in plastic containers • Post "NO SMOKING" signs • Store combustible materials away from flammables • Store all compressed gas cylinders upright, caps in place when not in use • Separate Flammables and Oxidizers by 20 feet	Portable fire extinguisher	LEL/O_2, PID
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		

ACTIVITY HAZARD ANALYSIS FOR COFFER DAM / PUMP AROUND CONCSTUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Water Pump and Transfer (continued)	Slips, Trips, Falls	• Clear walkways, work areas, of equipment, vegetation, excavated material, tools and debris • Mark, identify, or barricade other obstructions		
	Struck by/ Against Heavy Equipment, Protruding Objects	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • **Make eye contact with operators** before approaching equipment • Barricade or enclose work areas • Restrict entry to the work area to authorized personnel • Wear hard hats, safety glasses with side shields, and steel-toe safety boots	Warning vests, hard hat, goggles and face shield, steel toe work boots	

ACTIVITY HAZARD ANALYSIS FOR SOIL / SEDIMENT EXCAVATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Excavation of Soil / Sediments	Underground/ Overhead Utilities	• Identify all utilities around the site before work commences • Cease work immediately if unknown utility markers are uncovered • Use manual excavation within 3 feet of known utilities • Utility clearance shall conform with 29 CFR 1926.955 (high voltage >700 kv) 15 feet phase to ground clearance; 31 feet phase to phase clearance		
	Excavation Wall Collapse	• Construct diversion ditches or dikes to prevent surface water from entering excavation • Collect ground water/rain water from excavation and dispose of properly • Store excavated material at least 2 feet from the edge of the excavation; prevent excessive loading of the excavation face • Provide sufficient stairs, ladders, or ramps when workers enter excavations over 4 feet in depth • Place ladders no more than 25 feet apart laterally • Treat excavations over 4 feet deep as confined spaces • Complete confined space permit entry procedure • Monitor atmosphere for flammable/toxic vapors, and oxygen deficiency • Slope, bench, shore, or sheet excavations over 5 feet deep if worker entry is required • Assign a competent person to inspect, decide soil classification, proper sloping, the correct shoring, or sheeting • Inspect excavations (when personnel entry is required) daily, any time conditions change • Provide at least two means of exit for personnel working in excavations	Hard hat, safety glasses, steel toe work boots	

ACTIVITY HAZARD ANALYSIS FOR SOIL / SEDIMENT EXCAVATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Excavation of Soil /Sediments (Continued)	Struck By/ Against Heavy Equipment	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals	Warning vests, hard hat, safety glasses, steel toe work boots	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	Slips, Trips, Falls	• Clear walkways, work areas of equipment, vegetation, excavated material, tools, and debris • Mark, identify, or barricade other obstructions • Evaluate fall hazards above 4 ft.; use fall protection equipment (harness/lanyard), standard guardrails or other fall protection systems when working on elevated platforms above 6 ft. • Use heavy duty industrial (type IA) ladders • Install and inspect scaffolds according to manufacturers requirements • Only trained operators are permitted to use aerial lifts • Tie-off all straignt/extension ladders or manually hold by co-worker at base • Anchorage points for fall arrest systems must support at least 5,400 pounds for each worker		

ACTIVITY HAZARD ANALYSIS FOR SOIL / SEDIMENT EXCAVATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Excavation of Soil /Sediments (Continued)	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	
	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Avoid unnecessary contact with contaminated materials • Review hazardous properties of site contaminants with workers before operations begin • Monitor breathing zone air to determine levels of contaminants • Dampen soil using light water spray to prevent fugitive dust emissions • Cover stockpiled soil with plastic sheeting to prevent fugitive dust emissions • Conduct air monitoring / sampling to determine exposure levels	Tyvek coveralls, nitrile gloves, neoprene boots	LEL/O_2, PID, Mini-RAM, Air sampling pump (see Section 7.0)
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

ACTIVITY HAZARD ANALYSIS FOR SOIL/SEDIMENT STABILIZATION OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Operation Set-up	Inhalation & Contact with Hazardous Substances	• Provide workers proper skin, eye, respiratory & splash protection based on the exposure hazards present • Review hazardous properties of treatment chemicals/ site contaminants with workers before treatment operations begin • Monitor breathing zone air to determine levels of contaminants • Provide emergency eyewash/shower and decontamination area in the event of chemical exposure	Poly-coated Tyvek coveralls, nitrile gloves, latex or neoprene boots (see Section 5.0 HASP)	Mini-RAM
	Struck By/ Against Vehicles & Equipment	• Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals • Isolate areas under suspended loads	Hard hat, Safety glasses, Steel toe work boots	
	Caught In/ Between Moving Parts	• Wear proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and lock-out machinery before maintenance or service		
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	Slips, Trips, Falls	• Clear walkways, work areas of equipment, ground debris, tools, and other materials • Mark, identify, or barricade other obstructions		

ACTIVITY HAZARD ANALYSIS FOR SOIL/SEDIMENT STABILIZATION OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Operation Set-up (Continued)	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
Stabilization Activities	Slips, Trips, Falls	• Clear walkways, work areas of equipment, ground debris, tools, and other materials • Mark, identify, or barricade other obstructions		
	Inhalation & Contact with Hazardous Substances	• Provide workers proper skin, eye, respiratory & splash protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before treatment operations begin • Monitor breathing zone air to determine levels of contaminants • Provide emergency eyewash/shower and decontamination area in the event of chemical exposure • Use water spray to knock down blowing/drifting dust	Tyvek coveralls, nitrile gloves, latex or neoprene boots (see Section 5.0 HASP)	LEL/O_2, PID
	Struck by/Against Heavy Equipment, Protruding Objects	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Wear hard hats, safety glasses with side shields, or goggles with splash shields and steel-toe safety boots • Understand and review hand signals	Warning vests hard hat safety glasses, goggles and face shield, steel toe work boots	
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter

ACTIVITY HAZARD ANALYSIS FOR SOIL/SEDIMENT STABILIZATION OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Stabilization Activities (Continued)	Contact with Portland cement	• Provide workers proper skin, eye, respiratory protection (See Section 5.0 HASP) • Review water treatment chemical MSDSs with workers before treatment operations begin	Tyvek coveralls, nitrile gloves, latex or neoprene boots (see Section 5.0 HASP)	
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

JOB SAFETY ANALYSIS FOR TRUCK LOAD-OUT ACTIVITIES				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Truck Load-out Activities	Struck By/ Against Heavy Equipment	• Wear reflective warning vests when exposed to vehicular traffic • Obey posted speed limits • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals	Warning vests, Hard hat, Safety glasses, Steel toe work boots	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Avoid unnecessary contact with contaminated materials • Review hazardous properties of site contaminants with workers before operations begin • Stay up-wind of soil pile • Monitor breathing zone air to determine levels of contaminants • Dampen soil using light water spray to prevent fugitive dust emissions • Stage stockpile on plastic sheeting • Cover stockpiled soil with plastic sheeting at the end of the shift to prevent fugitive dust emissions • Conduct air monitoring / sampling to determine exposure levels	Tyvek coveralls, nitrile gloves, neoprene boots	Mini-RAM

JOB SAFETY ANALYSIS FOR TRUCK LOAD-OUT ACTIVITIES				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Truck Load-out Activities (Continued)	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	Slips, Trips, Falls	• Clear walk ways, work areas of equipment, tools and debris • Mark, identify, or barricade other obstructions • Use 3 point contact when ascending/descending heavy equipment • Park heavy equipment on level ground to avoid potential sprains/strains when ascending/descending		
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Wear proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition • Keep all guards in place during use • Avoid moving hydraulic, dump or loading equipment		
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

JOB SAFETY ANALYSIS FOR GROUNDWATER COLLECTION INSTALLATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Air Monitoring Devices**
Groundwater Collection Trench Installation	Underground/ Overhead Utilities	• Identify all utilities around the site before work commences • Cease work immediately if unknown utility markers are uncovered • Use manual excavation within 3 feet of known utilities • Utility clearance shall conform with 29 CFR 1926.955 (high voltage >700 kv) 15 feet phase to ground clearance; 31 feet phase to phase clearance		
	Excavation Wall Collapse	• Construct diversion ditches or dikes to prevent surface water from entering excavation • Provide good drainage of area adjacent to excavation • Collect ground water/rain water from excavation and dispose of properly • Store excavated material at least 2 feet from the edge of the excavation; prevent excessive loading of the excavation face • Provide sufficient stairs, ladders, or ramps when workers enter excavations over 4 feet in depth • Place ladders no more than 25 feet apart laterally • Treat excavations over 4 feet deep as confined spaces • Complete confined space permit entry procedure • Monitor atmosphere for flammable/toxic vapors, and oxygen deficiency • Slope, bench, shore, or sheet excavations over 5 feet deep if worker entry is required • Assign a competent person to inspect, decide soil classification, proper sloping, the correct shoring, or sheeting • Inspect excavations (when personnel entry is required) daily, whenever conditions change • Provide at least two means of exit for personnel working in excavations.	Hard hat, Safety glasses, Steel toe work boots	

JOB SAFETY ANALYSIS FOR GROUNDWATER COLLECTION INSTALLATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Air Monitoring Devices**
Groundwater Collection Trench Installation (Continued)	Struck By/ Against Heavy Equipment	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals	Warning vest, Hard hat, Safety glasses, Steel toe work boots	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Slips, Trips, Falls	• Clear walkways, work areas of equipment, vegetation, excavated material, tools, and debris • Mark, identify, or barricade other obstructions • Evaluate fall hazards above 4 ft.; use fall protection equipment (harness/lanyard), standard guardrails or other fall protection systems when working on elevated platforms above 6 ft. • Use "heavy duty industrial" (type IA) ladders • Tie-off all straight/extension ladders or manually hold by co-worker at base • Anchorage points for fall arrest systems must support at least 5,400 pounds for each worker		
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar injuries • Assure guards are in place to protect from these parts of equipment during operation • Provide and use proper work gloves when the possibility of crush, pinch, or other injury may be caused by moving/stationary edges or objects • Maintain all equipment in a safe condition • Keep all guards in place during use		

JOB SAFETY ANALYSIS FOR GROUNDWATER COLLECTION INSTALLATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Air Monitoring Devices**
		• De-energize and lock-out machinery before maintenance or service		
Groundwater Collection Trench Installation (Continued)	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Wizard or similar cut resistant gloves	
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

ACTIVITY HAZARD ANALYSIS FOR BACKFILLING AND COMPACTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitornig Devices**
Backfill and Compact Soils	Slips, Trips, Falls	• Clear walkways, work areas of equipment, tools, construction debris and other materials • Mark, identify, or barricade other obstructions • Maintain three point contact when ascending/ descending heavy equipment		
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Struck by/ Against Heavy Equipment, Flying Debris, Protruding Objects	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Verify proper operation of equipment backup alarms • Barricade or enclose the work area • Restrict work area entry to authorized personnel only during construction activities • Wear hard hats, safety glasses with side shields, and steel-toe safety boots • Understand and review hand signals	Warning vests, Hard hat, Safety glasses, Steel toe work boots	
	Vibration	• Rotate compaction tasks to minimize worker exposure to equipment vibration • Use compactors with vibration dampening devices	leather gloves	
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter

ACTIVITY HAZARD ANALYSIS FOR BACKFILLING AND COMPACTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitornig Devices**
Backfill and Compact Soils (Continued)	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

ACTIVITY HAZARD ANALYSIS FOR TSCA LANDFILL CELL CONSTRUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
TSCA Landfill Cell Construction	Slips, Trips, Falls	• Clear walkways, work areas of equipment, tools, construction debris and other materials • Mark, identify, or barricade other obstructions		
	Sprains and Strains	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads • Control pulling, placement of sludge bed liner materials • Prohibit running, jumping during placement of liner materials		
	Struck by/ Against Heavy Equipment, Flying Debris, Protruding Objects	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Barricade or enclose the work area • Restrict work area entry to authorized personnel only during construction activities • Wear hard hats, safety glasses with side shields, and steel-toe safety boots • Understand and review hand signals	Warning vests, Hard hat, Safety glasses, steel toe work boots	
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	

ACTIVITY HAZARD ANALYSIS FOR TSCA LANDFILL CELL CONSTRUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
TSCA Landfill Cell Construction (Continued)	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	Electrical Shock	• De-energize or shut off utility lines at their source before work begins • Use double insulated or properly grounded electric power-operated tools • Maintain tools in a safe condition • Inspect all electrical power circuits prior to commencing work • Provide an equipment-grounding conductor program or employ ground-fault circuit interrupters • Use qualified electricians to hook up electrical circuits • Inspect all extension cords daily for structural integrity, ground continuity, and damaged insulation • Cover or elevate electric wire or flexible cord passing through work areas to protect from damage • Keep all plugs and receptacles out of water • Use approved water-proof, weather-proof type if exposure to moisture is likely • Follow Lockout-Tagout procedures in accordance with SEI Health and Safety Procedures # HS315	Lockout-Tagout Devices	Voltage Meter or □Tic□ Tracer

ACTIVITY HAZARD ANALYSIS FOR TSCA LANDFILL CELL CONSTRUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
TSCA Landfill Cell Construction (Continued)	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Provide and use proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and lock-out machinery before maintenance or service		
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment
Berm Construction	Slips, Trips, Falls	• Clear walkways, work areas of equipment, tools, construction debris and other materials • Mark, identify, or barricade other obstructions		
	Struck by/ Against Heavy Equipment, Flying Debris, Protruding Objects	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Barricade or enclose the work area • Restrict work area entry to authorized personnel only during construction activities • Wear hard hats, safety glasses with side shields, and steel-toe safety boots • Understand and review hand signals	Warning vests, Hard hat, Safety glasses, steel toe work boots	

ACTIVITY HAZARD ANALYSIS FOR TSCA LANDFILL CELL CONSTRUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Berm Construction (Continued)	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

JOB SAFETY ANALYSIS FOR LANDFILL CAP CONSTRUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitornig Devices**
Landfill Cap Construction	Slips, Trips, Falls	• Clear walkways, work areas of equipment, tools, construction debris and other materials • Mark, identify, or barricade other obstructions • Place temporary weights (sand bags) on liner materials if wind conditions are present • Halt cap repairs for high winds/ severe weather		
	Sprains and Strains	• Observe proper lifting techniques • **Obey sensible lifting limits (60** lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads • Control pulling, placement of liner cap materials • Prohibit running, jumping during placement of liner materials • Prohibit over-filling or throwing of sand bags during placement of liner materials		
	Struck by/ Against Heavy Equipment, Flying Debris, Protruding Objects	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • **Make eye contact with operators** before approaching equipment • Require backup alarms on all heavy construction equipment • Barricade or enclose the work area • Restrict work area entry to authorized personnel only • Wear hard hats, safety glasses with side shields, and steel-toe safety boots • Understand and review hand signals	Warning vests, Hard hat, Safety glasses, Steel toe work boots	

JOB SAFETY ANALYSIS FOR LANDFILL CAP CONSTRUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitornig Devices**
Landfill Cap Construction (Continued)	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	Burns	• Use proper work gloves and protective clothing to protect workers from skin burns when heat welding liner seams	Leather gloves	
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Provide and Wear proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and lock-out machinery before maintenance or service		

JOB SAFETY ANALYSIS FOR LANDFILL CAP CONSTRUCTION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitornig Devices**
Landfill Cap Construction (Continued)	Electrical Shock	• De-energize or shut off utility lines at their source before work begins • Use double insulated or properly grounded electric power-operated tools • Maintain tools in a safe condition • Inspect all electrical power circuits prior to commencing work • Provide an equipment-grounding conductor program or employ ground-fault circuit interrupters Use qualified electricians to hook up electrical circuits • Inspect all extension cords daily for structural integrity, ground continuity, and damaged insulation • Cover or elevate electric wire or flexible cord passing through work areas to protect from damage • Keep all plugs and receptacles out of water • Use approved water-proof, weather-proof type if exposure to moisture is likely • Follow Lockout-Tagout procedures in accordance with SEI Health and Safety Procedures # HS315	Lockout-Tagout Devices	Voltage Meter or Tic Tracer
	Inhalation of Dust	• Provide workers with proper respiratory protection • Monitor breathing zone air to determine levels of contaminants • Apply water mist/spray to control fugitive dust	(See Section 5.0 HASP)	Mini-RAM
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

JOB SAFETY ANALYSIS FOR WATER TREATMENT OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
System Set-up	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand cart, truck) to move large awkward loads		
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Wear proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Ensure jewelry is removed, loose clothing is buttoned • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and lock-out machinery before maintenance or service		

JOB SAFETY ANALYSIS FOR WATER TREATMENT OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
System Set-up (Continued)	Struck By/ Against Vehicles & Equipment	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals • Isolate areas under suspended loads	Hard hat, Safety glasses, Steel toe work boots	
	Slips, Trips, Falls	• Clear walkways, work areas of equipment, ground debris, tools, and other materials • Mark, identify, or barricade other obstructions		
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment
System Operation & Maintenance	Inhalation & Contact with Hazardous Substances	• Provide workers proper skin, eye, respiratory & splash protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before treatment operations begin • Monitor breathing zone air to determine levels of contaminants	Tyvek coveralls, nitrile gloves, latex or neoprene boots (see Section 5.0 HASP)	LEL/O_2, PID
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Wear proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and lock-out machinery before maintenance or service		

JOB SAFETY ANALYSIS FOR WATER TREATMENT OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
System Operation & Maintenance (Continued)	Slips, Trips, Falls	• Clear walkways, work areas of equipment, ground debris, tools, and other materials • Mark, identify, or barricade other obstructions • Clean up spills immediately		
	Pressurized Vessels, Hoses, Lines	• Prepare written operating instructions for water treatment system • Train all water treatment operators in conducting site operations • Assign qualified engineer to design water treatment system • Prepare process flow diagram and P and I D • All changes to equipment and procedures approved by qualified engineer • All water treatment system components shall be designed according to applicable codes • Maintain equipment according to manufacturer's recommendations • Wire quick connections, temporary lines closed before operating	Hard hat, face shield and goggles	
	Flammable, Toxic, Oxygen deficient Atmospheres	• Test vessel atmosphere for flammable/toxic vapors, and oxygen deficiency • Obtain Confined Space Entry Permit signed by Supervisor/Safety Officer • De-energize, lock-out and tag all energized equipment • Provide written rescue plan • Review hazardous properties of site contaminants with entrants, safety observer before starting work • Review emergency procedures before work commences • Provide safety observer outside vessel • Wear proper level of PPE for the type of atmospheric contaminants • Use body harness, safety belt with tripod winch for	Tyvek coveralls, nitrile gloves, latex or neoprene boots (see Section 5.0 HASP)	LEL/O_2; PID

JOB SAFETY ANALYSIS FOR WATER TREATMENT OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
		possible rescue		
System Operation & Maintenance (Continued)	Electrical Shock	• De-energize or shut off utility lines at their source before work begins • Use double insulated or properly grounded electric power-operated tools • Maintain tools in a safe condition • Provide an equipment-grounding conductor program or employ ground-fault circuit interrupters • Use qualified electricians to hook up electrical circuits • Inspect all extension cords daily for structural integrity, ground continuity, and damaged insulation • Cover or elevate electric wire or flexible cord passing through work areas to protect from damage • Keep all plugs and receptacles out of water • Use approved water-proof, weather-proof type if exposure to moisture is likely • Inspect all electrical power circuits prior to commencing work • Follow Lockout-Tagout procedures in accordance with SEI Health and Safety Procedures # HS315	Lockout-Tagout Devices	Voltage Meter or Tic Tracer
	Fires	• Eliminate sources of ignition from the work area • Prohibit smoking • Provide ABC (or equivalent) fire extinguishers for all work and flammable storage areas, fuel powered generators and compressors • Store flammable liquids in well ventilated areas • Prohibit storage, transfer of flammable liquids in plastic containers • Post "NO SMOKING" signs • Store combustible materials away from flammables • Store all compressed gas cylinders upright, secure, caps in place when not in use • Separate Flammables and Oxidizers by 20 feet	Portable fire extinguisher	LEL/O_2

JOB SAFETY ANALYSIS FOR WATER TREATMENT OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
		minimum		
System Operation & Maintenance (Continued)	High/Low Ambient Temperature	• Monitor for heat/cold stress in accordance with SEI Health & Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment
Treatment Chemical Handling	Contact with Hazardous Substances	• Provide workers proper skin, eye, respiratory & splash protection based on the exposure hazards present (See Section 5.0 HASP) • Review water treatment chemical MSDSs with workers before treatment operations begin	Tyvek coveralls, nitrile gloves, latex or neoprene boots (see Section 5.0 HASP)	LEL/O_2; PID
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand cart, truck) to move large awkward loads		
	Fires	• Eliminate sources of ignition from the work area • Prohibit smoking in work areas • Provide ABC (or equivalent) fire extinguishers in all work and flammable storage areas, fuel powered generators and compressors • Store flammable liquids in well ventilated areas • Prohibit storage, transfer of flammable liquids in plastic containers • Post "NO SMOKING" signs • Store combustible materials away from flammables • Separate Flammables and Oxidizers by 20 feet minimum	Portable fire extinguisher	LEL/O_2
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	

JOB SAFETY ANALYSIS FOR WATER TREATMENT OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
System Breakdown & Decontamination	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Wear proper work gloves when the possibility of crush, pinch, or other injury may be caused by moving/stationary edges or objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and lock-out machinery before maintenance or service		
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand cart, truck) to move large awkward loads		
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Wear proper work gloves when the possibility of pinching or other injury may be caused by handling/moving large or heavy objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and lock-out machinery before		

JOB SAFETY ANALYSIS FOR WATER TREATMENT OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
		maintenance or service		
System Breakdown & Decontamination (Continued)	Struck By/ Against Vehicles & Equipment	• Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals • Isolate areas under suspended loads	Hard hat, Safety glasses, Steel toe work boots	
	Inhalation & Contact with Hazardous Substances	• Provide workers proper skin, eye, respiratory & splash protection based on the exposure hazards present • Review hazardous properties of site contaminants before starting work • Monitor breathing zone air to determine levels of contaminants	Tyvek coveralls, nitrile gloves, latex or neoprene boots (see Section 5.0 HASP)	LEL/O_2; PID
	Flammable, Toxic, Oxygen deficient Atmospheres	• Test vessel atmosphere for flammable/toxic vapors, and oxygen deficiency • Obtain Confined Space Entry Permit signed by Supervisor/Safety Officer • De-energize, lock-out and tag all energized equipment • Provide written rescue plan • Review contaminant MSDS with entrants and safety observer before starting work • Review emergency procedures before work commences • Provide safety observer outside vessel • Wear proper level of PPE for the type of atmospheric contaminants • Use body harness, safety belt with tripod winch for possible rescue	Tyvek coveralls, nitrile gloves, latex or neoprene boots (see Section 5.0 HASP)	LEL/O_2; PID
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter

JOB SAFETY ANALYSIS FOR WATER TREATMENT OPERATIONS				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
System Breakdown & Decontamination (Continued)	High/Low Ambient Temperature	• Monitor for heat/cold stress in accordance with SEI Health & Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

JOB SAFETY ANALYSIS FOR MONITORING WELL CLOSURE				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Air Monitoring Devices**
Monitoring Well Closure	Slips, Trips, Falls	• Clear walkways, work areas of equipment, debris and excavated materials • Mark, identify, or barricade other obstructions • Halt exterior work in high winds, severe weather		
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	Handling Heavy Objects (piping/ casings)	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads • Move long sections of piping/casing with at least two workers or mechanical equipment • Add tag lines to loads, if necessary, to minimize side-to-side movement • Prohibit workers from standing on top of piping during loading/unloading/transferring pipe or rolling stock • Stand clear of rolling stock/piping; do not attempt to stop rolling piping • Use slip handles to move slips; prohibit kicking slip handles into place		
	Eye Injuries	• Wear face shield, goggles when operating powered clearing / grubbing equipment	Face shield, goggles	
	Flammable, Toxic Emissions	• Monitor for flammable/toxic vapors, particulates, and gases • Wear proper level of PPE for the type of atmospheric contaminants	Portable fire extinguishers	LEL/O_2, PID, Mini-RAM

JOB SAFETY ANALYSIS FOR MONITORING WELL CLOSURE				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Air Monitoring Devices**
Monitoring Well Abandonment (Continued)	Underground Utilities	• Identify all underground utilities around the excavation site before work commences • Cease work immediately if unknown utility markers are uncovered		
	Struck by, Against Heavy Equipment, Protruding Objects, Splashes	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Wear hard hats, safety glasses with side shields, face shields and goggles, and steel-toe safety boots • Understand and review hand signals • Chock piping/rolling stock stored on trailers/racks/etc to prevent rolling	Warning vest, Hard hat Safety glasses, steel toe work boots	
	Equipment Failure	• Inspect drilling equipment daily according to manufacturer's specifications • Block and level drilling equipment before use • Insure equipment not in use is properly stored • Examine fittings, drive rods, hydraulic lines for condition and wear		
	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin • Monitor breathing zone air to determine levels of contaminants	Tyvek coveralls, nitrile gloves, latex or neoprene boots (see Section 5.0 HASP)	LEL/O_2, PID, Mini-RAM
	Insect/ Snake Bites	• Review injury potential and types of snakes with workers • Avoid insect nests areas, likely habitats of snakes outside work areas • Emphasize The Buddy System where such injury potential exists • Use insect repellant, wear PPE to protect against	Tyvek coveralls, duct tape bottom of coveralls to boots or latex boot covers	

JOB SAFETY ANALYSIS FOR MONITORING WELL CLOSURE				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Air Monitoring Devices**
		sting/bite injuries		
Monitoring Well Abandonment (Continued)	Contact Dermatitis	• Wear PPE to avoid skin contact with contaminated soil, plants, or other skin irritants • Identify and review poisonous plants with workers • Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions	Tyvek coveralls, duct tape bottom of coveralls to boots or latex boot covers (See Section 5.0 HASP)	
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Wear proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and lock-out machinery before maintenance or service		
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

ACTIVITY HAZARD ANALYSIS FOR EQUIPMENT DECONTAMINATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Equipment Decontamination	Slips, Trips, Falls	• Clear walkways, work areas of equipment, vegetation, tools and debris • Mark, identify, or barricade other obstructions • Maintain 3 point contact when mounting/dismounting heavy equipment		
	Struck by/Against Heavy Equipment, Protruding Objects	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • **Require backup alarms on** all heavy construction equipment • Make eye contact with operators before approaching equipment • Understand and review hand signals	Warning vests, hard hat safety glasses, goggles and face shield, steel toe work boots	
	Inhalation and Contact with Hazardous Substances, & Splashes	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin • Wear hard hats, safety glasses with side shields, or goggles with splash shields and steel-toe safety boots	PVC rain suit or Tyvek coveralls, hard hat safety glasses, goggles and face shield, nitrile or latex gloves, neoprene or latex boots (See Section 5.0 HASP)	
	Burns	• Wear proper gloves, face shield/safety goggles, shin and toe guards, and splash suits to protect workers from skin burns and injury when operating laser (high pressure washers)	Goggles and face shield, shin and toe guards	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		

ACTIVITY HAZARD ANALYSIS FOR EQUIPMENT DECONTAMINATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Equipment Decontamination (Continued)	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

ACTIVITY HAZARD ANALYSIS FOR SITE RESTORATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Monitoring Devices**
Site Restoration	Struck by/ Against Heavy Equipment, Protruding Objects	• Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Wear hard hats, safety glasses with side shields, or splash/face shields and goggles, and steel-toe safety boots at all times • Understand and review hand signals	Warning vests, Hard hat, Safety glasses, Steel toe work boots	
	Slips, Trips, Falls	• Clear, walkways of equipment, tools, debris, other materials • Mark, identify, or barricade other obstructions		
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85dBA TWA	Ear plugs	Sound Level Meter
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb per person for manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

4.0 WORK AND SUPPORT AREAS

To prevent migration of contamination from personnel and equipment, work areas will be clearly specified as designated below prior to beginning operations. Each work area will be classified in accordance with NIOSH/OSHA/USCG/EPA'S document *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.* Each work area will be clearly identified using signs or physical barriers.

4.1 EXCLUSION ZONE

The EZ is the area suspected of contamination and presents the greatest potential for worker exposure. Personnel entering the area must wear the mandated level of protection for that area. In certain instances, different levels of protection will be required depending on the tasks and monitoring performed within that zone. The EZ for this project will include the soil excavation locations adjacent to the existing landfill cell the excavation areas of the south pond and the identified segments of the Herrick Hollow Creek, and the truck loading / staging areas and the interior of the completed TSCA and non-TSCA on-site disposal locations unless otherwise stipulated by the SSO.

4.2 CONTAMINATION - REDUCTION ZONE

The CRZ or transition zone will be established between the EZ and SZ. In this area, personnel will begin the sequential decontamination process required to exit the EZ. To prevent off-site migration of contamination and for personnel accountability, all personnel will enter and exit the EZ through the CRZ. The CRZ for this project will be the access/egress routes to/from the EZ and the personnel and equipment decontamination stations.

4.3 SUPPORT ZONE

The SZ serves as a clean, control area. Operational support facilities are located within the SZ. Normal work clothing and support equipment are appropriate in this zone. Contaminated equipment, or clothing will not be allowed in the SZ. The support facilities should be located upwind of site activities. There will be a clearly marked controlled access point from the SZ into the CRZ and EZ that is monitored closely by the SSO and the SS to ensure proper safety protocols are followed. The SZ will be the crew trailer, office trailers and the parking and visitor access ways to the project site.

4.4 SITE CONTROL LOG

A log of all personnel visiting, entering or working on the site shall be maintained in the main office trailer location. The log will record the date, name, company or agency, and time entering or exiting the site.

No visitor will be allowed in the EZ without showing proof of training and compliance with the medical monitoring requirements, per 29 CFR 1910.120(e), (f). Visitors will supply their own boots and respiratory equipment, if required. Visitors will attend a site orientation given by the SSO and sign the HASP.

4.5 GENERAL

The following items are requirements to protect the health and safety of workers and will be discussed in the safety briefing prior to initiating work on the site.

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand to mouth transfer and ingestion of contamination is prohibited in the EZ and CRZs.
- Hands and face must be washed upon leaving the EZ and before eating, drinking, chewing gum or tobacco and smoking or other activities which may result in ingestion of contamination.
- A buddy system will be used. Hand signals will be established to maintain communication.
- During site operations, each worker will consider himself as a safety backup to his partner. Off-site personnel provide emergency assistance. All personnel will be aware of dangerous situations that may develop.
- Visual contact will be maintained between buddies on site when performing hazardous duties.
- No personnel will be admitted to the site without the proper safety equipment, training, and medical surveillance certification.
- All personnel must comply with established safety procedures. Any staff member who does not comply with safety policy, as established by the SSO or the SS, will be immediately dismissed from the site.
- Proper decontamination procedures must be followed before leaving the site.
- All employees and visitors must sign in and out of the site.

5.0 PROTECTIVE EQUIPMENT

This section specifies the levels of personal protective equipment (PPE) which are or may be required for each principal activity performed at this site. All site personnel must be trained in the use of all PPE utilized.

5.1 ANTICIPATED PROTECTION LEVELS

The following protection levels have been established for the site work activities based on the information provided from the site walk through, concerning the levels of site contaminants and the scope of work. Results of site air monitoring and visual inspection of the work activities may indicate the need for changes in final PPE level(s). Changes in the initial PPE Levels prescribed in the Table below require completion of the HASP amendment form in Appendix B.

Task	Initial PPE Level	Upgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
Site Setup, Site road repairs/ construction, Survey, Erosion controls installation, Clear and grub, Cell construction, cap construction, backfill and restoration	Level D	Level D+	Some activities require Tyvek coveralls to prevent contact with poisonous plants, insects and site contaminants (see specific AHAs)	None	Hard-hat, Steel-toe work boots, safety eyewear (safety glasses with side shields or goggles and face shield), leather work gloves and hearing protection >85 dBA
Water pump and transfer, Excavation, Stabilization, Load-out, Sampling, Groundwater collection, Piping installation, well closure	Level D+	Level C	Tyvek coveralls or Poly-coated Tyvek coveralls if contact with contaminants are likely	Initial: None Upgrade: Full-face air purifying respirator	Hard-hat, safety glasses, Steel-toe work boots, latex gloves, leather work gloves for material handling, latex boots and hearing protection >85 dBA
Excavation activities in oil pit area	Level C	Level D+	Tyvek coveralls	Initial: Full-face air purifying respirator Downgrade: None	Hard-hat, Steel-toe work boots, latex gloves, leather work gloves for material handling, latex boots and hearing protection >85 dBA

Task	Initial PPE Level	Upgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
Equipment Decontamination	Level D+	—	PVC rain suit or Tyvek coveralls	None	Hard-hat, safety glasses/face shield, Steel-toe work boots, latex gloves, leather work gloves for material handling, latex boots and hearing protection >85 dBA
General SZ Activities	Level D	—	None	None	Hard-hat, Steel-toe work boots, leather work gloves, Safety glasses w/ side shields

5.2 PROTECTION LEVEL DESCRIPTIONS

This sections lists the minimum requirements for each protection level. Modification to these requirements may have been noted above.

5.2.1 Level D

Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots
- Work clothing as prescribed by weather
- Leather work gloves when performing materials handling tasks

5.2.2 Modified Level D (D+)

Modified Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots
- Nitrile, neoprene, PVC, or latex booties
- Outer nitrile, neoprene, or PVC gloves over latex sample gloves, leather gloves for material handling
- Face shield (when projectiles or splashes pose a hazard)
- Tyvek coverall [Poly-coated Tyvek overalls will be required when workers have a potential to be exposed to contaminated liquids or sediments.]

5.2.3 Level C

Level C consists of the following:

- Survivair Full-face, air-purifying respirator with appropriate cartridges
- Hooded Tyvek coveralls or Poly-coated Tyvek coveralls will be required when workers have a potential to be exposed to contaminated liquids or sediments.)
- Hard hat
- Steel-toed work boots
- Nitrile, neoprene, or latex overboots
- Nitrile, neoprene, or PVC gloves over latex sample gloves
- Face shield (when projectiles or splashes pose a hazard)

5.3 AIR-PURIFYING RESPIRATORS

A NIOSH approved Survivair full-face respirator with 1053 air purifying cartridges will be used for level C work.

5.4 RESPIRATOR CARTRIDGES

The SEI workers in Level C will wear Survivair respirators equipped with 1053 cartridges (AG/OV/P100) approved for the following contaminants:

- Organic vapors <1,000 ppm
- Chlorine gas <10 ppm
- Hydrogen chloride <50 ppm
- Sulfur dioxide <50 ppm
- Dusts, fumes and mists with a TWA <0.05 mg/m^3
- Asbestos-containing dusts and mists
- Radionuclides

5.5 CARTRIDGE CHANGE-OUT SCHEDULE

All cartridges will be changed a minimum of once daily or more frequently if personnel begin to experience increased inhalation resistance or immediately if breakthrough of a chemical warning property (e.g. eye, nose, throat irritation or odor). The SSO will review this requirement after monitoring the employee's breathing zone for site contaminants and will revise this schedule as may be necessary to avoid over-exposure. Use of cartridge respirators in environments with actual exposure over an OSHA PEL for a particular substance will require consultation with the Project CIH to determine specific cartridge change-out schedules.

5.6 INSPECTION AND CLEANING

Respirators shall be checked periodically by a qualified individual and inspected before each use by the wearer. All respirators and associated equipment will be decontaminated and hygienically cleaned after each use.

5.7 FIT TESTING

Annual respirator fit tests are required of all personnel wearing negative-pressure respirators. The test will use isoamyl acetate or irritant smoke. The fit test must be for the style and size of the respirator to be used. Quantative fit-testing is required for use of respirators in chemical environments where the respirator effective use limit exceeds 10 times the PEL/TLV (exposure of 1 ppm inside the respirator for 10 ppm outside the respirator). Therefore, quantitative fit-testing is dependent on the PEL/TLV of the chemical substance involved. Quantitative fit-testing is required for potential exposure to air-borne particulate levels that exceed 10 times the established PEL or TLV, whichever is the more stringent.

5.8 FACIAL HAIR

No personnel who have facial hair which interferes with the respirator's sealing surface will be permitted to wear a respirator and will not be permitted to work in areas requiring respirator use.

5.9 CORRECTIVE LENSES

Normal eyeglasses cannot be worn under full-face respirators because the temple bars interfere with the respirator's sealing surfaces. For workers requiring corrective lenses, special spectacles designed for use with respirators will be provided. Contact lenses are permitted to be used with full-face respirators based on a decision by the Occupational Safety and health Administration (OSHA).

5.10 MEDICAL CERTIFICATION

Only workers who have been certified by a physician, as being physically capable of respirator usage will be issued a respirator. Personnel unable to pass a respiratory fit test or without medical clearance for respirator use will not be permitted to enter or work in areas on site that require respiratory protection. Employees will receive a written physicians opinion that they are fit for general hazardous waste operations as per 29 CFR 1910.120(f)(7).

5.11 SITE SPECIFIC PERSONAL PROTECTIVE EQUIPMENT (PPE) PROGRAM

The primary objective of the PPE program is to ensure employee protection and to prevent employee exposure to site contaminants during site operations. Engineering controls are not feasible for many tasks and, therefore, require the use of PPE.

The SS will be responsible for monitoring all aspects of the PPE program. This includes donning and doffing, temperature related stress monitoring, inspection, and decontamination (see Section 6.0). Initial PPE requirements are identified in Table 5.1 for each specified task. The SS in consultation with the SSO, and the Project CIH will direct changes in PPE based on changing conditions. This Site Specific HASP will serve as written certification that the workplace was evaluated concerning PPE requirements by competent personnel. Shaw Environmental, Inc.'s comprehensive PPE Program is described in Appendix E.

5.11.1 Site-Specific Respiratory Protection Program

The primary objective of respiratory protection is to prevent employee exposure to atmospheric contamination. When engineering measures to control contamination are not feasible, or while they are being implemented, personal respiratory protective devices will be used.

The criteria for determining respirator need have been evaluated based on the site contaminants; expected levels of protection are outlined in Section 5.1. Air monitoring will be conducted to confirm that respiratory protection levels are adequate (Section 7.0). All respirator users will be trained in proper respirator use and maintenance. The SS and SSO will observe workers during respirator use for signs of stress. The SS, SSO and Project CIH will also evaluate this HASP periodically to determine its continued effectiveness with regard to respiratory protection (see Section 5.5 Cartridge change-out schedule). All persons assigned to use respirators will have medical clearance to do so.

6.0 DECONTAMINATION PROCEDURES

This section describes the procedures necessary to ensure that both personnel and equipment are free from contamination when they leave the work site.

6.1 PERSONNEL DECONTAMINATION

Decontamination procedures will ensure that material which workers may have contacted in the EZ does not result in personal exposure and is not spread to clean areas of the site. This sequence describes the general decontamination procedures for Level D modified (D+) and Level C. The specific stages will vary depending on the site, the task, the protection level, etc. Dry decontamination may be used if there is insufficient space to support a full decontamination station as delineated with the steps below and approved by the SSO. The SS and the SSO will ensure that the decontamination procedures are adequate.

Level D+ Decontamination

1. Go to end of EZ
2. Remove and discard latex booties
3. Remove outer gloves and discard
4. Cross into CRZ (dirty side of respirator wash area)
5. Remove protective suit (polycoated/regular tyvek)
6. Remove inner sample gloves and discard
7. Wash face and hands

Level C Decontamination

1. Go to end of EZ
2. Boot wash
   a) Wash outer boots (Tingley or Robars) and stage to let dry; or
   b) Remove and discard latex booties
3. Remove outer gloves and discard
4. Remove outer suit (Saranex/polycoated/regular tyvek)
5. Remove outer sample gloves and discard
6. Cross into CRZ (dirty side of respirator wash area)
7. Remove inner suit and discard, (if applicable)
8. Remove and wash respirator (4 stages)
   a) Soap and water solution
   b) First rinse
   c) Disinfect respirator (1 cap full of bleach to 1 gallon of water)
   d) Final rinse
9. Hang respirator to dry

10. Remove inner sample gloves and discard
11. Wash face and hands
12. Showers will be mandatory at the end of each shift if airborne levels of site contaminants are above their respective PELs

6.1.1 Suspected Contamination

Any employee suspected of sustaining skin contact with chemical materials will first use the emergency shower. Following a thorough drenching, the worker will proceed to the decontamination facility. Here the worker will remove clothing, shower, don clean clothing, and immediately be taken to the first-aid station. Medical attention will be provided as determined by the degree of injury.

6.1.2 Personal Hygiene

Personnel will wash hands, arms, neck and face, following decontamination and before any eating, smoking, or drinking. Showers are mandatory at the end of each shift if worker exposures exceed the 8-hour TWA permissible exposure limits for site contaminants.

6.2 EQUIPMENT DECONTAMINATION

All contaminated equipment will be decontaminated before leaving the site. Decontamination procedures will vary depending upon the contaminant involved, but may include vacuuming, wiping, scraping, hosing, or steaming the exterior of the equipment. Wash fluids will be collected, containerized and sampled prior to disposal. Personnel performing this task will wear the proper PPE as prescribed by the SSO.

6.3 DISPOSAL

All decontamination liquids and disposable clothing will be treated as contaminated waste unless determined otherwise by accepted testing methods. Wastes will be disposed according to state and federal regulations.

7.0 AIR MONITORING

Air monitoring will be conducted in order to characterize personnel exposures and fugitive emissions from site contaminants. Principal contaminants of concern are listed in Section 3.0 of this HASP. The target compounds selected for air monitoring purposes for this site include VOCs and poly-chlorinated biphenyls. Results of air monitoring will be used to ensure the proper selection of protective clothing and equipment, including respiratory protection, to protect on-site personnel and off-site receptors from exposure to unacceptable levels of site contaminants. Descriptions of air monitoring strategies, procedures and equipment are provided below. Modification of this plan, including additional monitoring, may be considered as judged necessary by the Project CIH, in conjunction with the SSO.

7.1 WORK AREA AIR MONITORING

Work area air monitoring at Richardson Hill Road Landfill site will include direct reading methods as well as integrated sampling strategies. Air monitoring will be conducted during all intrusive activities and any construction related activities that can generate dust.

7.1.1 Direct Reading Air Monitoring

During all intrusive activities and any construction related activities that can generate dust, direct reading air monitoring will be performed in the EZ to determine exposure to workers. A summary of air monitoring information is provided in the table below.

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
LEL/O_2	Exclusion Zone (EZ) Excavation areas Equipment Operator (EO), Recovery Tech (RT)	Periodic during Excavation Activities	>10% LEL <20.8% O_2	Stop work; Evacuate area; determine source of readings and take corrective actions ventilate; upgrade to Level B if necessary; continue to monitor
PID	EZ Excavation areas EO, RT	Periodic during Excavation Activities	<1 ppm >1 ppm <2.5 ppm >2.5 ppm*	Level D+ Level C Stop work; consult Project CIH
Mini-RAM (total dust)	EZ Excavation areas, Construction areas EO, RT	Continuous during all potential dust generating activities	< 1.0 mg/m^3 (TWA) ≥ 1.0 mg/m^3 < 2.5 mg/m^3 (TWA) ≥ 2.5 mg/m^3 (TWA)	Level D Level C Stop work; consult Project CIH

* *Sustained levels in the breathing zone for 2 minutes*

7.1.2 Integrated Air Sampling

Integrated air sampling for personnel exposure characterization will be performed during excavation of the oil disposal pit. Samples will be collected on the most at risk Equipment Operator and/or Recovery Technician. Sampling will be conducted for polychlorinated biphenyls using NIOSH Method 5503. A summary of air monitoring information is given in the Table below.

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
Air Sampling Pump PCBs	Breathing Zone Equipment Operator; Recovery Technician	1 Sample at-risk worker (EO and RT); first 3 days of excavation	< 0.5mg/m^3	Work will be performed in Level C; the Project CIH will be contacted if any sample results indicate exposure above the PEL

7.2 PERIMETER AIR MONITORING

Perimeter air monitoring activities will be undertaken for three days prior to the start of construction activities. These air-monitoring activities include real-time monitoring for flammable vapors, toxic vapor and particulate emissions. During construction activities VOC and particulate monitoring will be conducted at 2-hour intervals in accordance with the Parsons HASP (see Parsons HASP, pg 6-3).

7.2.1 Direct Reading Monitoring

Real-time monitoring will consist of continuous dust monitoring at the perimeter of the EZ. VOC monitoring will be performed downwind of the EZ perimeter and at the adjacent properties at two hour intervals. Background sample information will be established prior to the start-up of work activities. Sampling will be conducted daily during all site activities. A summary of air monitoring information is provided in the Table below. Readings that exceed the perimeter action levels will be handled in accordance with Community Air Monitoring Plan contained in the Parsons HASP (see pg 6-3; Section 6.2.6 Community Air Monitoring Plan).

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
PID	EZ Perimeter areas downwind	Two hour intervals during all construction activities	<1 ppm*	Continue normal operations
			≥ 1 ppm* < 5.0 ppm	Halt operations, initiate Vapor Emission Response Plan
			≥ 5.0 ppm	Halt all work and implement the Vapor Emission plan

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
MIE Data Ram Site Perimeter	Upwind and Downwind of EZ Perimeter	Continuous during all construction activities	< 2.5 mg /m^3 (TWA)	Continue normal operations
			≥ 2.5 mg /m^3 (TWA) downwind EZ perimeter	Monitor upwind background level; Implement dust control measures
			≥ 0.100 ug/m^3 (TWA) difference between upwind and downwind background level	Halt all dust producing work until EZ perimeter reading is ≤ 1.0 mg/m^3 (15 minute TWA) and upwind/downwind difference is ≤ 0.100 ug/m^3

**Sustained levels in the breathing zone for 2 minutes*

7.3 INSTRUMENTATION

The following is a description of the air monitoring equipment to be used at this site.

7.3.1 Lower Explosive Limit/Oxygen (LEL/O_2) Meter

7.3.1.1 Types and Operational Aspects

MSA Watchman LEL/O2 Meter or equivalent

Principle of Operation

- Oxygen detector uses an electrochemical sensor; produces a minute electric current proportional to the oxygen content.
- Combustible gas indicators use a combustion chamber containing a filament that ignites flammable vapors; filament is heated or coated with a catalyst (platinum) to facilitate combustion.
- Filament is part of a balanced resistor circuit; combustion in the chamber causes the filament temperature to increase; results in increased filament resistance.
- Change in the filament's resistance causes an imbalance in the circuit proportional to the percent of the lower explosive limit (% LEL).
- Concentrations greater than the LEL and lower than the upper explosive limit (UEL) will read percent combustible atmosphere present.
- Concentrations greater than the UEL will read above 100% LEL then return to zero. (NOTE: Some devices have catchment mechanisms which will cause the needle to remain at 100% until the meter is reset.) This type of response indicates the gas mixture is too rich to burn and

is not combustible. The danger is that the addition of air to the gas mixture could bring it into the flammable range (less than the UEL).

- Oxygen meter set at the factory to alarm at 19.5% (oxygen deficient atmosphere) combustible gas meter set by the user to alarm at 10% LEL.

7.3.1.2 Calibration Methods/Frequencies

Before the calibration of the combustible gas indicator can be checked, the unit must be in operating condition. The combustible gas indicator (LEL) is normally calibrated on pentane as being representative of the flammability characteristics of most commonly encountered combustible gases. The meter scale is calibrated from zero to 100% LEL, which corresponds in actual volume concentrations of 0 to approximately 14% pentane in air. A booklet of response curves is supplied with the Watchman Meter. These curves may be used to interpret meter readings when sampling combustible gases other than pentane.

It is recommended that calibration be checked before and after using each time. The SSO will record and log such calibration information into an air-monitoring notebook. The O_2 meter is calibrated by adjusting the O_2 control to 20.9% while the meter is operated in a fresh air atmosphere.

7.3.1.3 Preventative Maintenance

The primary maintenance of unit is the rechargeable 2.4-volt nickel cadmium battery. Recommended charging time is 16 hours. It may be left on charge for longer periods without damaging the battery. The battery sometimes will not supply full power capacity after repeated partial use between charging. Therefore, it is recommended that the battery be exercised at least once a month by running for eight to 10 hours and recharged. If the instrument has not been used for 30 days, the battery should be charged prior to use.

7.3.2 Photoionization Detector (PID)

7.3.2.1 Type and Operational Aspects

PID Model Photovac 2020 or equivalent

Principle of Operation

- Ionization potential (IP) - The energy required to remove the outermost electron from a molecule; measured in electron volts (eV); characteristic property of a specific chemical.
- Photoionization - Using ultraviolet (UV) light to remove the outermost electron from a molecule.
- Energy of UV light (10.6, 9.5, 11.7 eV) must be equal to or greater than the IP to photoionize the molecule.
- Fan or pump is used to draw air into the detector where the contaminants are exposed to a UV light source (lamp).
- Ions are collected on a charged plate and produce a current directly proportional to the number of ionized molecules; current is amplified and displayed on the meter.

7.3.2.2 Calibration Method/Frequencies

The PID Model 2020 is designed for trace gas analysis in ambient air and is calibrated with certified standards of benzene, vinyl chloride, and isobutylene. Other optional calibrations are available (e.g., ammonia, ethylene oxide, H_2S, etc.).

SEI will use a PID with a 11.7 eV lamp. This lamp has been determined to be most responsive to the contaminants on site. Optional probes containing lamps of 9.5 and 11.7 eV are interchangeable in use within individual read-out assemblies for different applications.

The approximate span settings for the probe that would give different readings of the amounts of trace gas of a particular species in a sample are based upon the relative photoionization sensitivities of various gases twice daily (beginning and end of shift).

It is recommended that calibration be checked twice each day (beginning and end of shift). The SSO will record and log such calibration information into an air-monitoring notebook.

7.3.2.3 Preventative Maintenance

Maintenance of the PID Model 2020 consists of cleaning the lamp and ion chamber, and replacement of the lamp or other component parts or sub-assemblies.

7.3.3 Real-Time Aerosol Monitor (Miniram Model PDM-3 and Model Pr100 Data Ram)

7.3.3.1 Type and Operational Aspects

- Detection of light in the near infrared region back-scattered to a sensor (photovoltaic detector) by airborne particulate in a sensing volume
- The higher the dust concentration the more back-scattering of light to the sensor, resulting in increased readings
- Device calibrated at the factory against an air sampling filter/gravimetric analysis reference method

7.3.3.2 Calibration Methods/Frequencies

There is no calibration method or procedure for calibrating the Mini-RAM monitor. However, it is recommended that the Mini-RAM monitor be re-zeroed once a week. During a zero check, the sampled air passes through the purge air filter and dryer to effect a self-cleaning of the optical chamber.

7.3.3.3 Preventative Maintenance

Maintenance of the Mini-RAM consists of replacement of filters and desiccant; battery replacement; and cleaning of the optical detection assembly.

7.3.4 Gilian Air Sampling Pump (or equivalent)

7.3.4.1 Type and Operational Aspects

- Air sampling pump is calibrated to draw a specified air flow rate (liters per minute) for a designated period of time.

- Volume of air sampled is then calculated as follows:
  - Flow rate (liter/min.) x sample time (min.) = sample volume (liters)

  Use a bubble meter to calibrate air sampling pump; pump equipped with a rotameter that shows the flow rate during the sampling period.
- Equipped with a rechargeable battery for 8-hour average sampling times; must be recharged for at least 16 hours.
  - Collection Media: florsil tube and a glass fiber filter (GFF).

7.3.4.2 Calibration Methods/Frequencies

Flow rate calibration can be accomplished by using primary standard soap and the Gilibrator Calibrator (or equivalent). The Gilibrator calibrator allows rapid flow rate determination with direct read-out on the built-in display.

Connect the sampler to the calibrator, press the ON push button, and then push the plunger to start a bubble up the flow cell. The flow rate is automatically calculated and shown on the display. Subsequent readings are averaged with the previous readings. It is recommended that calibration of the sampler be checked prior to the start of and after each sampling period.

7.3.4.3 Preventative Maintenance

The Gilian air-sampling pump should not require special maintenance or adjustments under normal conditions. However, as with all instruments, the sampling pump does require some basic care. Basic maintenance of the sample pumps consists of filter replacement, installing and removing battery packs, storage conditions, and electronic control assembly.

7.4 AIR MONITORING RECORDKEEPING

The SSO will ensure that all air-monitoring data is logged according to SEI Employee Notification of Industrial Hygiene Monitoring Results (HS 104) and SEI Management of Associate Exposure and Medical Records (HS 102). Data will include instrument used, wind direction, work process, etc. The SEI Project CIH may periodically review this data.

7.5 CALIBRATION REQUIREMENTS

The PID, LEL/O_2 meter and sampling pumps required with fixed-media air sampling will be calibrated daily before and after use. A log will be kept detailing date, time, span gas, or other standard, and name of person performing the calibration.

7.6 AIR MONITORING RESULTS

Air monitoring results will be posted for personnel inspection, and will be discussed during morning safety meetings. Personal air sampling results will be forwarded to the Project CIH.

8.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

8.1 PRE-EMERGENCY PLANNING

Prior to engaging in construction/remediation activities at the site, the SS will plan for possible emergency situations and have available adequate supplies and manpower to respond. In addition site personnel will receive training during the site orientation concerning proper emergency response procedures.

The following situations would warrant implementation of the emergency plan:

Fire/Explosion	• The potential for human injury exists. • Toxic fumes or vapors are released. • The fire could spread on site or off site and possibly ignite other flammable materials or cause heat-induced explosions. • The use of water and/or chemical fire suppressants could result in contaminated run-off. • An imminent danger of explosion exists.
Spill or Release of Hazardous Materials	• The spill could result in the release of flammable liquids or vapors, thus causing a fire or gas explosion hazard. • The spill could cause the release of toxic liquids or fumes in sufficient quantities or in a manner that is hazardous to or could endanger human health.
Natural Disaster	• A rain storm exceeds the flash flood level. • The facility is in a projected tornado path or a tornado has damaged facility property. • Severe wind gusts are forecasted or have occurred and have caused damage to the facility.
Medical Emergency	Overexposure to hazardous materials. • Trauma injuries (broken bones, severe lacerations/ bleeding, burns). Eye/skin contact with hazardous materials. • Loss of consciousness. Heat stress (Heat stroke). Cold stress (Hypothermia). • Heart attack. • Respiratory failure. • Allergic reaction.

The following measures will be taken to assure the availability of adequate equipment and manpower resources:

- Sufficient equipment and materials will be kept on site and dedicated for emergencies only. The inventory will be replenished after each use.

- On-site emergency responders will be current in regards to training and medical surveillance programs. Copies of all applicable certificates will be kept on file for on-site personnel required to respond.
- It will be the responsibility of the emergency coordinator to brief the on-site response team on anticipated hazards at the site. The emergency coordinator shall also be responsible for anticipating and requesting equipment that will be needed for response activities.
- Emergency response activities will be coordinated with the Local Emergency Management Agency (EMA) in compliance with SARA Title III requirements.

Communications will be established prior to commencement of any activities at the remediation site. Communication will be established so that all responders on site have availability to all pertinent information to allow them to conduct their activities in a safe and healthful manner. The primary communication device will be two-way radios. Air horns may be used to alert personnel of emergency conditions. A telephone will be located at the command post to summon assistance in an emergency.

Primary communication with local responders in the event of an emergency will be accomplished using commercial telephone lines.

8.2 EMERGENCY RECOGNITION AND PREVENTION

Because unrecognized hazards may result in emergency incidents, it will be the responsibility of the SS and Site Safety Officer (SSO), through daily site inspections and employee feedback (Safety Observation Program, daily safety meetings, and job safety analyses) to recognize and identify all hazards that are found at the site. These may include:

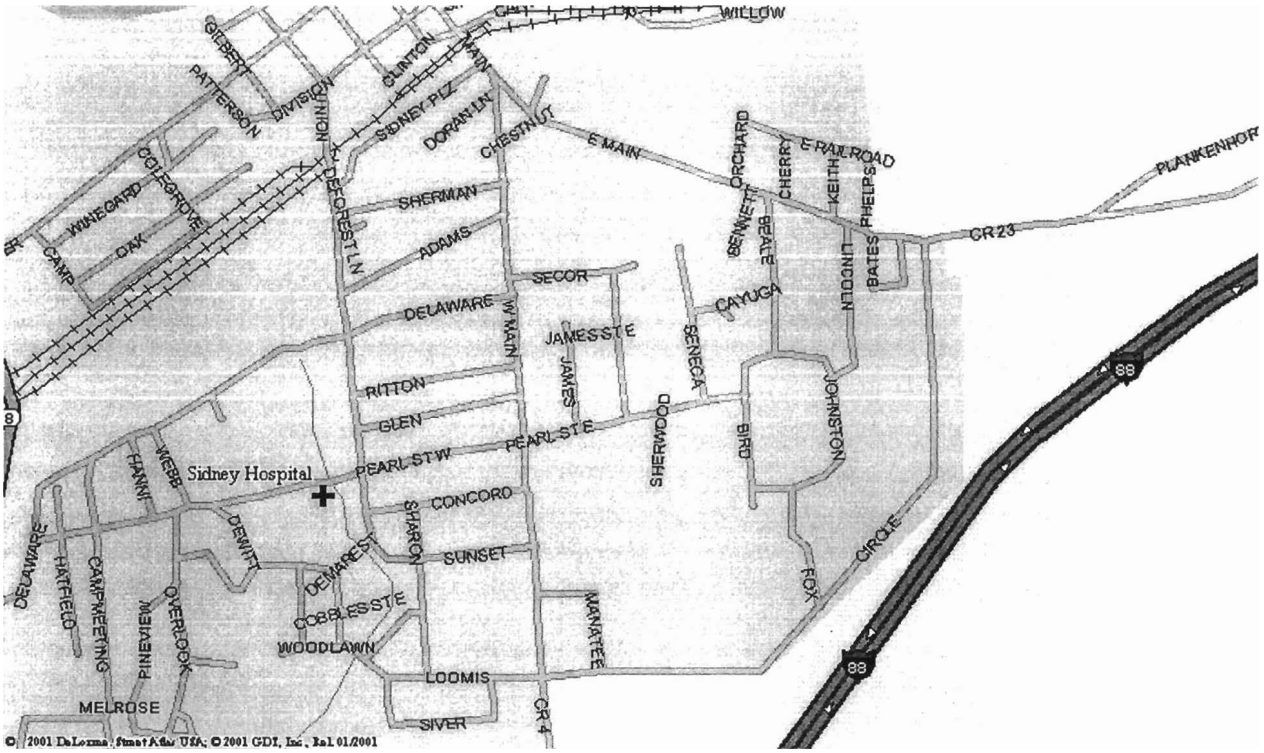
Chemical Hazards	• Materials at the site • Materials brought to the site	
Physical Hazards	• Fire/explosion • Slip/trip/fall • Electrocution	• Confined space • IDLH atmospheres • Excessive noise
Mechanical Hazards	• Heavy equipment • Stored energy system • Pinch points	• Electrical equipment • Vehicle traffic
Environmental Hazards	• Electrical Storms • High winds • Heavy Rain/Snow	• Temperature Extremes (Heat/Cold Stress) • Vehicle traffic

TABLE 8.1 EMERGENCY TELEPHONE NUMBERS	
Local Agencies: Sidney, NY	
Emergency Medical Services	9-1-1
Fire Department	9-1-1
Police Department	9-1-1
Hospital – Sidney Hospital; 43 pearl St W., Sidney, New York 13838	607-563-3512
Directions: From the site follow Richardson Hill Road North; merge Right on to Trout Creek Road; at stop sign turn Left onto Sidney Walton Road; follow to East Main Street, turn Left; follow to West Main and turn Left on West Main; follow to W. Pearl St, turn Right; Hospital is on Left	
Poison Control Center	(800) 336-6997
State Agencies:	
NYSDEC – Mr. Jeffery McCullough	518-402-9623
NYSDOH – Daniel Geraghty	518-402-7890
EPA Region II – Young Chang	212-637-4253
Agency for Toxic Substances and Disease Registry	404-639-0615 (24 hour)
National Response Center	800-424-8802
Additional Site Contacts are listed in the Parsons HASP Table 1	
SEI Personnel:	
Project Manager – Sid Archinal	609-588-6305 (office)
Site Supervisor – Scott Sutton	
SSO – Charles Green	908-623-0748 (cell)
Director, Health and Safety – Kevin McMahon	609-588-6375 (office) 609-273-1457 (cell)
SEI Transportation Spill Emergency Information (CHEM-TEL)	800-255-3924
Shaw Environmental, Inc. (24 hour)	800-537-9540

Additional Phone #'s in Section 2 this HASP

FIGURE 8.1

HOSPITAL ROUTE MAP



Once a hazard has been recognized, the SS and/or the SSO will take immediate action to prevent the hazard from becoming an emergency. This may be accomplished by the following:

- Daily safety meeting
- Task-specific training prior to commencement of activity
- Lock-out/tag-out
- Personal Protective Equipment (PPE) selection/use
- Written and approved permits for hot work, confined space
- Trenching/shoring procedure
- Air monitoring
- Following all SEI standard operating procedures
- Practice drills for fire, medical emergency, and hazardous substances spills

8.3 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATIONS

This section of the ERCP describes the various roles, responsibilities, and communication procedures that will be followed by personnel involved in emergency responses.

The primary emergency coordinator for this site is the SSO. In the event an emergency occurs and the emergency coordinator is not on site, the SS will serve as the emergency coordinator until he arrives. The emergency coordinator will determine the nature of the emergency and take appropriate action as defined by this ERCP.

The emergency coordinator will implement the ERCP immediately as required. The decision to implement the plan will depend upon whether the actual incident threatens human health or the environment.

Immediately after being notified of an emergency incident, the emergency coordinator or his designee will evaluate the situation to determine the appropriate action.

8.3.1 Responsibilities and Duties

This section describes the responsibilities and duties assigned to the emergency coordinator.

It is recognized that the structure of the "Incident Command System" will change as additional response organizations are added. Personnel will follow procedures as directed by the fire department, LEPC, State and Federal Agencies as required. The SSO, in coordination with the local Fire Department chief will assume the role of Incident Commander. Additional on-site personnel may be added to the Site Emergency Response Team as required to respond effectively.

8.3.2 On-Site Emergency Coordinator Duties

The on-site emergency coordinator is responsible for implementing and directing the emergency procedures. All emergency personnel and their communications will be coordinated through the emergency coordinator. Specific duties are as follows:

- Identify the source and character of the incident, type and quantity of any release. Assess possible hazards to human health or the environment that may result directly from the problem or its control.
- Discontinue operations in the vicinity of the incident if necessary to ensure that fires, explosions, or spills do not recur or spread to other parts of the site. While operations are dormant, monitor for leaks, pressure build-up, gas generation, or ruptures in valves, pipes, or other equipment, where appropriate.
- Notify the Client Representative and local Emergency Response Teams if their help is necessary to control the incident. Table 8.1 provides telephone numbers for emergency assistance.
- Direct on-site personnel to control the incident until, if necessary, outside help arrives. Specifically:
- Ensure that the building or area where the incident occurred and the surrounding area are evacuated and shut off possible ignition sources, if appropriate. The Emergency Response Team is responsible for directing site personnel such that they avoid the area of the incident and leave emergency control procedures unobstructed.
- If fire or explosion is involved, notify local Fire Department.
- Have protected personnel, in appropriate PPE, on standby for rescue.

If the incident may threaten human health or the environment outside of the site, the emergency coordinator should immediately determine whether evacuation of area outside of the site may be necessary and, if so, notify the Police Department and the Office of Emergency Management.

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

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

The emergency telephone number for the National Response Center is 800-424-8802.

If hazardous waste has been released or produced through control of the incident, ensure that:

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

- Ensure that all emergency equipment used is decontaminated, recharged, and fit for its intended use before operations are resumed.
- Notify the USEPA Regional Administrator that cleanup procedures have been completed and that all emergency equipment is fit for its intended use before resuming operations in the affected area of the facility. The USEPA Regional Administrator's telephone number is included in the Emergency Contacts.
- Record date, time, details of the incident, and submit a written report to the USEPA Regional Administrator. The report is due to the USEPA within 15 days of the incident.

8.4 SAFE DISTANCES AND PLACES OF REFUGE

The emergency coordinator for all activities will be the SSO. No single recommendation can be made for evacuation or safe distances because of the wide variety of emergencies, which could occur. Safe distances can only be determined at the time of an emergency based on a combination of site and incident-specific criteria. However, the following measures are established to serve as general guidelines.

In the event of minor hazardous materials releases (small spills of low toxicity), workers in the affected area will report initially to the contamination reduction zone. Small spills or leaks (generally less than 55 gallons) will require initial evacuation of at least 50 feet in all directions to allow for cleanup and to prevent exposure. After initial assessment of the extent of the release and potential hazards, the emergency coordinator or his designee will determine the specific boundaries for evacuation. Appropriate steps such as caution tape, rope, traffic cones, barricades, or personal monitors will be used to secure the boundaries.

In the event of a major hazardous material release (large spills of high toxicity/greater than 55 gallons), workers will be evacuated from the building/site. Workers will assemble at the entrance to the site for a head count by their foremen and to await further instruction.

If an incident may threaten the health or safety of the surrounding community, the public will be informed and, if necessary, evacuated from the area. The emergency coordinator, or his designee will inform the proper agencies in the event that this is necessary. Telephone numbers are listed in Table 8.1.

Places of refuge will be established prior to the commencement of activities. These areas must be identified for the following incidents:

- Chemical release
- Fire/explosion
- Power loss
- Medical emergency
- Hazardous weather

In general, evacuation will be made to the crew trailers, unless the emergency coordinator determines otherwise. It is the responsibility of the emergency coordinator to determine when it is necessary to evacuate personnel to off-site locations.

In the event of an emergency evacuation, all the employees will gather at the entrance to the site until a head count establishes that all are present and accounted for. No one is to leave the site without notifying the emergency coordinator.

8.5 EVACUATION ROUTES AND PROCEDURES

All emergencies require prompt and deliberate action. In the event of an emergency, it will be necessary to follow an established set of procedures. Such established procedures will be followed as closely as possible. However, in specific emergency situations, the emergency coordinator may deviate from the procedures to provide a more effective plan for bringing the situation under control. The emergency coordinator is responsible for determining which situations require site evacuation.

8.5.1 Evacuation Signals and Routes

Two-way radio communication and an air horn will be used to notify employees of the necessity to evacuate an area or building involved in a release/spill of a hazardous material. Each crew supervisor will have a two-way radio. A two way radio will be stationed in the SEI office trailer to monitor for emergencies. Total site evacuation will be initiated only by the emergency coordinator, however, in his absence, decision to preserve the health and safety of employees will take precedence. Evacuation routes will be posted in each outside work area. Signs inside trailers will be posted on walls or other structural element of a trailer. Periodic drills will be conducted to familiarize each employee with the proper routes and procedures.

8.5.2 Evacuation Procedures

In the event evacuation is necessary, the following actions will be taken:

- The emergency signal will be activated.
- No further entry of visitors, contractors, or trucks will be permitted. Vehicle traffic within the site will cease in order to allow safe exit of personnel and movement of emergency equipment.
- Shut off all machinery if safe to do so.
- ALL on-site personnel, visitors, and contractors in the support zone will assemble at the entrance to the site for a head count and await further instruction from the emergency coordinator.
- ALL persons in the exclusion zone and contamination reduction zone will be accounted for by their immediate crew leaders (e.g., foreman). Leaders will determine the safest exits for employees and will also choose an alternate exit if the first choice is inaccessible.
- During exit, the crew leader should try to keep the group together. Immediately upon exit, the crew leader will account for all employees in his crew.
- Upon completion of the head count, the crew leader will provide the information to the emergency coordinator.
- Contract personnel and visitors will also be accounted for.
- The names of emergency response team members involved will be reported to the emergency spill control coordinator.
- A final tally of persons will be made by the emergency coordinator or designee. No attempt to find persons not accounted for will involve endangering lives of SEI or other employees by re-entry into emergency areas.

- In all questions of accountability, immediate crew leaders will be held responsible for those persons reporting to them. Visitors will be the responsibility of those employees they are seeing. Contractors and truck drivers are the responsibility of the Site Supervisor. The security guard will aid in accounting for visitors, contractors, and truckers by reference to sign-in sheets available from the guard shack.
- Personnel will be assigned by the emergency coordinator to be available at the main gate to direct and brief emergency responders.
- Re-entry into the site will be made only after clearance is given by the emergency coordinator. At his direction, a signal or other notification will be given for re-entry into the facility.
- Drills will be held periodically to practice all of these procedures and will be treated with the same seriousness as an actual emergency.

8.6 EMERGENCY SPILL RESPONSE PROCEDURES AND EQUIPMENT

In the event of an emergency involving a hazardous material spill or release, the following general procedures will be used for rapid and safe response and control of the situation. Emergency contacts found in Table 8.1 provide a quick reference guide to follow in the event of a major spill.

8.6.1 Notification Procedures

If an employee discovers a chemical spill or process upset resulting in a vapor or material release, he or she will immediately notify the on-site emergency coordinator.

On-site Emergency Coordinator will obtain information pertaining to the following:

- The material spilled or released.
- Location of the release or spillage of hazardous material.
- An estimate of quantity released and the rate at which it is being released.
- The direction in which the spill, vapor or smoke release is heading.
- Any injuries involved.
- Fire and/or explosion or possibility of these events.
- The area and materials involved and the intensity of the fire or explosion.

This information will help the on-site emergency coordinator to assess the magnitude and potential seriousness of the spill or release.

8.6.2 Procedure for Containing/Collecting Spills

The initial response to any spill or discharge will be to protect human health and safety, and then the environment. Identification, containment, treatment, and disposal assessment will be the secondary response.

If for some reason a chemical spill is not contained within a dike or sump area, an area of isolation will be established around the spill. The size of the area will generally depend on the size of the spill and the materials involved. If the spill is large (greater than 55 gallons) and involves a tank or a pipeline rupture, an initial isolation of at least 100 ft. in all directions will be used. Small spills (less than or equal to 55 gallons) or leaks from a tank or pipe will require evacuation of at least 50 ft. in all

directions to allow cleanup and repair and to prevent exposure. When any spill occurs, only those persons involved in overseeing or performing emergency operations will be allowed within the designated hazard area. If possible the area will be roped or otherwise blocked off.

If the spill results in the formation of a toxic vapor cloud (by reaction with surrounding materials or by outbreak of fire) and its release (due to high vapor pressures under ambient conditions), further evacuation will be enforced. In general an area at least 500 feet wide and 1,000 feet long will be evacuated downwind if volatile materials are spilled. (Consult the DOT Emergency Response Guide for isolation distances for listed hazardous materials.)

If an incident may threaten the health or safety of the surrounding community, the public will be informed and possibly evacuated from the area. The on-site emergency coordinator will inform the proper agencies in the event this is necessary. (Refer to Table 8.1)

As called for in regulations developed under the Comprehensive Environmental Response Compensation Liability Act of 1980 (Superfund), a spill of a pound or more of any hazardous material for which a reportable quantity has not been established and which is listed under the Solid Waste Disposal Act, Clean Air Act, Clean Water Act, or TSCA shall be reported.

Clean up personnel will take the following measures:

- Make sure all unnecessary persons are removed from the hazard area.
- Put on protective clothing and equipment.
- If a flammable material is involved, remove all ignition sources, and use spark and explosion proof equipment for recovery of material.
- Remove all surrounding materials that could be especially reactive with materials in the waste. Determine the major components in the waste at the time of the spill.
- If wastes reach a storm sewer, try to dam the outfall by using sand, earth, sandbags, etc. If this is done, pump this material out into a temporary holding tank or drums as soon as possible.
- Place all small quantities of recovered liquid wastes (55 gallons or less) and contaminated soil into drums for incineration or removal to an approved disposal site.
- Spray the spill area with foam, if available, if volatile emissions may occur.
- Apply appropriate spill control media (e.g. clay, sand, lime, etc.) to absorb discharged liquids.

For large spills, establish diking around leading edge of spill using booms, sand, clay or other appropriate material. If possible, use diaphragm pump to transfer discharged liquid to drums or holding tank.

8.6.3 Emergency Response Equipment

The following equipment will be staged in the support zone and throughout the site, as needed, to provide for safety and first aid during emergency responses.

- ABC-type fire extinguisher
- First-aid kit, industrial size

- Eyewash/safety shower
- Emergency signal horn

In addition to the equipment listed above, SEI maintains direct reading instrumentation that may be used in emergency situations to assess the degree of environmental hazard. This equipment will only be used by the Site Safety Officer or other specially trained personnel. This equipment will be stored, charged and ready for immediate use in evaluating hazardous chemical concentrations. The equipment will be located at the SEI office trailer.

EQUIPMENT NAME	APPLICATION
Portable Photoionization Meter	Measures selected inorganic and organic chemical concentrations
Oxygen and Combustible Gas Meter	Measures oxygen and combustible gas levels
Mini-RAM	Measures total particulates in air

8.6.4 Emergency Spill Response Clean-Up Materials and Equipment

A sufficient supply of appropriate emergency response clean-up and personal protective equipment will be inventoried and inspected, visually, on a weekly basis.

The materials listed below may be kept on site for spill control, depending on the types of hazardous materials present on site. The majority of this material will be located in the support zone, in a supply trailer or storage area. Small amounts will be placed on pallets and located in the active work areas.

- Sand or clay to solidify/absorb liquid spills.
- Appropriate solvents e.g. CITRIKLEEN, for decontamination of structures or equipment.

The following equipment will be kept on site and dedicated for spill cleanup:

- Plastic shovels for recovering corrosive and flammable materials.
- Sausage-shaped absorbent booms for diking liquid spills, drains, or sewers.
- Sorbent sheets (diapers) for absorbing liquid spills.
- Overpack drums for containerizing leaking drums.
- 55-gallon open-top drums for containerization of waste materials.

**Note: All contaminated soils, absorbent materials, solvents and other materials resulting from the clean-up of spilled or discharged substances shall be properly stored, labeled, and disposed of off-site.*

8.7 EMERGENCY CONTINGENCY PLAN

This section of the ERCP details the contingency measures SEI will take to prepare for and respond to fires, explosions, spills and releases of hazardous materials, hazardous weather, and medical emergencies.

8.8 MEDICAL EMERGENCY CONTINGENCY MEASURES

The procedures listed below will be used to respond to medical emergencies. The SSO will contact the local hospital and inform them of the site hazards and potential emergency situations. A minimum of two First-Aid/CPR trained personnel will be maintained on site.

8.8.1 Response

The nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident. The work crew supervisor will be summoned.

The work crew supervisor will immediately make radio contact with the on-site emergency coordinator to alert him of a medical emergency situation. The supervisor will advise the following information:

- Location of the victim at the work site

  Nature of the emergency

- Whether the victim is conscious

  Specific conditions contributing to the emergency, if known

The Emergency Coordinator will notify the Site Safety Officer. The following actions will then be taken depending on the severity of the incident:

Life-Threatening Incident – If an apparent life-threatening condition exists, the crew supervisor will inform the emergency coordinator by radio, and the local Emergency Response Services (EMS) will be immediately called. An on-site person will be appointed who will meet the EMS and have him/her quickly taken to the victim. Any injury within the EZ will be evacuated by SEI personnel to a clean area for treatment by (EMS) personnel. No one will be able to enter the EZ without showing proof of training, medical surveillance and site orientation.

- *Non Life-Threatening Incident* – If it is determined that no threat to life is present, the Site Safety Officer will direct the injured person through decontamination procedures (see below) appropriate to the nature of the illness or accident. Appropriate first aid or medical attention will then be administered.

**Note: The area surrounding an accident site must not be disturbed until the scene has been cleared by the Site Safety Officer.*

Any personnel requiring emergency medical attention will be evacuated from exclusion and contamination reduction zones if doing so would not endanger the life of the injured person or otherwise aggravate the injury. Personnel will not enter the area to attempt a rescue if their own lives would be threatened. The decision whether or not to decontaminate a victim prior to evacuation is based on the type and severity of the illness or injury and the nature of the contaminant. For some emergency victims, immediate decontamination may be an essential part of life-saving first aid. For others, decontamination may aggravate the injury or delay life-saving first aid. Decontamination will be performed if it does not interfere with essential treatment.

If decontamination can be performed, observe the following procedures:

- Wash external clothing and cut it away.

If decontamination cannot be performed, observe the following procedures:

- Wrap the victim in blankets or plastic to reduce contamination of other personnel.
- Alert emergency and off-site medical personnel to potential contamination, instruct them about specific decontamination procedures.
- Send site personnel familiar with the incident and chemical safety information, e.g. MSDS, with the affected person.

All injuries, no matter how small, will be reported to the SSO or the SS. An accident/injury/illness report will be completely and properly filled out and submitted to the Health and Safety Director/Project CIH (SEI only).

A list of emergency telephone numbers is given in Table 8.1.

8.8.2 Notification

The following personnel/agencies will be notified in the event of a medical emergency:

- Local Fire Department or EMS
- On-site Emergency Coordinator
- Workers in the affected areas
- Client Representative

8.9 FIRE CONTINGENCY MEASURES

Because flammable/combustible materials are present at this site, fire is an ever-present hazard. SEI personnel and subcontractors are not trained professional firefighters. Therefore, if there is any doubt that a fire can be quickly contained and extinguished, personnel will notify the emergency coordinator by radio and vacate the structure or area. The emergency coordinator will immediately notify the local Fire Department.

The following procedures will be used to prevent the possibility of fires and resulting injuries:

- Sources of ignition will be kept away from where flammable materials are handled or stored.
- The air will be monitored for explosivity before and during hot work and periodically where flammable materials are present. Hot work permits will be required for all such work.
- "No smoking" signs will be conspicuously posted in areas where flammable materials are present.
- Fire extinguishers will be placed in all areas where a fire hazard may exist.
- Before workers begin operations in an area the foreman will give instruction on egress procedures and assembly points. Egress routes will be posted in work areas and exit points clearly marked.

8.9.1 Response

The following procedures will be used in the event of a fire:

- Anyone who sees a fire will notify their supervisor who will then contact the Emergency Coordinator by radio. The emergency coordinator will activate the emergency air horns and contact the local Fire Department.
- When the emergency siren sounds, workers will disconnect electrical equipment in use (if possible) and proceed to the nearest fire exit.
- Work crews will be comprised of pairs of workers (buddy system) who join each other immediately after hearing the fire alarm and remain together throughout the emergency. Workers will assemble at a predetermined rally point for a head count.
- When a small fire has been extinguished by a worker, the emergency coordinator will be notified.

8.10 HAZARDOUS WEATHER CONTINGENCY MEASURES

Operations will not be started or continued when the following hazardous weather conditions are present:

- Lightning
- Heavy Rains/Snow
- High Winds

8.10.1 Response

- Excavation/soil stock piles will be covered with plastic liner.
- All equipment will be shut down and secured to prevent damage.
- Personnel will be moved to safe refuge, initially crew trailers. The emergency coordinator will determine when it is necessary to evacuate personnel to off-site locations and will coordinate efforts with fire, police and other agencies.

8.10.2 Notification

The emergency coordinator will be responsible for assessing hazardous weather conditions and notifying personnel of specific contingency measures. Notifications will include:

- SEI employees and subcontractors
- Client Representative
- Local Emergency Management Agency

8.11 SPILL/RELEASE CONTINGENCY MEASURES

In the event of release or spill of a hazardous material the following measures will be taken:

8.11.1 Response

Any person observing a spill or release will act to remove and/or protect injured/contaminated persons from any life-threatening situation. First aid and/or decontamination procedures will be implemented as appropriate.

First aid will be administered to injured/contaminated personnel. Unsuspecting persons/vehicles will be warned of the hazard. All personnel will act to prevent any unsuspecting persons from coming in contact with spilled materials by alerting other nearby persons. Attempt to stop the spill at the source, if possible. Without taking unnecessary risks, personnel will attempt to stop the spill at the source. This may involve activities such as uprighting a drum, closing a valve or temporarily sealing a hole with a plug.

Utilizing radio communications, the emergency coordinator will be notified of the spill/release, including information on material spilled, quantity, personnel injuries and immediate life threatening hazards. Air monitoring will be implemented by the emergency coordinator and SSO to determine the potential impact on the surrounding community. Notification procedures will be followed to inform on-site personnel and off-site agencies. The emergency coordinator will make a rapid assessment of the spill/release and direct confinement, containment and control measures. Depending upon the nature of the spill, measures may include:

- Construction of a temporary containment berm utilizing on-site clay absorbent earth
- Digging a sump, installing a polyethylene liner and
- Diverting the spill material into the sump placing drums under the leak to collect the spilling material before it flows over the ground
- Transferring the material from its original container to another container

The emergency coordinator will notify the Client Representative of the spill and steps taken to institute clean-up. Emergency response personnel will clean-up all spills following the spill clean-up plan developed by the emergency coordinator. Supplies necessary to clean up a spill will be immediately available on-site. Such items may include, but are not limited to:

- Shovel, rake
- Clay absorbent
- Polyethylene liner
- Personal safety equipment
- Steel drums
- Pumps and miscellaneous hand tools

The major supply of material and equipment will be located in the Support Zone. Smaller supplies will kept at active work locations. The emergency coordinator will inspect the spill site to determine that the spill has been cleaned up to the satisfaction of the Client Representative. If necessary, soil, water or air samples may be taken and analyzed to demonstrate the effectiveness of the spill clean-up effort. The emergency coordinator will determine the cause of the spill and determine remedial steps to ensure that recurrence is prevented. The emergency coordinator will review the cause with the Client Representative and obtain his concurrence with the remedial action plan.

9.0 TRAINING REQUIREMENTS

As a requirement for work at this site, in any hazardous waste work area, all field personnel will be required to take a 40-hour training class. This training must cover the requirements in 29 CFR 1910.120: personal protective equipment, toxicological effects of various chemicals, hazard communication, blood borne pathogens, handling of unknown tanks and drums, confined-space entry procedures, electrical safety, etc. In addition, all personnel must receive annual 8-hour refresher training and three day on-site training under a trained, experienced supervisor. Supervisory personnel shall have received an additional 8-hour training in handling hazardous waste operations.

All personnel entering the exclusion zone will be trained in the provisions of this site safety plan and be required to sign the Site Safety Plan Acknowledgment in Appendix A.

Site-specific training for the Richardson Hill Road Landfill Project will include the topics shown in the table in Section 9.1. Emergency telephone numbers will be posted at the site location before any work at the site begins.

9.1 SITE ORIENTATION

Outlines of the orientation for SEI employees/SEI sub-contract personnel and visitors are presented below:

SEI EMPLOYEES/SUBCONTRACTORS	VISITORS
• HASP sign off • Sign in/out procedures • Site background/characterization • Chain of command • Rules and regulations • Hours of work • Absences • Personal Protective Equipment/respirator fit test (if applicable) • Emergency Information – Emergency signal – Gathering point – Responsibilities/roles – Emergency phone numbers • Site Control/Work Zones • Contaminants and Material Safety Data Sheets (MSDS) [Hazard Communication Program]; symptoms of overexposure • Hazards/AHAs • Air Monitoring Program • Forms, site-specific • Incident Reporting • Training Requirements	• Sign in/out procedures • Site Background/ Characterization • Review of Site map • Work Zones in progress • Hazard Communication • Emergency plan/signals • Training/medical requirements • Zones/areas open to visitors

9.2 DAILY SAFETY MEETINGS

A safety meeting will be conducted by the SS and the SSO before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented on the Standard SEI Tailgate Safety Meeting Form (see Appendix L).

10.0 MEDICAL SURVEILLANCE PROGRAM

All site personnel shall participate in a medical monitoring program as outlined below. This program is initiated when the employee starts work with a complete physical and medical history and is continued on a regular basis. This program was developed in conjunction with a board certified occupational physician. Other medical consultants are retained when additional expertise is required.

TABLE 10.1
WORKER MEDICAL PROFILE

Item	Initial	Annual
Medical History	X	X
Work History	X	X
Visual Acuity and Tonometry	X	X
Pulmonary Function Tests	X	X
Physical Examination	X	X
Audiometry Tests	X	X
Chest X-Ray	X	X
Complete Blood Counts	X	X
Blood Chem. (SSAC-23 or equivalent)	X	X
Urinalysis	X	X
Dermatology Examination	X	X
Electrocardiogram (Stress Test) - based on age	X	X (based on age)

No specific tests are required for this project.

10.1 EXAMINATION SCHEDULE

Employees are examined initially upon start of employment, bi-annually or annually thereafter, and may be examined upon termination of employment. Unscheduled medical examinations are conducted:

- At employee request after known or suspected exposure to toxic/hazardous materials, biological agents or extreme environmental conditions, e.g. heat or cold stress
- At the instruction of the CIH, SSO, or employer occupational physician after known or suspected exposure to toxic/hazardous materials, biological agents or extreme environmental conditions, e.g. heat or cold stress
- At the discretion of the employer occupational physician based on prior or present medical conditions

10.2 OCCUPATIONAL PHYSICIAN

The following information is provided in the event that medical attention is necessary.

- The SEI Medical Director is:

  Dr. Jerry H. Berke, MD, MPH
  Health Resources
  600 West Cumming Park, Suite 3400

Woburn, Mass 01801-6350
781-935-8581 (direct dial)
800-350-4511 (toll free)

The occupational physician for this project is:

Riverfront Medical Services
401 New Kramer Rd
Albany, NY 12205
Contact: Ms Kathy McDermott
518-452-1656

The SEI Medical Director and the Project CIH will be immediately notified of any suspected exposures to hazardous materials/wastes, biological agents or temperature extremes resulting in heat/cold stress.

APPENDIX A

- *HEALTH AND SAFETY PLAN CERTIFICATION*
- *SUBCONTRACTOR HEALTH & SAFETY PLAN ACKNOWLEDGEMENT*
- *SUBCONTRACTOR PRE-JOB SAFETY CHECKLIST*

HEALTH AND SAFETY PLAN CERTIFICATION

By signing this document, I am stating that I have read and understand the site health-and-safety plan for SEI personnel and visitors entering the Richardson Hill Road Landfill site.

REPRESENTING	NAME (PRINT)	SIGNATURE	DATE

SUBCONTRACTOR HEALTH & SAFETY PLAN ACKNOWLEDGEMENT

As a duly authorized representative of _____, under contract with SEI

(name of subcontractor)

Corporation, I have reviewed and adopt the use of the SEI Site -Specific Health & Safety

Plan* at the _____ project.

(name of project)

_____ _____

(name of subcontractor representative/supervisor) *(date)*

_____

(signature of subcontractor representative/supervisor)

*Note: The Site Specific Health & Safety Plan (SSHASP) referred to above has been designed for the methods presently contemplated by SEI for the execution of the proposed work. Therefore, this SSHASP may not be appropriate if the work is not performed by or using the methods presently contemplated by SEI. Therefore, SEI only makes representations or warranties as to the adequacy of the SSHASP for currently anticipated activities and conditions.

Shaw The Shaw Group Inc.™

SUBCONTRACTOR PRE-JOB SAFETY CHECKLIST

JOB:	SUBCONTRACTOR:
LOCATION:	PROJECT NO.

		Yes	No
1.	Standard emergency signals fully understood?	☐	☐
2.	Subcontractor responsibility in time of emergency understood?	☐	☐
3.	Fire and ambulance telephone numbers known?	☐	☐
4.	Areas for possible evacuation designated?	☐	☐
5.	Special safety rules for the plant or area known? (SEI will provide printed special rules where available)	☐	☐
6.	Nature of Chemical or special hazards for area reviewed with safety officer?	☐	☐
7.	Special safety equipment for the area of job known?	☐	☐
8.	Safety shower and eye wash locations known?	☐	☐
9.	Smoking area designated?	☐	☐
10.	Have you been advised of potential hazards, protective Measures and availability of hazard information? e.g. Health & Safety Plan	☐	☐
11.	Do you understand you are required to provide your employees with the information in (10) above?	☐	☐
12.	Have you provided MSDSs to SEI for any hazardous material you intend to bring on site?	☐	☐
13.	Have you submitted training/medical certification records?	☐	☐
14.	Are your subcontractors aware of the above rules?	☐	☐

Remarks: (Explain all No Answers) _____

_____

_____

_____ _____

Subcontractor's Supervisor **Date**

_____ _____

SEI Project Manager **Date**

_____ _____

SEI Project Supervisor **Date**

_____ _____

SEI Safety Officer **Date**

N: project safety files 8.02

APPENDIX B

– *HEALTH AND SAFETY PLAN AMENDMENT DOCUMENTATION FORM*

SSEIE SPECIFIC HEALTH AND SAFETY PLAN
AMENDMENT DOCUMENTATION

Project Name: _____ **Project No.:** _____

Amendment No.: _____ **Date:** _____

Amendment Revises: *Page:* _____ **Section:** _____

Task(s) Amendment Affects:* _____

_____

**(Attach new/revised Job Safety Analyses)*

Reason For Amendment:

_____

_____

_____

Amendment: *(Attach separate sheet(s) as necessary)*

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Completed by: _____ **Approved by:** _____

APPENDIX C

– SEI HAZARD COMMUNICATION PROGRAM

APPENDIX C
SEI HAZARD COMMUNICATION PROGRAM

LIST OF HAZARDOUS CHEMICALS

The following is a list of hazardous chemicals used on this SEI job site. Further information on each hazardous chemical listed below can be found in the MSDS, which are included in the site-specific health and safety plan.

Typical SEI Job-Site Hazardous Chemical Inventory List

Available on Site	Chemicals
_____	Acetone
_____	Acetylene
_____	Activated Charcoal, Powder
_____	Alum (Aluminum Sulfate)
_____	Anti-fog Bausch & Lomb
_____	Argon/Methane (95%/5%)
_____	Brake Fluid
_____	Calcium Hydroxide (Hydrated Lime)
_____	Calibration Check Gas
_____	Carbon
_____	Caustic Soda (Sodium Hydroxide)
_____	Citrikleen
_____	Coal Fly Ash
_____	Compressed Air
_____	Diatomaceous Earth
_____	Diesel Fuel
_____	Dry Ice (Solid Carbon Dioxide)
_____	Ethylene Glycol
_____	Ferric Chloride
_____	Freon
_____	Gear Grease - Delta
_____	Helium
_____	Hexane
_____	Hydraulic Fluid
_____	Hydrochloric Acid
_____	Hydrogen
_____	Isobutylene
_____	Kiln Dust
_____	Methanol

Typical SEI Job-Site Hazardous Chemical Inventory List

Available on Site	Chemicals
	Nitrogen
	Nitrous Oxide
	Oxygen
	Pentane
	Pentane
	Polymers (Flocculants)
	Premium Unleaded Gasoline
	PVC Solvent Cleaner
	PVC Cement
	Regular Leaded Gasoline
	Starting Fluid
	Stoddard Solvent
	Sulfuric Acid
	10W-40 Motor Oil - Shell
	Tube Grease - Kendall
	TU Type 555 Thread Sealing Compound
	2-Cycle Oil - Wolf's Head

Site-Specific Hazardous Chemical Inventory

PROCEDURE

Subject: HAZARD COMMUNICATION PROGRAM

1.0 PURPOSE AND SUMMARY

This procedure has been developed to ensure that all affected company employees are provided with current information on the hazardous chemicals that they may encounter during their work. The basic principle of Hazard Communication (HAZCOM) is that anyone that works with hazardous chemicals has both a need and a right to know the identities and the hazards of any chemical to which they may be occupationally exposed. This principle has been propagated by the Occupational Safety and Health Administration (OSHA) in 29 Code of Federal Regulations (CFR) 1910.1200 *Hazard Communication.*

Some company activities are likely to occur in states or localities that either have or will have requirements that differ from those contained within the federal standard. In such circumstances, the local health and safety representative will be responsible for ensuring that these requirements are included in either a site health and safety plan or a similar document and conveyed to all affected employees. If federal, state, or local regulations vary or conflict, the more protective requirements and practices will be followed.

2.0 TABLE OF CONTENTS

3.0 RESPONSIBILITY MATRIX

3.1 Procedure Responsibility

The EH&S Operations Manager is responsible for the issuance, revision, and maintenance of this procedure.

3.2 Action/Approval Responsibilities

The Responsibility Matrix is Attachment 1.

4.0 DEFINITIONS

Article - A manufactured item other than a fluid or particle which is formed to a specific shape or design during manufacture, has end use function dependent in whole or in part upon its shape or design during end use, which under normal conditions of use does not release more than trace amounts of a hazardous substance and does not pose a physical hazard or health risk to employees.

Affected Employee - Any company employee who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies.

Company - All wholly-owned subsidiaries of Shaw Environmental & Infrastructure, Inc. (Shaw E & I)

Hazardous Chemical - Any chemical which poses a physical or health hazard.

Health Hazard - A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. Health hazards include chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

Immediate Use - When hazardous chemicals will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label - Any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Local Health and Safety Representative - The person who is responsible for the management and/or oversight of health and safety activities at a particular workplace. He/she may be assigned as a site health and safety officer or act as a home office health and safety manager who is responsible for multiple workplaces. This person does not necessarily need to be physically

located at a workplace in which they are responsible for ensuring that the requirements of this procedure are fulfilled. The local health and safety representative may designate another qualified individual to assume some or all of the responsibilities delineated in this procedure.

Physical Hazard - A chemical for which there is scientifically valid evidence that it is a combustible liquid, compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable, or reactive.

Responsible Party - The entity responsible for preparation or distribution of Material Safety Data Sheets (MSDS) that can provide additional information on the hazardous chemical and appropriate emergency procedures.

Trade Secret - Any confidential formula, pattern, process, device, information, or compilation of information that is used in an employer=s business, and that gives the employer an opportunity to obtain an advantage over competitors who do not currently know or use it.

Workplace - An establishment, job site, laboratory, office, or project at one geographic location containing one or more work areas.

5.0 TEXT

In accordance with the requirements established in 29 CFR 1910.1200, employers are required to develop, implement, and maintain at each workplace a HAZCOM program. The program contained herein is intended to ensure that the hazards of all chemicals used by employees are evaluated and that information concerning the hazards of each chemical are conveyed to affected employees. The company program generally consists of five provisions, including hazardous chemical inventories, procurement of hazardous chemicals, container labeling, MSDSs, and the development and implementation of employee training programs. Since the company does not typically produce, distribute, or import hazardous chemicals, the focus of this procedure is on establishing an effective consumer/handler type HAZCOM program and the communication of information to our affected employees.

There are some types of chemicals that are specifically exempt from this procedure. These materials include:

- Any hazardous waste as defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1967, as amended (42 U.S.C. 6901 *et seq.*), when subject to regulations issued under that Act by the U.S. Environmental Protection Agency.

- Any hazardous chemical as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) when the hazardous chemical is the focus of remedial or removal actions being conducted under CERCLA in accordance with U.S. Environmental Protection Agency regulations.

- Tobacco or tobacco products.

- Wood or wood products, including lumber which will not be processed, where the manufacturer or importer can establish that the only hazard they pose to employees is the potential for flammability or combustibility. Wood or wood products which have been treated with a hazardous chemical are covered by this procedure, and wood which may be subsequently sawed or cut, generating dust.

- Articles.

- Food or alcoholic beverages which are sold, used, or prepared in a retail establishment, or foods intended for personal consumption by employees while in the workplace.

- Any drug, as defined by the Federal Food, Drug, and Cosmetic Act, when it is in solid, final form for direct administration to patient; drugs which are packaged by the manufacturer for sale to consumers in a retail establishment; and drugs intended for personal consumption by employees while in the workplace.

- Cosmetics which are packaged for sale to consumers in a retail establishment, and cosmetics intended for personal consumption by employees while in the workplace.

- Any consumer product or hazardous chemical, as defined by Consumer Product Safety Act and Federal Hazardous Chemicals Act, where the employer can show that it is used in the workplace for the purpose intended by the manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended.

- Nuisance particulates where the manufacturer, distributor, or importer can establish that they do not pose any physical or health hazard covered under this procedure.

- Ionizing and nonionizing radiation.

- Biological hazards.

5.1 Hazardous Chemical Inventories

A complete list of all hazardous chemicals known to be present in the workplace that may expose an employee to a physical or health hazard will be maintained at each office location and project site. This list will be placed in the front section of the MSDS binder discussed in Section 5.4. The local health and safety representative/site safety officer will be responsible for maintaining the list and revising it as new chemicals are procured or when chemicals are no longer used and have been removed from the workplace. The identity of the hazardous chemical maintained on the list will be consistent with that

which appears on the MSDS. All affected employees will be made aware of the location of the MSDS binder.

5.2 Procurement of Hazardous Chemicals

Since the company does not typically manufacture, distribute, or import hazardous chemicals, procurement is the primary method of obtaining hazardous chemicals. The person initiating the procurement of a hazardous chemical will be responsible for requesting a MSDS from the manufacturer or distributor. This MSDS is to be provided either prior to or at the time of receipt of the chemical. Hazardous chemicals are strictly forbidden to be accepted without an accompanying MSDS. Upon receipt of a hazardous chemical, the person receiving the shipment will notify the local health and safety representative so that a review of the MSDS can be conducted. Also, note that the supplier is only required to submit a MSDS with the initial shipment of a hazardous chemical to a specific location.

In the unlikely event that a hazardous chemical is either manufactured, imported, or distributed by the company, the Vice President, Health and Safety will be notified so that required actions, as dictated by OSHA, can be implemented.

5.3 Container Labeling

Labeling on hazardous chemical containers is meant to provide immediate information to affected employees about the hazards of chemicals they will be expected to handle during the course of their job duties. It is the responsibility of the manufacturer, importer, or distributor of the chemical to ensure that each hazardous chemical leaving their place of business is labeled, tagged, or marked with the following information:

- Identity of the hazardous chemical (must be common to the label, the MSDS, and the chemical inventory list);
- Appropriate warnings of the hazardous effects of a chemical (words, pictures, symbols, or any combination that appears on the label and convey the specific physical or health hazards including target organ effects); and
- Name and address of the chemical manufacturer, importer, or other responsible party.

The person receiving the shipment is responsible to ensure that each container of hazardous chemical(s) has been provided with this labeling information. Hazardous chemicals that do not contain adequate labeling will not be accepted by the receiving person. In the event that hazardous chemicals that do not contain adequate labeling are inadvertently received, they are not to be handled until the identity of the material and appropriate hazard warnings are provided. If the hazardous chemical is regulated by a chemical-specific health standard, then it must be labeled in accordance with the requirements of that standard.

As long as the hazardous chemicals are maintained in their original, properly labeled container and their composition is not altered, there is no need for additional labeling. In the event that the chemical is transferred from a labeled container to an unlabeled portable container, the user must label this secondary container unless the container is intended for immediate use of the employee who performs the transfer. In this case, the container must be labeled with the identity of the chemical and the appropriate hazard warnings, as described above.

In locations where employees are present who only communicate in languages other than English, all labeling information must be presented in their language as well as in English.

5.4 Material Safety Data Sheets (MSDS)

MSDSs are written documents that convey specific, detailed information about the hazards associated with a specific chemical. It is the responsibility of the manufacturer, importer, or distributor to either provide MSDSs prior to shipment or with the shipped materials. The employee receiving the shipment of materials is responsible to ensure that a MSDS has been supplied. As described in Section 5.2, the employee initiating the procurement is responsible for requesting a MSDS from the manufacturer or distributor. In the event that a MSDS has not been provided, it is the responsibility of the receiving person to obtain one from the manufacturer or distributor as soon as possible. The material will not be handled prior to the receipt of a MSDS.

Each MSDS will be forwarded to the local health and safety representative/site safety officer or a designee who will then place a copy into a MSDS binder. This binder will be maintained in the workplace and updated as new materials arrive. The local health and safety representative/site safety officer will ensure that this binder is reviewed with all affected employees and is readily accessible during each work shift. A designated area for the storage of the binder will be established and all employees are to be informed of its location. Employees can request a personal copy of a MSDS by completing the Employee Request for MSDS form provided in Attachment 2. Where employees travel between workplaces during a work shift, the MSDSs may be kept at the primary workplace. Affected employees must be able to immediately obtain information from the MSDSs in the event of an emergency.

MSDSs will be in English and other languages, as necessary, for the particular employees in which the MSDSs will be used. MSDSs are to include the following information:

- Name, address, and telephone number of the responsible party;
- Identity of the chemical as it appears on the label;
- Hazardous ingredients;
- Physical and chemical characteristics;
- Physical and health hazards;
- Primary route(s) of entry;

- OSHA permissible exposure limit (PEL) or other applicable exposure limits;
- Carcinogen information;
- Safe handling and use information;
- Control measures;
- Emergency and first aid procedures; and
- Date of preparation and latest revision date.

5.5 Training

All affected employees will be provided with information and training on the hazardous chemicals in their work area at the time of their initial assignment, when new information about the hazards of a chemical is discovered, and whenever a new physical or health hazard that the employees have not previously been informed of is introduced into the workplace. The HAZCOM training record has been provided as Attachment 3.

Information provided in this training will include:

1. Requirements of the HAZCOM program.
2. Any operations in the work area where hazardous chemicals are present.
3. Location of written hazard communication program, listing of hazardous chemicals present and MSDS.
4. Methods and observations that may be used to detect the presence or release of hazardous chemicals by use of monitoring devices, visual appearance or odor.
5. The physical and health hazards of chemicals in the work area.
6. Protection measures to be utilized to prevent exposure, appropriate work practices, emergency procedures and proper PPE to be used.
7. Explanation of the labeling system and the MSDS and how employees can obtain and use the appropriate hazard information.

Training on this HAZCOM program may be satisfied by the use of two different types of training sessions. These sessions include:

- **Tailgate Safety Meetings** - These meetings will be used to convey the methods and observations that may be used to detect the presence or release of a hazardous chemical in the workplace, the physical and health hazards of the chemicals in the workplace, and the measures that can be taken to protect affected employees from these hazards. The guidelines for this meeting are described in Procedure HS051, Tailgate Safety Meetings.

- **Workplace-Specific or Annual Refresher Training** - Either of these training sessions can be used to convey the details of this HAZCOM program. These details include an explanation of labeling systems, the use of MSDSs, and how employees can obtain and use the appropriate hazard information. These training sessions are discussed further in Procedure HS050, Training Requirements.

Workplace-specific and tailgate safety meetings will be facilitated by the local health and safety representative or another individual who is knowledgeable on the requirements of the HAZCOM program and the specific chemicals that are being discussed. Annual refresher training can only be conducted by personnel previously approved by the company Training Department.

5.6 Trade Secrets

Some hazardous chemical manufacturers, importers, and distributors may withhold proprietary information required to be present on a MSDS. In such instances, the name and telephone number of the manufacturer, importer, or distributor will be forwarded to the Vice President of Health and Safety for further action. It will be the responsibility of the Vice President of Health and Safety to either obtain the necessary information or to decide to reject the chemical for use in company workplaces.

5.7 Contractors

During the execution of our work, there will be situations when the company will be at locations where employees of other entities may be exposed to chemicals being used by the company. It will be the responsibility of the local health and safety representative or designee to provide the other entities= site representative(s) with copies of all MSDSs in which their employees may be exposed, as well as the labeling system in place, the protective measures to be taken, safe handling procedures to be used, and the location and availability of the MSDS binder.

Periodically, company work areas will be located on or adjacent to a facility operated by another entity. In these situations, the local health and safety representative or designee will contact the other entity to obtain applicable MSDS(s) for hazardous chemicals that company employees may be exposed to.

6.0 EXCEPTION PROVISIONS

Variances and exceptions may be requested pursuant to the provisions of Procedure HS013, Health and Safety Procedure Variances.

7.0 CROSS REFERENCES

HS013 Health and Safety Procedure Variances
HS050 Training Requirements
HS051 Tailgate Safety Meetings
HS500 OSHA Regulated Toxic and Hazardous Chemicals
OSHA 29 CFR 1910.1200

8.0 ATTACHMENTS

1. Responsibility Matrix
2. Employee Request for MSDS

3. HAZCOM and Right-to-Know Standards Employee Training Record

ATTACHMENT 1
HAZARD COMMUNICATION PROGRAM

Responsibility Matrix

Action	Procedure Section	*Responsible Party*				
		Purchaser	Receiver	Affected Employee	Local Health and Safety Representative	EH&S Operations Manager
Understand and Comply With State and/or Local Regulations	1.0				X	
Issuance, Revision, and Maintenance of Procedure	3.1					X
Review and Understand This Procedure	5.0	X	X	X	X	
Establish, Update, and Revise MSDS Binder	5.1				X	
Request MSDSs for Procured Chemicals	5.2	X				
Initial Review of MSDSs	5.2				X	
Implement Requirements For Company Manufactured, Imported, or Distributed Chemicals	5.2					X
Review Incoming Shipments for Hazard Labeling/MSDS	5.3		X			
Request Missing MSDSs From Manufacturer or Distributor	5.4		X			
Provide HAZCOM Training	5.5				X	
Receive HAZCOM Training	5.5			X		
Obtain Information on Proprietary Chemicals	5.6					X
Transmit MSDSs to Contractors	5.7				X	
Obtain MSDSs From Other Entities	5.7				X	

ATTACHMENT 2

EMPLOYEE REQUEST FOR MATERIAL SAFETY DATA SHEET (MSDS)

Employee Name: (Please print) _____

Employee Number: _____

Job Title/Location: _____

Department/Work Area: _____

I am requesting a copy of the MSDS(s) for the following chemical(s):

(Chemical name, Common name, Trade name)

1. _____

2. _____

3. _____

_____

Signature Date

I have received a copy of the above MSDS(s) I requested.

_____

Signature Date

cc: Local Health and Safety Representative

ATTACHMENT 3

HAZARD COMMUNICATION AND RIGHT-TO-KNOW STANDARDS EMPLOYEE TRAINING RECORD

	INITIAL:
1. I have been informed about the Hazard Communication Program, Material Safety Data Sheets (MSDS), their use and location, and the procedures to obtain copies.	☐
2. I have been informed that some of my work may involve exposure to toxic substances, the hazards of which will be reviewed with me in tailgate safety meetings or site-specific training.	☐
3. I have been informed about the right of employees to have access to relevant exposure and medical records, and the procedures for requesting access.	☐
4. I understand that the company must act upon a request in a reasonable amount of time so as to avoid interruption of normal work operations.	☐
5. I have been provided access to the applicable regulations governing hazard communication, and access to employee exposure and medical records.	☐

PRINT NAME: _____

SIGNATURE: _____

EMPLOYEE NUMBER: _____

DATE: _____

APPENDIX D

– MATERIAL SAFETY DATA SHEETS

APPENDIX E

– ***SEI PERSONAL PROTECTIVE EQUIPMENT (PPE) PROGRAM***

PROCEDURE

Subject: PERSONAL PROTECTIVE EQUIPMENT

1.0 PURPOSE AND SUMMARY

This procedure stipulates that the company will provide the personal protective equipment necessary for employees to perform their work safely, as established by the Health & Safety Department. Special purchasing programs for prescription safety glasses and safety shoes are also described. Head, eye, body, and foot protection are discussed in this procedure. Respiratory and hearing protection are cross referenced to the appropriate company procedures.

2.0 TABLE OF CONTENTS

3.0 RESPONSIBILITY MATRIX

3.1 Procedure Responsibility

TheVice President of Health & Safety, is responsible for the issuance, revision, and maintenance of this procedure.

3.2 Action/Approval Responsibilities

The Responsibility Matrix is Attachment 1.

4.0 DEFINITIONS

Company – All wholly-owned subsidiaries of Shaw Environmental & Infrastructure, Inc (Shaw E & I).

5.0 TEXT

The company will provide suitable personal protective equipment as required for the nature of the job being performed, such as, but not limited to, boots, protective clothing, respirators, face shields, safety eyewear, respirator ophthalmic hanger devices, hard hats, and gloves. This personal protective equipment will be specified by the Health & Safety Department prior to use, subject to an assessment of the hazards to which employees will be potentially exposed. Documentation shall be in the project-specific Health and Safety Plan (HASP) or equivalent document.

Employees shall use HS-approved protective equipment on any task where there is potential exposure to: physical hazards such as equipment operation, objects dropping from above, or flying particles; or exposure to toxic or irritating gases, fumes, vapors, liquids, or other materials which might cause respiratory distress or skin irritation.

Employees shall be trained in the proper use, maintenance, and limitations of protective equipment. Safety equipment shall be replaced when it is damaged, contaminated, or has worn out. Training requirements are summarized in company Procedure HS050.

Employees shall wear hard hats, eye protection, and steel-toed foot protection (chemical resistant when required) at all job sites (excluding field offices) and industrial facilities, unless HASP/site rules provide exemption. It is the responsibility of all employees to report to any work site prepared to work in Level D PPE. All other protective equipment is the responsibility of the project.

5.1 Eye Protection

All employees engaged in or working in areas adjacent to eye-hazardous activities or operations shall wear appropriate eye protection.

- Safety glasses are required for impact protection, and shall meet ANSI Standard Z87.1 requirements.
- Chemical goggles are required for protection against chemical splash.
- Face shields are required for face protection from chemical splash and are not a substitute for eye protection.
- Full-face respirators can provide eye and face protection in lieu of safety glasses, goggles, or face shields.

5.1.1 Prescription Eye Protection. The company will provide prescription safety glasses (meeting ANSI Standard Z87.1) for field/shop/lab personnel, and computer glasses for computer users, as required by their individual vision status and job. Glasses will be provided every two years unless damaged on-the-job, or the employee exhibits a significant change of prescription.

Lenses shall be clear polycarbonate or plastic. Special tints or dark lenses can be obtained for special applications (e.g., extended outdoor work) with prior written approval from the Health & Safety Department.

Employees requiring corrective lenses inside of respirator face-pieces will be provided with safety lenses and frames sized for respirators and the respirator insert, in addition to conventional prescription safety glasses.

Employees will arrange and pay for the eye examination through the company-provided vision care program. The company will pay for fitting services and the safety glasses.

The company has established a national contract with a protective eyewear provider. Employees should contact the local HS representative (with current lens prescription), who will coordinate with the local purchasing representative to order eyewear. Employees choosing to use another provider will be reimbursed up to $65 for safety or computer glasses, after the Health & Safety Department has verified that the glasses meet the ANSI Standard requirements.

5.2 Foot Protection

Basic foot protection is required for all job sites and industrial locations. Specialized footwear shall be provided as required by the nature of the work. Special foot protection may include, but is not limited to, chemically resistant, thermally shielded, metatarsal guards, etc.

5.2.1 Leather Safety Shoes. Safety shoes may be used in place of chemical resistant footwear when an employee will be working in a clean or uncontaminated work areas. Generally, when the employee desires to use safety footwear other than standard chemical resistant footwear provided, the company considers it the responsibility of the employee to provide such footwear and ensure that it meets ANSI Standard Z41. Company supervision will enforce the use of appropriate protective footwear per the requirements of the site-specific Health and Safety Plan. Where state or local regulations require (i.e., California and Connecticut), the company will provide all necessary safety equipment.

Employees can purchase safety shoes through national purchasing agreements established by the company. Under the limited circumstances where the company will provide safety shoes, such purchases must be approved by the project or appropriate department/local manager. After the Health & Safety Department has verified that the safety shoes meet ANSI requirements, the employee will be reimbursed for the actual purchase price of the shoes up to a maximum of $90.00.

Athletic-style safety shoes ("safety sneakers") are <u>prohibited</u> for all field operations due to the difficulties created by these styles in supervising proper use of protective footwear. Employees in fixed laboratory operations may wear athletic-style safety shoes with the prior approval of the Lab Director or HS Coordinator.

5.3 Head Protection

Hard hats meeting ANSI Z89.1 shall be provided to protect employees from impact, penetration, falling objects, and/or limited electrical shock and burn, as appropriate for work site hazards.

5.4 Respiratory Protection

Respirators shall be provided, in accordance with Procedure HS601, Respiratory Protection Program.

5.5 Hearing Protection

Hearing protection shall be provided, in accordance with Procedure HS402, Hearing Conservation Program.

5.6 Body Protection

Protective clothing, gloves, boots, and other protective equipment shall be provided as appropriate for the hazards associated with the tasks being performed.

5.7 Providing Personal Protective Equipment to Non-Company Personnel

The following personal protective equipment may be provided to non-company personnel:

- Hard hats
- Chemical goggles
- Safety glasses (non-prescription)
- Face shields
- Chemical resistant boots
- Chemical resistant gloves
- Hearing protectors
- Disposable chemical resistant personal protective clothing

5.8 Management Duties

It is the responsibility of the Health & Safety Department to specify safety equipment requirements for each job.

It is the responsibility of project managers or location managers to provide adequate quantities of safety equipment required for their job(s) or project(s).

It is the responsibility of supervisors to verify that required safety equipment is properly used.

6.0 EXCEPTION PROVISIONS

Variances and exceptions shall be permitted pursuant to the provisions of Procedure HS013, "Health & Safety Procedure Variances".

7.0 CROSS REFERENCES

HS050 Training Requirements
HS402 Hearing Conservation Program
HS601 Respiratory Protection Program
ANSI Standard Z41, *Personal Protection - Protective Footwear*
ANSI Standard Z87.0, *Practice for Occupational and Educational Eye and Face Protection*
ANSI Standard Z89.1, *Protective Headwear for Industrial Workers*

8.0 ATTACHMENTS

1. Responsibility Matrix

ATTACHMENT 1
PERSONAL PROTECTIVE EQUIPMENT

Responsibility Matrix

Action	Procedure Section	*Responsible Party*			
		Vice President, HS	Local HS Department	Project/ Location Managers	Supervisors
Issue, revise, and maintain this procedure.	3.1	X			
Approve all personal protective equipment prior to use.	5.0		X		
Coordinate reimbursement to employee for PPE purchases.	5.1.1, 5.2.1		X		
Provide adequate quantities of safety equipment as required.	5.8			X	
Verify that required safety equipment is properly used.	5.8				X

APPENDIX F

– CSG SAFETY & HEALTH AWARENESS RECOGNITION PROGRAM

JOB SAFETY ANALYSIS FOR GROUNDWATER COLLECTION INSTALLATION				
Task Breakdown	**Potential Hazards**	**Critical Safety Practices**	**Personal Protective Clothing and Equipment**	**Air Monitoring Devices**
Groundwater Collection Trench Installation	Underground/ Overhead Utilities	• Identify all utilities around the site before work commences • Cease work immediately if unknown utility markers are uncovered • Use manual excavation within 3 feet of known utilities • Utility clearance shall conform with 29 CFR 1926.955 (high voltage >700 kv) 15 feet phase to ground clearance; 31 feet phase to phase clearance		
	Excavation Wall Collapse	• Construct diversion ditches or dikes to prevent surface water from entering excavation • Provide good drainage of area adjacent to excavation • Collect ground water/rain water from excavation and dispose of properly • Store excavated material at least 2 feet from the edge of the excavation; prevent excessive loading of the excavation face • Provide sufficient stairs, ladders, or ramps when workers enter excavations over 4 feet in depth • Place ladders no more than 25 feet apart laterally • Treat excavations over 4 feet deep as confined spaces • Complete confined space permit entry procedure • Monitor atmosphere for flammable/toxic vapors, and oxygen deficiency • Slope, bench, shore, or sheet excavations over 5 feet deep if worker entry is required • Assign a competent person to inspect, decide soil classification, proper sloping, the correct shoring, or sheeting • Inspect excavations (when personnel entry is required) daily, whenever conditions change • Provide at least two means of exit for personnel working in excavations.	Hard hat, Safety glasses, Steel toe work boots	

Shaw E & I
Commercial Services Group

Safety & Health Awareness and Recognition Programs (SHARPS)

I. Purpose & Summary

To establish guidelines for the development, implementation, and distribution of Safety & Health Awareness and Recognition Programs (SHARPs), as a supplement to HS023 to promote safety and to recognize excellence in safety performance. Project and office specific programs must be submitted by the respective Project Manager or Business Line Manager to the Regional Director and the Regional Health and Safety Manager for approval. Project SHARPs should be submitted as early as possible after notice of contract award but no later than 10 days after mobilization to the project site.

II. SHARPs Requirements

The following elements will be included in each SHARP submitted for approval:

A. Awareness Programs. Each SHARP will specify the Safety Awareness Programs that will be implemented. As a minimum, the following Awareness Programs are required:

- Safety Observer Program (SOP)*
- Job Safety Analysis Program (JSAP)*
- Project Safety Management Systems Report (PSMSR)*
- Project/Office Safety Inspection Report (PSIR)*

*Required for field project sites.

The project's/office's implementation of these programs will be periodically reviewed to determine their effectiveness. Should deficiencies be observed, they will be required to be corrected in a timely manner to maintain approval of the SHARP.

Examples of other Safety Awareness Programs include:

- Foremen's Safety Meeting
- Safety Council
- Posters, banners, and safety performance signs
- Video based awareness programs such as STOP, Take-Two, etc.

B. Recognition Program. Recognition awards must be based on meeting quantifiable and verifiable goals. Examples include the following:

- Manhours worked without an OSHA Recordable/Chargeable Vehicle Incident
- Days without a Lost Time Incident
- Safety Observations made/corrected
- Site Specific Job Safety Analyses completed

The SHARP will identify milestones (goals) that when achieved will result in the distribution of an award. The award that will be given upon reaching each milestone will be specified in the SHARP Plan. Gift certificates or non-cash awards, e.g. sweatshirt, utility tool are preferred over cash awards. Each succeeding award should increase in value.

C. Budget. A guideline of 0.1% of the project's contract value (Total revenue minus subcontract revenue) should be used for budgeting for a project SHARP. For example, a 2 million dollar project with Shaw revenue of one million dollars would have a budget of $1,000.00. The minimum acceptable budget will be ten dollars ($10.00) per month per employee for small projects; e.g. under $200,000, or offices. The Regional Director will approve the final budget.

III. Distribution Of Awards

Following achievement of each milestone, the Project Manager/Business Line Manager or designee will submit a Request for Safety Award Distribution (Attachment B) to the Regional Director and a copy to the Regional Health & Safety Manager within 5 business days. The Regional Director and Health & Safety Manager will review the request and approve it if it meets the SHARP's criteria. Following approval the Project Manager/Business Line Manager will place the order for the awards and will distribute the awards as identified on the request form.

Attachment A

Model SHARP

MEMORANDUM

TO: Regional Director

FROM: Project Manager

PC: Regional Health & Safety Manager

DATE: _____

SUBJECT: **Safety & Health Awareness and Recognition Program (SHARP);**

Project # _____, (Name of Project)

A SHARP has been developed for the **Name of Project** to make site personnel more aware of management's commitment to completing this project with zero incidents and to recognize excellence in safety performance.

I. Safety Awareness Programs:

Safety awareness programs that will be instituted on the site include:

1. Safety Observer Program
2. Job Safety Analysis Program
3. Safety Council (meets 2 x per month)
4. Project Safety Management Systems Review (Every 90 days)
5. Project Safety Inspection Report (2 x per month)

II. Recognition Program:

If a performance milestone is achieved, or man-hour plateau is reached without the occurrence of an OSHA-recordable and chargeable vehicle incident, eligible personnel will receive a recognition award according to the schedule below:

Plateau	Award	Required Manhours/Performance Milestone
1st	Jobsite T-shirt	25 Corrected Safety Observations
2nd	Jobsite Utility Tool	JSA's completed for all principal tasks
3rd	Jobsite Sweatshirt	25,000 hrs. w/o OSHA Recordable/ Chargeable Vehicle Incident
4th	Jobsite Jacket	75,000 hrs. w/o OSHA Recordable/ Chargeable Vehicle Incident

III. General Requirements:

To be eligible, personnel must have worked on the jobsite two-thirds of the average time per man during each award period, and must comply with the jobsite rules listed below:

1. Attend morning safety meetings
2. Participate in the safety observer program
3. Wear proper personnel protective equipment for each task
4. Report all unsafe acts and conditions to the Supervisor
5. Inspect all equipment and vehicles before use
6. Comply with Shaw Health and Safety Policies and Procedures

IV. SHARP Budget:

The budget for the SHARP is $8,500. This is 0.11% of the total Shaw revenue of $8 million. The breakdown of projected expenditures is as follows:

A.	**Awareness Program**	
	TV/VCR	$ 350
	Dupont Take Two Video Series	$1,800
	Safety Council Lunches	$ 600
	Sub-Total Awareness	**$2,750**
B.	**Recognition Program**	
	T-shirts (50 x $10)	$ 500
	Utility Tools (50 x $22)	$1,100
	Sweatshirts (50 x $28)	$1,400
	Jackets (50 x $55)	$2,750
	Sub-Total – Recognition	**$5,750**
	Total – SHARP	**$8,500**

Please review this SHARP and approve if acceptable. Contact me should you have any questions or comments.

APPROVED BY:

Regional Director

APPROVED BY:

Regional Health & Safety Manager

ATTACHMENT B

SAFETY & HEALTH AWARENESS AND RECOGNITION PROGRAM

I HAVE REVIEWED THE ATTACHED SHARP PROGRAM FOR _____ AND APPROVE OF ITS USE.

I Business Line Approval:

Regional Director: (Print)	**Regional Director** (Signature)	**Date:**

II Health and Safety Approval

Regional Health & Safety Manager (Print)	**Regional Health & Safety Manager** (Signature)	**Date:**

ATTACHMENT B

SAFETY & HEALTH AWARENESS AND RECOGNITION PROGRAM REQUEST FORM

I REQUEST THE ATTACHED LIST OF EMPLOYEES AT THE _____ PROJECT / LOCATION BE PRESENTED A SHARP AWARD. THESE INDIVIDUALS WILL BE GIVEN_____ ON _____ FOR ACHIEVING ESTABLISHED GOALS FOR THE MONTH(S) OF _____.

I Project/Location Approval:

_____ _____ _____

Project/Location Manager: **(Signature)** **Date:**

II CSG Safety Council Approval

_____ _____ _____

Regional Manager **(Signature)** **Date:**

APPENDIX G

– PROJECT SAFETY MANAGEMENT SYSTEMS REVIEW

PROJECT SAFETY MANAGEMENT SYSTEMS REVIEW

Project Name:	Project Manager/Director: _____
Project #:	Supervisor/Superintendent: _____

Review Date: _____

Initial Mobilization Date _____	Initial Report	Follow-up Report

Evaluation Criteria	Weight	Points Available	Response	Points* Received
I. General				
1. Is the Health & Safety Plan available and revised for new tasks or scope of work changes?	2	4		
2. Is air monitoring being performed as specified in the HASP and properly recorded?	3	6		
3. Is appropriate material handling equipment available and utilized to prevent injuries?	2	4		
II. Job Safety Analysis				
1. Have site personnel prepared task-specific JSAs for all current activities?	3	6		
2. Has each JSA been reviewed and approved by the HSO and site supervisor?	1	2		
III. Awareness and Recognition Program				
1. Has a site specific Recognition Program been developed and implemented.	2	4		
2. Have awards been distributed as goals were achieved?	2	4		
IV. Safety Council				
1. Has a Safety Council been established and meeting biweekly? (required for sites with $\geq$ 20 personnel, $\geq$ 60 days duration)	3	6		
V. Training				
1. Are daily safety meetings being conducted and properly recorded?	2	4		
2. Has equipment-related, task related, and hazardous communication training been conducted and documented?	2	4		
VI. Inspections				
1. Have planned inspections (supervisor site safety, laboratory, eye wash, SCBA, heavy equipment, etc.) been conducted at required frequencies?	2	4		
2. Have deficiencies been identified and corrected?	3	6		

**Multiply points in "Weight" column by points in "Response" column to obtain "Points Received."*

VII. Subcontractor Oversight				
1. Have all subcontractors had their qualifications reviewed and approved by health & safety?	3	6		
2. Has a subcontractor pre-job safety checklist been completed with the supervisor for each subcontractor on site?	1	2		
3. Have subcontractors submitted JSAs for all major tasks to be performed on site?	3	6		
4. Have medical and training qualifications been submitted for all subcontractor personnel on site?	2	4		
VIII. Incident Review				
1. Have all equipment and personnel incidents been properly reported and investigated?	3	6		
TOTAL				
Score (points received divided by total points available)	93%	Response: Does Not Meet = 0, Partially Meets = 1, Meets = 2		

Reviewed by:	Reviewed by:
Safety Manager Date	Director/Business Line Manager Date
Comments:_____	Comments: _____

Opportunities for Improvement	Due Date
Current Opportunities:	
Follow-up on Past Opportunities:	

PROJECT SAFETY MANAGEMENT SYSTEMS REVIEW

1.0 INTRODUCTION

To achieve IT Corporation and business line safety performance goals, the Commercial Engineering & Construction Group has established a ***Safety Improvement Process.*** A critical element in the ***Safety Improvement Process*** is a periodic review of safety at each active project site by key management personnel. These reviews shall be documented on the Project Safety Management Systems Review form **(PSMSR)**, attached.

2.0 RESPONSIBILITIES

The following key personnel (Reviewing Managers) are responsible for implementing this program as indicated below:

2.1 **Reviewing Mangers: Area Vice Presidents/Project Directors/Business Line Leads/Project Managers** - Direct and implement the performance of safety assessments at active project sites according to the schedule in Table I, to review the key elements of the ***Safety Improvement Process*** requirements and to identify opportunities for improvement. The **PSMSR** shall be used to document this process. All questions on the report shall be answered; list all opportunities for improvements and due dates for each in the *"Opportunities for Improvement"* section of the report. The Area Vice President will ensure that all projects in excess of one month in duration complete a **PSMSR** according to schedule. The schedule and requirements for conducting **PSMSRs** for various key personnel are shown in Table II. The Reviewing Manager shall check at least a representative sample of documentation, corresponding to each question, to verify conformance with requirements. Following completion of the report, the Reviewing Manager will send it to the Area H&S Manager for review. After review, the Area H&S Manager will forward the report to the Area Vice President. The Area Vice President shall review and sign the completed **PSMSR** and forward a copy to the CE&CG H&S Director for tracking. The Reviewing Manager will monitor progress made toward implementation of improvements, by consulting periodically with the Project Supervisor and during follow-up visits.

TABLE 1. PSMSR SCHEDULE

Project Duration	Submittal Schedule
< 1 Month	Optional
1 Month – 3 Months	1 Report (w/in 45 days)
> 3 Months	Quarterly (every 90 days)

2.2 **CE&CG Health & Safety Director** – provide program oversight; log and track improvements; analyze **PSMSRs** to identify trends; provide recommendations for safety improvement; provide feedback on program performance.

2.3 **Area H&S Manager** – assist Vice President in assuring key management personnel understand and follow this procedure; review and sign **PSMSRs**; submit report to CE&CG H&S Director for tracking.

2.4 **Project Supervisor** – Participate in the PSMSR; implement opportunities for improvement identified on **PSMSRs**, within required due dates.

TABLE II. SCHEDULE AND REQUIREMENTS FOR KEY PERSONNEL

KEY PERSONNEL		
Site Supervisor	**Project Director* Project Manager* Business Line Lead***	**Area Vice President**
Participate in review; Implement Opportunities for Improvement	Complete: <1 Month – Not Required >1<3 Months – 1 Report >3 Months– Every 90 Days; Submit: to Area V.P. & CE&CG Area H/S Manager for review	Complete: 1 Report each month (Any Project); Assure: Business Line Managers reports are complete/on time; Review/Sign: Business Line Managers reports; forward to CE&CG H/S Director

**Note: Project Directors, Project Managers and Business Line Leads are also referred to as Reviewing Managers and Business Line Managers in this procedure.*

8/11/2000

APPENDIX H

– PROJECT SAFETY INSPECTION REPORT

PROJECT SAFETY INSPECTION REPORT

PROJECT _____
DATE _____

BUSINESS LINE: _____ PROJECT NAME/NUMBER: _____
PROGRAM MANAGER: _____ PROJECT MANAGER: _____
GENERAL PROJECT DESCRIPTION: _____

SITE ACTIVITIES AT TIME OF INSPECTION: _____

INTERVIEWED EMPLOYEE: _____
SAFETY ISSUE: _____

CORRECTIVE ACTION: _____

ASSIGNED TO: _____ FOLLOW-UP DATE: _____

CORRECTION VERIFIED BY: _____ DATE: _____

INTERVIEWED EMPLOYEE: _____
SAFETY ISSUE: _____

CORRECTIVE ACTION: _____

ASSIGNED TO: _____ FOLLOW-UP DATE: _____

CORRECTION VERIFIED BY: _____ DATE: _____

INSPECTION COMPLETED BY: _____ DATE: _____

HEALTH AND SAFETY REVIEW BY: _____ DATE: _____

PROJECT SAFETY INSPECTION REPORT

PROJECT _____
DATE _____

		YES	NO	N/A
FIRST AID				
1.	Are first aid kit locations identified and accessible?			
2.	Are emergency eye wash/safety showers available and inspected monthly?			
3.	Are first aid kits inspected weekly?			
4.	Is a qualified first aid/CPR provider on site?			
PERSONAL PROTECTIVE EQUIPMENT				
1.	Have levels of personnel protection been established?			
2.	Are respirators decontaminated, inspected, and stored according to standard procedures?			
3.	Have employees been fit-tested?			
4.	Is defective personal protective equipment tagged and taken out of service?			
5.	Does compressed breathing air meet CGA Grade "D" minimum?			
6.	Are there sufficient sizes and quantities of protective equipment?			
7.	At a minimum, are employees utilizing safety glasses, hard hats, and steel toe boots?			
FIRE PREVENTION				
1.	Are employees smoking only in designated outdoor areas?			
2.	Are fire lanes established and maintained?			
3.	Are flammable liquid dispensing systems bonded?			
4.	Are approved safety cans available for storage of flammable liquids?			
5.	Has the local fire department been contacted?			
6.	Are fire extinguishers available and inspected monthly?			
7.	Are flammables and combustibles properly stored?			
8.	Are flammable storage cabinets available and used when needed?			
AIR MONITORING				
1.	Is required air monitoring being conducted?			
2.	Are air monitoring instruments calibrated daily?			
3.	Are air monitoring logs up to date?			
4.	Are instrument user manuals available?			
5.	Are instruments being maintained?			
6.	Are employees notified of personal sampling results within 5 days of receipt?			
WELDING AND CUTTING				
1.	Are fire extinguishers present at welding and cutting operations?			
2.	Are confined spaces evaluated prior to and during cutting and welding operations?			
3.	Have Hot Work Permits been completed?			
4.	Are proper helmets, goggles, aprons, and gloves available for welding and cutting operations?			
5.	Are welding machines properly grounded?			

PROJECT SAFETY INSPECTION REPORT

PROJECT _____
DATE _____

		YES	NO	N/A
6.	Are oxygen and fuel gas cylinders stored a minimum of 20 feet apart?			
7.	Are only trained personnel permitted to operate welding and cutting equipment?			
8.	Are gas cylinders transported in a secured vertical position with caps in place?			

HAND AND POWER TOOLS

1.	Are defective hand and power tools tagged and taken out of service?			
2.	Is eye protection available and used when operating power tools?			
3.	Are guards and safety devices in place on power tools?			
4.	Are power tools inspected before each use?			
5.	Are nonsparking tools available when necessary?			
6.	Is the correct tool being used for the job?			

MOTOR VEHICLES

1.	Are vehicles regularly inspected?			
2.	Are personnel licensed for the vehicles they operate?			
3.	Are unsafe vehicles tagged and reported to supervision?			
4.	Is vehicle=s safety equipment operating properly?			
5.	Are loads secure?			
6.	Are vehicle occupants using safety belts?			
7.	Are current insurance cards and blank accident report forms located in vehicles?			

EMERGENCY PLANS

1.	Are emergency telephone numbers posted?			
2.	Have emergency escape routes been designated?			
3.	Are employees familiar with the emergency signal?			
4.	Has the emergency route to the hospital been established and posted?			
5.	Is a vehicle on site that can transport injured employees to the hospital?			

MATERIALS HANDLING

1.	Are materials stacked and stored to prevent sliding or collapsing?			
2.	Are tripping hazards identified?			
3.	Are semi-trailers chocked?			
4.	Are fixed jacks used under semi-trailers?			
5.	Are riders prohibited on materials handling equipment?			
6.	Are approved manlifts provided for the lifting of personnel?			
7.	Are personnel in manlifts wearing approved fall protection devices?			

FIRE PROTECTION

1.	Has a fire alarm system been established?			
2.	Do employees know the location and use of all fire extinguishers?			
3.	Are fire extinguisher locations posted?			
4.	Are combustible materials segregated from open flames?			

PROJECT SAFETY INSPECTION REPORT

PROJECT _____
DATE _____

		YES	NO	N/A
5.	Have fire extinguishers been professionally inspected during the last year?			
6.	Are fire extinguishers visually inspected monthly?			

ELECTRICAL

1.	Is electrical equipment and wiring properly guarded and maintained in good condition?			
2.	Are extension cords kept out of wet areas?			
3.	Is damaged electrical equipment tagged and taken out of service?			
4.	Have underground electrical lines been identified by proper authorities?			
5.	Has a lockout/tagout system been established?			
6.	Are GFCIs being used on all temporary electrical systems and as needed?			
7.	Are extension cords being inspected daily (i.e., group pin in place, no unapproved splices)?			
8.	Are warning signs exhibited on high voltage equipment (250V or greater)?			
9.	Is adequate distance maintained from overhead electrical lines?			
10.	Are switches, circuit breakers, and switchboards installed in wet locations enclosed in weatherproof enclosures?			

CRANES AND RIGGING

1.	Are cranes inspected daily prior to use?			
2.	Are crane swing areas barricaded or demarked?			
3.	Is all rigging equipment tagged with an identification number and rated capacity?			
4.	Is rigging equipment inspection documented?			
5.	Are slings, chains, and rigging inspected before each use?			
6.	Are damaged slings, chains, and rigging tagged and taken out of service?			
7.	Are slings padded or protected from sharp corners?			
8.	Do employees keep clear of suspended loads?			
9.	Are rated load capacities and special hazard warnings posted on crane?			
10.	Are the records of annual crane inspection available?			
11.	Has accessible areas within the swing radius of the rear of the crane been barricaded?			
12.	Do crane operators have required training/certification?			

COMPRESSED GAS CYLINDERS

1.	Are breathing air cylinders charged only to prescribed pressures?			
2.	Are like cylinders segregated and stored in well ventilated areas?			
3.	Is smoking prohibited in cylinder storage areas?			
4.	Are cylinders stored secure and upright?			
5.	Are cylinders protected from snow, rain, etc.?			
6.	Are cylinder caps in place before cylinders are moved?			
7.	Are fuel gas and oxygen cylinders stored a minimum of 20 feet apart?			
8.	Are propane cylinders stored and used only outside of buildings?			

PROJECT SAFETY INSPECTION REPORT

PROJECT _____
DATE _____

		YES	NO	N/A
SCAFFOLDING				
1.	Is scaffolding placed on a flat, firm surface?			
2.	Are scaffold planks free of mud, ice, grease, etc.?			
3.	Is scaffolding inspected before each use?			
4.	Are defective scaffold parts taken out of service?			
5.	Have employees completed scaffold user training?			
6.	On scaffolds where platforms are overlapped, is planking overlapped a minimum of 12 inches?			
7.	Does scaffold planking extend over end supports between 6 to 18 inches (dependent upon platform length)?			
8.	Are employees restricted from working on scaffolds during storms and high winds?			
9.	Are all pins in place and wheels locked?			
10.	Is required perimeter guarding (top rail, mid rail, and toe board) present?			
11.	Has a competent person been designated to oversee scaffold construction?			
12.	Are employees prohibited from moving mobile scaffold horizontally while employees are on them?			
13.	Are all scaffold components manufactured by the same company?			
WALKING AND WORKING SURFACES				
1.	Are ladders regularly inspected?			
2.	Are accessways, stairways, ramps, and ladders clean of ice, mud, snow, or debris?			
3.	Are ladders being used in a safe manner?			
4.	Are ladders kept out of passageways, doors, or driveways?			
5.	Are broken or damaged ladders tagged and taken out of service?			
6.	Are metal ladders prohibited in electrical service?			
7.	Are stairways and floor openings guarded?			
8.	Are safety feet installed on straight and extension ladders?			
9.	Is general housekeeping being maintained?			
10.	Are ladders tied off?			
11.	Are handrails and siderails installed along the unprotected sides of stairways having 4 or more risers or rising more than 30 inches?			
SITE SAFETY PLAN				
1.	Is a site safety plan available on site or accessible to all employees?			
2.	Does the safety plan accurately reflect site conditions and tasks?			
3.	Have potential hazards been described to employees on site?			
4.	Is there a designated safety official on site?			
5.	Have all employees signed the safety plan acknowledgment form?			
SITE POSTERS				
1.	Are the following posters displayed in a prominent and accessible area?			

PROJECT SAFETY INSPECTION REPORT

PROJECT _____
DATE _____

		YES	NO	N/A
A.	Minimum Wage			
B.	OSHA Job Protection			
C.	Equal Employment Opportunity			
2.	Are all required state-specific posters displayed?			

SITE CONTROL

1.	Are work zones clearly marked?			
2.	Are support trailers located to minimize exposure from a potential release?			
3.	Are support trailers accessible for approach by emergency vehicles?			
4.	Is the site properly secured during and after work hours?			
5.	Is an exclusion zone sign-in/sign-out log maintained?			
6.	Are only employees with current training and physicals permitted in exclusion zone?			

HEAVY EQUIPMENT

1.	Is heavy equipment inspected as prescribed by the manufacturer?			
2.	Is defective heavy equipment tagged and taken out of service?			
3.	Are project roads and structures inspected for load capacities and proper clearances?			
4.	Is heavy equipment shut down for fueling and maintenance?			
5.	Are backup alarms installed and working on mobile equipment?			
6.	Have qualified equipment operators been designated?			
7.	Are riders prohibited on heavy equipment?			
8.	Are guards and safety appliances in place and used?			
9.	Are operators using the "three point" system when mounting/dismounting equipment?			

EXCAVATION

1.	Has a "competent person" been designated to oversee excavation activities?			
2.	Prior to opening excavations, are utilities located and marked?			
3.	Has a professional engineer evaluated all excavations greater than 20 feet deep?			
4.	Is there rescue equipment on site and accessible to the excavation area?			
5.	Is excavated material placed a minimum of 24 inches from the excavation?			
6.	Are the sides of excavations sloped or shored to prevent cave ins?			
7.	Have excavations greater than 4 feet deep been monitored for hazardous atmospheres (i.e., LEL/O_2)?			
8.	Are ladders or ramps used in excavations over 4 feet deep?			
9.	Are means of egress available so as to require no more than 25 feet of lateral travel?			
10.	Are barriers, i.e., guardrails or fences, placed around excavations near pedestrian or vehicle thoroughfares?			
11.	Is excavation inspected <u>daily</u> by competent persons and documented?			

PROJECT SAFETY INSPECTION REPORT

PROJECT _____
DATE _____

		YES	NO	N/A
CONFINED SPACES				
1.	Have employees been trained in the hazards of confined spaces?			
2.	Are confined space permits posted at entrance to confined space?			
3.	Is a copy of the confined space entry procedure available?			
4.	Has a rescue plan been established?			
5.	Is an entry supervisor present at each permit-required entry?			
6.	Are required extraction/fall protection devices being used?			
DECONTAMINATION				
1.	Are decontamination stations set up on site?			
2.	Is decontamination water properly contained and disposed of?			
3.	Are all pieces of equipment inspected for proper decontamination before leaving the site?			
4.	Are shin/metatarsal guards being used during power washing activities?			
HAZARD COMMUNICATION				
1.	Is there a copy of the HAZCOM procedure on site?			
2.	Are there MSDSs for required materials/chemicals present on site?			
3.	Are all containers properly labeled, as to content, hazard?			
4.	Have employees been trained in accordance with the HAZCOM procedure?			
5.	Do employees (including subcontractors) know and understand the effects of exposure from the chemicals on site?			
6.	Have all personnel signed the HAZCOM acknowledgment form?			
7.	Is there an updated list of chemicals maintained on site?			
TRAINING				
1.	Are tailgate safety meetings being conducted daily?			
2.	Are current training/medical records maintained on site?			
DOCUMENTATION				
1.	Is an OSHA 200 Log maintained on site and posted during the month of February?			
2.	Are accident report forms available?			
3.	Is a copy of health and safety policy and procedures available on site?			

PROJECT SAFETY INSPECTION REPORT

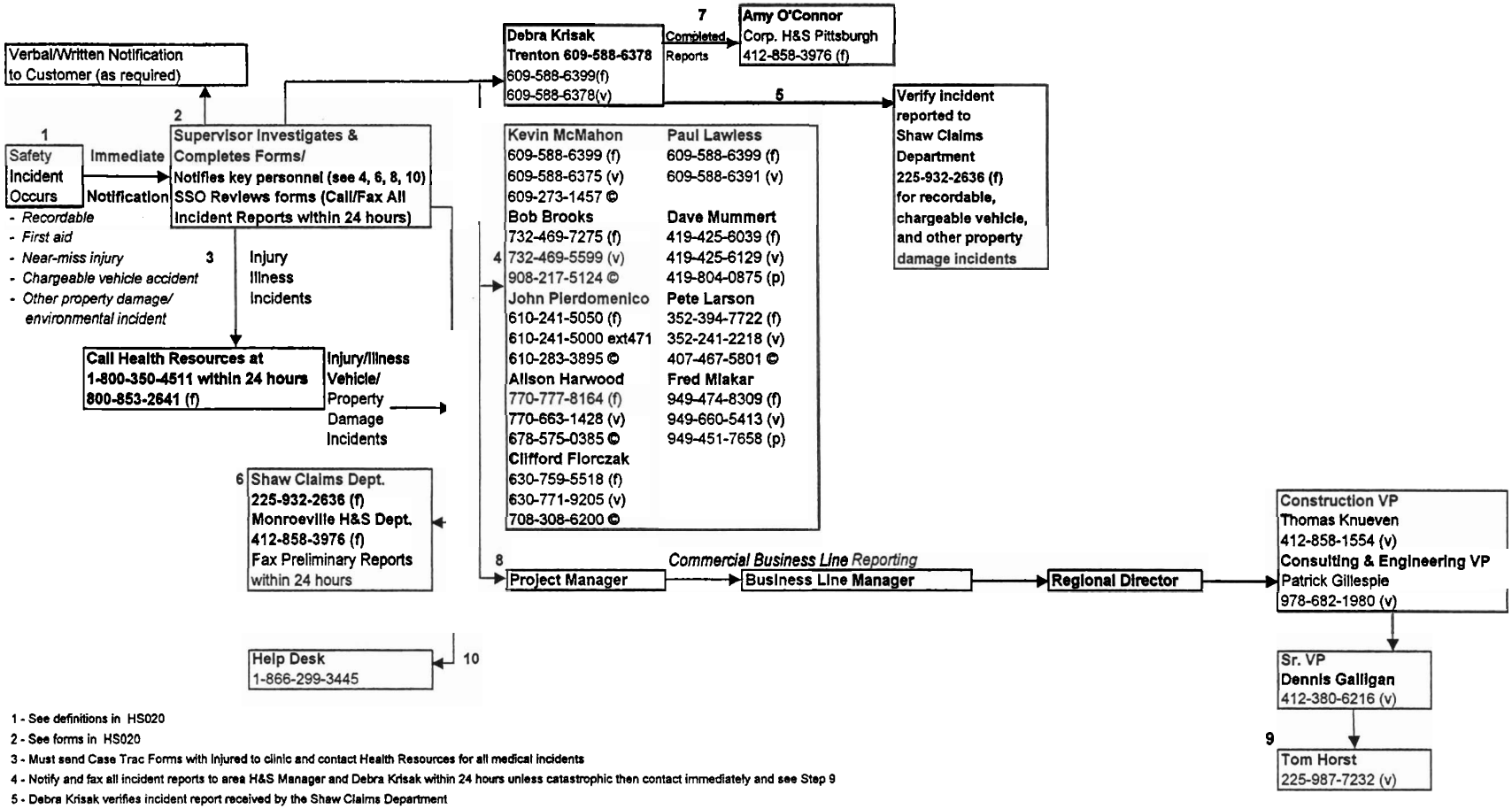
PROJECT _____
DATE _____

ALL NEGATIVE RESPONSES	CORRECTIVE ACTION	ASSIGNED TO	DATE ASSIGNED	DATE COMPLETED	VERIFIED BY

APPENDIX I

- *INCIDENT REPORTING FLOW CHART*
- *ACCIDENT PREVENTION PROGRAM: REPORTING, INVESTIGATION AND REVIEW*

Incident Reporting Flow
Commercial Services Projects



1 - See definitions in HS020
2 - See forms in HS020
3 - Must send Case Trac Forms with Injured to clinic and contact Health Resources for all medical incidents
4 - Notify and fax all incident reports to area H&S Manager and Debra Krisak within 24 hours unless catastrophic then contact immediately and see Step 9
5 - Debra Krisak verifies incident report received by the Shaw Claims Department
6 - Fax incident reports to the Shaw Claims Department and Monroeville H&S Dept. within 24 hours
7 - Debra Krisak will send completed reports to Amy O'Connor in Pittsburgh
8 - Notify Key Business Line Personnel ASAP unless catastrophic then contact immediately; set up for Accident Review Board if applicable
9 - Call Tom Horst (Sr. VP, Shaw Environmental Services) within 24 hours for all recordable and serious incidents; notify immediately if catastrophic incident
10 - Call Help Desk to report incident

PROCEDURE

Subject: ACCIDENT PREVENTION PROGRAM: REPORTING, INVESTIGATION, AND REVIEW

1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to establish the requirements for incident reporting, investigation, and review. This procedure is an integral part of the company's overall accident prevention program and aids in the determination of causal factors and corrective actions necessary to prevent incident recurrence. Key elements of this procedure include:

- **All occupational injuries/illnesses, vehicle accidents, and near miss incidents must be promptly reported and investigated.**
- All Occupational Safety and Health Administration (OSHA) recordable injuries/illnesses and chargeable vehicle accidents must be examined by an Accident Review Board. The Accident Review Board report is to be submitted/approved up through business line management to the appropriate Vice-President.
- All catastrophic incidents, injuries or illnesses will be immediately reported by phone to: the Shaw E & I EH&S Manager; the Operations H&S Manager, the Shaw Corporate Claims Department; and the business line President.

2.0 TABLE OF CONTENTS

3.0 RESPONSIBILITY MATRIX

3.1 Procedure Responsibility

The Shaw E & I ES&H Manager is responsible for the issuance, revision, and maintenance of this procedure.

3.2 Action/Approval Responsibilities

The Responsibility Matrix is Attachment 1.

4.0 DEFINITIONS

Catastrophic Incident – Property damage or business interruption loss in excess of $50,000.

Catastrophic Injury/Illness – An incident that results in an occupational fatality or hospitalization of 3 or more employees.

Chargeable Vehicle Accident - Any **at-fault** vehicle accident meeting any **one** of the following criteria:

- An individual other than an employee of the company is a party in the accident;
- Property owned by a person or entity other than the company is damaged; or
- When only company employees, company owned or leased (**not** rented) vehicles, and company property is involved and damage exceeds $2,500.

Company – Shaw Environmental & Infrastructure, Inc. and it's subsidiaries.

Days Away from Work Case - Cases which involve days away from work, days of restricted work activity, or both. Days away from work are the number of calendar days, excluding the date of the incident on which, because of injury or illness:

The employee was assigned to another job on a temporary basis;
- The employee worked at a permanent job less than full time; or
- The employee worked at a permanently-assigned job, but could not perform all duties normally connected with it.

First Aid – Treatments considered first aid are listed in Attachment 8.

Minor Incident – An incident that results in property damage of less than $2,500. This includes vehicle accidents unless a third party is involved.

Minor Injury/Illness – An occupational injury or illness that receives no medical attention, or medical attention limited to on-site first aid.

Near Miss Incident - Any incident where no injury occurred, but where the potential for injury existed.

OSHA Recordable Case – An injury or illness that involves death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness.

Serious Incident – An incident that results in property damage or business interruption costs of between $2,500 and $50,000; involves a process safety management consequence; or affects third parties or the public.

Serious Injury/Illness – An occupational injury or illness that is classified as an OSHA recordable case, a restricted activity case or a case with days away from work.

Vehicle - Any passenger vehicle, including trucks, used upon the public roads or in private facilities for transporting passengers and/or property. For the purpose of this procedure, off-road vehicles such as earthmoving equipment, forklifts, non-highway use trucks, etc., are not considered vehicles.

5.0 TEXT

5.1 Incident Reporting Process

Employees are required to immediately report to their direct supervisor all occupational injuries, illnesses, accidents, and near miss incidents having the potential for injury. Any supervisor (but preferably the supervisor directly responsible for the involved employees) with first-hand knowledge of an incident is required to:

- Immediately arrange for appropriate medical attention and notify the responsible health and safety representative.

- Inform Health Resources of all incidents requiring medical attention by calling 1-800-350-4511, and providing the following information:

  - Company Name (The Shaw Group)
  - Employee Name
  - Name of treating medical facility and phone number
  - Brief description of incident.

  Health Resource's role is to interface with the treating physician to ensure that appropriate care is provided to the injured employee.

- Complete the *Authorization for Treatment* (Attachment 9A), *Release of Medical Information*, (Attachment 9B) and *Return to Work* (Attachment 9C) and the *Supervisor's Employee Injury Report* (Attachment 3) for all cases requiring medical attention. The employee or his/her supervisor is to ensure that these completed forms are faxed to Health Resources at (800) 853-2641 prior to leaving the medical facility or as soon as reasonably possible.

- Prior to an injured employee returning to his/her job duties, a follow-up call by Health Resources will be made to the project site. The purpose of this call is to ensure work restrictions are clarified and planned work activities are consistent with medical recommendations.

  The supervisor is to initiate/complete the appropriate company documentation in accordance with the following incident classifications:

Incident Documentation Requirements		
Incident Type	Form(s) Required	Timing for Submission
Near Miss	Incident Investigation	72 Hours
First Aid	SEIR	24 Hours
	Incident Investigation	72 Hours
Recordable Injury/Illness	SEIR	24 Hours
	Incident Investigation	72 Hours
	Accident Review	10 Days
Non-Chargeable Vehicle*	Vehicle Accident Report	24 Hours
	Incident Investigation	72 Hours
Chargeable Vehicle Accident*	Vehicle Accident Report	24 Hours
	Incident Investigation	72 Hours
	Accident Review Board	10 Days
Property Damage or Loss >$1,000	General Liability, Property Damage and Loss Report	24 Hours
* Also submit appropriate injury reports if necessary.		

All forms, with the exception of the Accident Review Board and Incident Investigation Report, must be completed and forwarded to the appropriate health and safety representative within **one** business day of the incident.

Catastrophic injuries/illnesses, fatalities and catastrophic incidents are to be reported by phone immediately to the Shaw E & I EH&S Manager and Operations H&S Manager; and as soon as practical, but in all cases within eight (8) hours of the incident to the Shaw Claims Department. Immediate phone notification to business line management is also required.

Serious injuries/illnesses, and serious incidents are to be reported by the location or project manager to the appropriate business line manager within twenty-four (24) hours

All incidents involving a fatality, major injury/illness, or resulting in significant property damage are to be reported to the appropriate business line President; Shaw E & I EH&S Manager, and Operations H&S Manager as soon as possible, but not later than the close of business on the day of the incident.

5.2 Supervisor's Employee Injury Report

The Supervisor's Employee Injury Report (SEIR) (Attachment 3) is to be completed for all incidents that result in an employee occupational injury or illness. It is to be initiated by the supervisor of the injured employee and forwarded to the project/location manager for comments. The SEIR must be submitted to the Shaw Claims Department and Monroeville H&S office within 24 hours of the incident.

5.3 Vehicle Accident Report

The Vehicle Accident Report (Attachment 4) must be completed for any vehicle accident in which a company vehicle is involved. This includes company-owned or leased vehicles, rental vehicles, and personal vehicles being used for company business. This report is to be initiated by the employee involved in the accident or his/her direct supervisor, then forwarded to the appropriate health and safety representative.

5.4 General Liability, Property Damage, and Loss Report

The General Liability, Property Damage, and Loss Report (Attachment 5) is to be used for all losses or damage to company property in excess of $1,000.00. This form must be completed for all third party property damaged as a result of company activities regardless of value. The employee most familiar with the events that contributed to the loss or damage will complete the form, then forward it to the project/location manager. The Shaw Claims Department must receive a copy of the report within one business day of the incident. An Incident Investigation Report must also be completed and submitted for these incidents.

5.5 Incident Investigation Report

All injuries, illnesses, accidents, and near miss incidents will be investigated. Once arrangements for immediate medical care have been made, the employee's direct supervisor, with assistance from the health and safety representative and/or business line H&S staff will:

- Reconstruct (NEVER RE-ENACT) the conditions which led to the incident (collect the facts);
- Describe and document (include sketch, photos, etc.) how the incident occurred;
- List witnesses and collect written statements when possible;
- Identify and discuss the causative factors;
- Identify the unsafe act or unsafe condition that contributed to the incident;
- Identify possible systematic/management deficiencies; and

- List the corrective actions which are to be taken to prevent re-occurrence of the incident, the person responsible for the corrective action, and the date by which action is to be completed.

The investigation will be started as soon as possible after the incident and a written report (Attachment 6) submitted to the appropriate health and safety representative within 72 hours. In addition to the previous information, reports from external sources (police, insurance carriers, testing laboratories, etc.) are to be obtained as soon as they become available and forwarded to the recipients of the investigation report.

5.6 Accident Review Board

Each manager whose project/location experiences an OSHA recordable or a chargeable vehicle accident is required to convene an Accident Review Board within **10 days** of the accident. The purpose of the Accident Review Board is to review the information gathered for each incident and take appropriate action to prevent its recurrence. The Accident Review Board shall be composed of the project/location manager, the employee's direct supervisor, a health and safety representative, and the employee(s) involved in the incident. When appropriate, a representative of other internal sources of expertise should be involved.

If all relevant facts about the incident are not available (e.g., police reports, investigations by clients), and the Accident Review Board will not be held within 10 days, the Accident Review Board may be delayed until necessary information becomes available.

The health and safety representative will serve as the chair of the Accident Review Board, and will distribute supporting information to all members of the Board before or at the time the Board is convened.

It is generally not acceptable to discipline an employee for having an accident. However, if the Accident Review Board determines that the accident resulted from an unsafe act or violation of company procedure on the employee's part, the employee should be subject to disciplinary action in accordance with the company's progressive disciplinary action system (see Human Resources Procedure HR207).

Corrective actions specified by the Accident Review Board will be implemented by the involved employee's supervisor (at the time of the incident) and the responsible project or location manager.

The Review Board's actions will be documented on the Accident Review Board report (Attachment 7).

5.7 Insurance Notification

The Shaw Claims Department in Baton Rouge is responsible for reporting employee injuries/illnesses requiring outside medical treatment to Liberty Mutual or Gates McDonald.

6.0 EXCEPTION PROVISIONS

Variances and exceptions may be requested pursuant to the provisions of Procedure HS013, Health and Safety Procedure Variances.

7.0 CROSS REFERENCES

HR207 Disciplinary Action
HS013 Health and Safety Procedure Variances
HS800 Motor Vehicle Operations - General Requirements
HS810 Commercial Motor Vehicles

8.0 ATTACHMENTS

1. Responsibility Matrix
2. Phone Contact List
3. Supervisor's Employee Injury Report
4. Vehicle Accident Report
5. General Liability, Property Damage, and Loss Report
6. Incident Investigation Report
7. Accident Review Board Report
8. First Aid Treatment List
9. Medical Forms

ATTACHMENT 1

ACCIDENT PREVENTION PROGRAM: REPORTING, INVESTIGATION, AND REVIEW RESPONSIBILITY MATRIX

Action	Procedure Section	*Responsible Party*					
		Employee	Supervisor	Project/ Location Manager	Health and Safety Representative	Business Line Health and Safety Manager	Shaw E&I EH&S Manager
Issue, Revise, and Maintain Procedure	3.1						X
Report All Incidents to Supervisor	5.1	X					
Notify Business Line EH&S Lead	5.1		X				
Notify Business Line Operations Management	5.1		X	X			
Arrange Medical Care	5.1		X		X		
Notify Health Resources of Incident	5.1		X		X		
Initiate/Complete Company Forms	5.1		X				
Complete Investigation of Incident	5.5		X	X	X		
Convene Accident Review Board	5.6			X			
Participate in Accident Review Board	5.6	X	X	X	X		
Implement Accident Review Board Actions	5.6		X	X			

ATTACHMENT 2

Telephone Contact List				
Name & Title	**Office**	**Fax**	**Cell**	**Home**
Thomas Horst, President Shaw Environmental	225-987-7232	225-987-7248	617-417-0221	508-758-3004
Enzo Zoratto, President Shaw Infrastructure	412-858-3909	412-858-3340	412-736-8990	
Danny Oubre, Shaw EH&S Director	225-932-2576	225-932-2636	225-921-3510	
Peter Chin, Shaw E & I EH&S Manager	617-589-1746	617-589-1153	617-470-0604	508-785-2625
John Mollere, Shaw Loss Prevention Manager	225-932-2572	225-932-2636		
Warren Houseman, Shaw E& I H&S Operations Manager	412-858-3917	412-858-3976	617-784-6868	
Andrew Johnson, Shaw Infrastructure H&S Manager	513-782-4972	513-782-4807	859-393-4346	
Jerry Joy, Shaw Environmental H&S Manager	412-380-6203	412-858-3976	617-784-6874	
Greg McElroy (acting) Subsidiary/Business Development H&S Manager	412-858-1542	412-858-3976	440-463-3229	
Barbara Reider, Radiological Services H&S Manager	617-589-5829	617-589-1153	617-640-3124	
Health Resources	800-350-4511	800-853-2641		

ATTACHMENT 3

FAX ALL WORKER'S COMPENSATION INCIDENTS TO SHAW CLAIMS DEPARTMENT – 225-932-2636 – AND MONROEVILLE H&S OFFICE – 412-858-3976 – WITHIN 24 HOURS

Shaw The Shaw Group Inc.™

SUPERVISOR'S EMPLOYEE INJURY/ILLNESS REPORT

EMPLOYEE INFORMATION

EMPLOYEE'S FULL NAME			CLAIM NO.
EMPLOYEE'S SOCIAL SECURITY NUMBER:			CASE NUMBER FROM LOG:
HOME ADDRESS:			HOME PHONE
MALE ☐ FEMALE ☐	DATE OF BIRTH:		HIRE DATE
DEPENDENTS? YES NO	DEPENDENTS UNDER 18? YES NO		MARITAL STATUS:
EMPLOYEE'S JOB TITLE			DEPARTMENT:
STATE HIRED:	WEEKLY WAGE		HOURLY WAGE
DAYS WORKED PER WEEK	HOURS WORKED PER DAY:		
FULL TIME ☐	PART TIME ☐	SUBCONTRACTOR: ☐	
SALARY CONTINUED? YES NO	PAID FOR DATE OF INCIDENT? YES NO		
PRIOR OCCUPATIONAL INJURY OR ILLNESS? YES NO			
SUPERVISOR'S NAME & PHONE			

EMPLOYER INFORMATION

EMPLOYER NAME THE SHAW GROUP INC.		
PROJECT NAME	PROJECT NO.:	
PROJECT ADDRESS:		
BUSINESS LINE	OPERATING GROUP:	PROGRAM
CONTACT NAME JOHN MOLLERE	TELEPHONE 800-747-3322, EXT. 572	
EMPLOYER SIC	EMPLOYER LOCATION CODE	
EMPLOYER FEDERAL ID	EMPLOYER CODE	
NATURE OF BUSINESS: ENVIRONMENTAL CONSULTING, ENGINEERING AND REMEDIATION SERVICES		
POLICY NUMBER:		

ACCIDENT INFORMATION

DATE AND TIME OF INCIDENT:	TIME EMPLOYEE'S SHIFT BEGAN:
PERSON INCIDENT REPORTED TO:	DATE AND TIME INCIDENT REPORTED:
DID THE INCIDENT OCCUR AT A SHAW WORK LOCATION: YES NO	
IF NO, PROVIDE ADDRESS:	
WHAT WAS THE EMPLOYEE DOING JUST BEFORE THE INCIDENT?	
DESCRIBE THE INCIDENT (BE AS COMPLETE AS POSSIBLE):	
WHAT OBJECT OR SUBSTANCE DIRECTLY HARMED THE EMPLOYEE?	
ARE OTHER WC CLAIMS INVOLVED? YES NO	

PAGE 1 OF 2 CONTINUE ON REVERSE

ATTACHMENT 3 CON'T

INJURY/ILLNESS INFORMATION

WHAT PART OF THE BODY WAS AFFECTED (E.G., HEAD, ARM, BACK)?			
LOCATION OF AFFECTED BODY PART (E.G., RIGHT, UPPER, FRONT)?			
WHAT WAS THE NATURE OF THE INJURY/ILLNESS (E.G., LACERATION, SPRAIN, DERMATITIS)?			
DESCRIBE INJURY/ILLNESS:			
SOURCE OF INJURY/ILLNESS:		WAS EMPLOYEE HOSPITALIZED? YES ☐ NO ☐	
DAYS AWAY FROM WORK? YES ☐ NO ☐		DATE OF FIRST DAY MISSED:	
DATE OF LAST DAY WORKED:		DATE DISABILITY BEGAN:	
DATE RETURNED TO WORK:		ESTIMATED RETURN DATE:	
IF EMPLOYEE DIED, WHAT IS THE DATE OF DEATH?			
INITIAL INCIDENT CLASSIFICATION:	NEAR MISS ☐	RECORDABLE, RESTRICTED ACTIVITY ☐	
	FIRST AID ☐	RECORDABLE, DAYS AWAY ☐	
	RECORDABLE, NO RESTRICTED ACTIVITY, NO DAYS AWAY ☐	FATALITY ☐	

MEDICAL INFORMATION

INITIAL MEDICAL TREATMENT	FIRST AID ON-SITE ☒	HOSPITAL ER ☒
	FIRST AID OFF-SITE ☐	HOSPITAL OUT-PATIENT ☐
	DOCTOR'S OFFICE/CLINIC ☐	HOSPITAL IN-PATIENT ☐
CLINIC – NAME, ADDRESS, PHONE		
HOSPITAL – NAME, ADDRESS, PHONE		
NAME OF PHYSICIAN OR HEALTH CARE PROFESSIONAL:		

WITNESS INFORMATION

WERE THERE ANY WITNESSES? YES ☐ NO ☐	IF YES, LIST NAME(S) AND PHONE NUMBER(S):

ADDITIONAL COMMENTS & INFORMATION

REPORT PREPARED BY

NAME:	TITLE:	
SIGNATURE:	DATE:	PHONE:

ATTACHMENT 4

VEHICLE ACCIDENT REPORT
FAX TO SHAW CLAIMS DEPARTMENT – 225-932-2636 – AND
MONROEVILLE H&S OFFICE – 412-858-3976 – WITHIN 24 HOURS

Shaw The Shaw Group Inc.™

ACCIDENT LOCATION

SHAW SUBSIDIARY NAME	LOCATION CODE	PHONE
BUSINESS ADDRESS	CITY	STATE, ZIP
BUSINESS LINE	OPERATING GROUP	PROGRAM
PROJECT NAME	PROJECT NO.	

SHAW VEHICLE

VEHICLE YEAR, MAKE, MODEL	VEHICLE VIN	LICENSE PLATE NO./STATE
TRAILER YEAR, MAKE, MODEL	TRAILER VIN	LICENSE PLATE NO./STATE
DESCRIBE VEHICLE DAMAGE:		

ACCIDENT DATE, TIME AND PLACE

DATE OF ACCIDENT	TIME AM PM	EXACT LOCATION OF ACCIDENT

DRIVER OF SHAW VEHICLE

DRIVER'S NAME & ADDRESS			DRIVER'S PHONE	
DRIVER'S LICENSE NO./STATE	SEX	DATE OF BIRTH	SOCIAL SECURITY NO.	WORK PHONE

ACCIDENT INFORMATION

DRIVER'S DESCRIPTION OF ACCIDENT

POLICE DEPT. INVOLVED? YES NO	DEPARTMENT NAME
CITATIONS ISSUED? YES NO	TO WHOM?
WITNESS NAME	PHONE
WITNESS ADDRESS	
ADDITIONAL COMMENTS	

Illustrate How Accident Occurred (Label Vehicles and Street Names). Use Separate Sheet If Necessary.

Continue on Reverse

ATTACHMENT 4 CON'T

OTHER VEHICLES INVOLVED (NON-SHAW VEHICLES)					
VEHICLE 1			**VEHICLE 2**		
OWNER NAME		SEX	OWNER NAME		SEX
OWNER ADDRESS			OWNER ADDRESS		
HOME PHONE		BUSINESS PHONE	HOME PHONE		BUSINESS PHONE
D.O.B.	AGE	SOCIAL SECURITY NUMBER	D.O.B.	AGE	SOCIAL SECURITY NUMBER
VEHICLE YEAR, MAKE, MODEL		LICENSE PLATE/STATE	VEHICLE YEAR, MAKE, MODEL		LICENSE PLATE/STATE
TRAILER YEAR, MAKE, MODEL		LICENSE PLATE/STATE	TRAILER YEAR, MAKE, MODEL		LICENSE PLATE/STATE
VEHICLE VIN		TRAILER VIN	VEHICLE VIN		TRAILER VIN
INSURANCE COMPANY		POLICY NUMBER	INSURANCE COMPANY		POLICY NUMBER
INSURANCE PHONE/AGENT NAME			INSURANCE PHONE/AGENT NAME		
OPERATOR NAME		SEX	OPERATOR NAME		SEX
OPERATOR ADDRESS			OPERATOR ADDRESS		
HOME PHONE		BUSINESS PHONE	HOME PHONE		BUSINESS PHONE
DRIVER'S LICENSE NO./STATE			DRIVER'S LICENSE NO./STATE		
D.O.B.	AGE	SOCIAL SECURITY NUMBER	D.O.B.	AGE	SOCIAL SECURITY NUMBER
PASSENGER NAME		INJURED?	PASSENGER NAME		INJURED?
PASSENGER NAME		INJURED?	PASSENGER NAME		INJURED?
WAS VEHICLE PARKED?			WAS VEHICLE PARKED?		
DESCRIBE VEHICLE DAMAGE			DESCRIBE VEHICLE DAMAGE		
ANY DAMAGE TO PROPERTY OTHER THAN VEHICLES (BUILDING, SIGN, ETC.)?			ANY DAMAGE TO PROPERTY OTHER THAN VEHICLES (BUILDING, SIGN, ETC.)?		
PROPERTY OWNER NAME			PROPERTY OWNER NAME		
PROPERTY OWNER ADDRESS			PROPERTY OWNER ADDRESS		
DESCRIPTION OF DAMAGE TO PROPERTY			DESCRIPTION OF DAMAGE TO PROPERTY		
REPORT PREPARED BY					
NAME:			TITLE:		
SIGNATURE:		DATE:			PHONE:

ATTACHMENT 5

FAX THIS COMPLETED FORM TO THE SHAW CLAIMS DEPARTMENT – 225-932-2636 – AND MONROEVILLE H&S OFFICE – 412-858-3976 – WITHIN 24 HOURS

Shaw The Shaw Group Inc.™

GENERAL LIABILITY, PROPERTY DAMAGE AND PROPERTY LOSS REPORT

PROJECT/LOCATION:	PROJECT NO.:	DATE:
ADDRESS:		
DESCRIPTION AND ESTIMATED DOLLAR VALUE OF DAMAGE/LOSS:		
HOW DID THE DAMAGE/LOSS OCCUR?		
LOCATION OF PROPERTY BEFORE LOSS:		
DATE OF INCIDENT:	TIME OF INCIDENT: AM PM	
PROPERTY OWNER'S NAME:	PROPERTY OWNER'S PHONE:	
ADDRESS:		
WERE ANY PERSONS INJURED? (IF SHAW EMPLOYEE, COMPLETE ACCIDENT REPORTS) YES ☐ NO ☐		
NAME OF INJURED:	PHONE:	
ADDRESS:		
INJURED'S EMPLOYER AND ADDRESS:		
DESCRIBE INJURY:		

WITNESSES

NAME:	PHONE:	
ADDRESS		
NAME:	PHONE:	
ADDRESS		
POLICE NOTIFIED? YES ☐ NO ☐	DEPARTMENT NAME & PHONE:	REPORT ID:

REPORT PREPARED BY

NAME:	TITLE:	
SIGNATURE:	DATE:	PHONE:

PROJECT MANAGER

NAME:	SIGNATURE:	DATE:

Use Additional Sheets If Necessary

ATTACHMENT 6

SUBMIT THIS COMPLETED FORM WITHIN 72 HOURS TO THE MONROEVILLE H&S OFFICE – 412-858-3976

Shaw The Shaw Group Inc.™

INCIDENT INVESTIGATION REPORT

INVESTIGATION DATE:	INCIDENT DATE:
EMPLOYEE'S NAME:	
SUPERVISOR'S NAME:	
PROJECT NAME:	PROJECT NUMBER:
LOCATION OF INCIDENT:	

INCIDENT CLASSIFICATION:	NEAR MISS	☐	RECORDABLE, RESTRICTED ACTIVITY	☐
	FIRST AID	☐	RECORDABLE, DAYS AWAY	☐
	RECORDABLE, NO RESTRICTED ACTIVITY, NO DAYS AWAY	☐	FATALITY	☐
	NON-CHARGEABLE VEHICLE	☐	CHARGEABLE VEHICLE	☐
	MINOR INCIDENT	☐	SERIOUS INCIDENT	☐
	DOT VEHICLE	☐	DOT REPORTABLE	☐
	GENERAL LIABILITY, PROPERTY DAMAGE, PROPERTY LOSS	☐		

DESCRIBE HOW INCIDENT OCCURRED, PROVIDE FACTS, PROVIDE DIAGRAM OR ATTACH PHOTOS:
WHAT UNSAFE ACT(S) OR CONDITION(S) CONTRIBUTED TO THE INCIDENT?
WHAT SYSTEMATIC OR MANAGEMENT DEFICIENCIES CONTRIBUTED TO THE INCIDENT?
LIST CORRECTIVE ACTION ITEMS, RESPONSIBLE PERSON, DUE DATES:
IDENTIFY WITNESS(ES) AND ATTACH STATEMENT(S):

REPORT PREPARED BY

NAME:	TITLE:	
SIGNATURE:	DATE:	PHONE:

PROJECT MANAGER

NAME:	SIGNATURE:	DATE:

ATTACHMENT 7

SUBMIT THIS COMPLETED FORM WITHIN 10 DAYS TO
THE MONROEVILLE H&S OFFICE – 412-858-3976

Shaw The Shaw Group Inc.™

ACCIDENT REVIEW BOARD REPORT

DATE OF BOARD: LOCATION:	
BOARD MEMBERS:	
ACCIDENT DATE:	EMPLOYEE(S) INVOLVED IN ACCIDENT:
INVESTIGATION COMPLETE? YES ☐ NO ☐	ACCIDENT CLASSIFICATION:
THE FOLLOWING INFORMATION MUST BE PROVIDED BY THE REVIEW BOARD FOR THIS ACCIDENT:	
SUPERVISOR'S NAME:	PROJECT/LOCATION MANAGER'S NAME:

CAUSE OF ACCIDENT:
ACTION BY BOARD*:
* ALL ACTIONS BY THE ACCIDENT REVIEW BOARD ARE SUBJECT TO REVIEW BY THE HUMAN RESOURCES AND LEGAL DEPARTMENTS.

ACCEPTED:	
(EMPLOYEE SIGNATURE)	(SUPERVISOR SIGNATURE)
APPROVED:	REJECTED†:
(PROJECT/LOCATION MANAGER)	
APPROVED:	REJECTED†:
(BUSINESS LINE EHS MANAGER)	
APPROVED:	REJECTED†:
(BUSINESS LINE VICE PRESIDENT)	

†EXPLAIN BASIS FOR REJECTING FINDINGS:

ATTACHMENT 8
COMPREHENSIVE LISTING OF FIRST AID TREATMENTS

For the purposes of this procedure, "first aid" means the following treatments without regard to the qualifications of the person(s) who administer the treatment(s):

A. Using a non-prescription medication at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes);

B. Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);

C. Cleaning, flushing or soaking wounds on the surface of the skin;

D. Using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment);

E. Using hot or cold therapy;

F. Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes);

G. Using temporary immobilization devices while transporting an accident victim (*e.g.*, splints, slings, neck collars, back boards, etc.).

H. Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;

I. Using eye patches;

J. Removing foreign bodies from the eye using only irrigation or a cotton swab;

K. Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;

L. Using finger guards;

M. Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or

N. Drinking fluids for relief of heat stress.

ATTACHMENT 9A

AUTHORIZATION FOR TREATMENT OF OCCUPATIONAL INJURY/ILLNESS

Employee Name: _____
Social Security #: _____ Injury: ☐ Illness: ☐
Job Title: _____ Incident Date: _____
Project/Location _____ Location of Accident/Exposure:
Telephone #: _____ _____
H&S Representative: _____
Body Part(s) Injured: _____
Describe in detail how incident occurred: _____
_____

TO TREATING PHYSICIAN:

In the case of occupational injury/illness, please examine the employee and render necessary conservative treatment directly related to the occupational injury/illness.

Light Duty Work:
It is the policy of our company to provide work assignments, whenever possible, for employees with physical activity restrictions resulting from an occupational injury/illness. If the employee will be subject to a restriction, please contact **Health Resources** before releasing the employee, so that a light duty assignment may be arranged.

Medically Unfit to Return to Work:
It is the policy of our company to assist employees unable to return to work, due to an injury/illness, in obtaining needed medical care and other available benefits. Medical findings are also used to help evaluate unsafe conditions that may have led to the incident. Please help us assist our employees by contacting **Health Resources** with your findings as soon as possible, preferably before the employee leaves your office, but not later than the close of business on the day of initial treatment.

Health Resources: Telephone: 1-800-350-4511 Fax: (800) 853-2641

Please Send Reports To: **Health Resources**
600 West Cummings Park, Suite 3400
Woburn, Massachusetts 01801

Please Send Bills To: Workers' Compensation Claims Administrator
Constitution State Service Company (Travelers)

DOCTOR, Please provide:
Medical Diagnosis: _____
Treatment Provided: _____
_____
Recommended Work Limitation/Restriction: _____
Return Visit Needed: No ☐ Yes ☐ Date if Yes _____ First Aid Only ☐
Physician Name: _____ Physician Telephone: _____
Physician Signature: _____ Date: _____

YOU MUST CALL HEALTH RESOURCES FOR ALL OCCUPATIONAL INJURIES/ILLNESSES REQUIRING OUTSIDE MEDICAL TREATMENT: 1-800-350-4511.
FAX COMPLETED FORM TO HEALTH RESOURCES (800) 853-2641.

ATTACHMENT 9B

AUTHORIZATION FOR RELEASE OF MEDICAL INFORMATION

I, _____, grant authorization to _____
(Print Full Name) *(Treating Physician's Name)*
for the release of any information concerning my occupational injury/illness to:

HEALTH RESOURCES
600 West Cummings Park, Suite 3400
Woburn, Massachusetts 01801
Phone: (800) 350-4511
Fax: (800) 853-2641

for the purpose of disability follow-up and return to work authorization.

Please provide the following information:

EMPLOYEE INFORMATION:

Full Name: _____
Date of Birth: _____
Social Security #: _____
Home Address: _____

Home Phone: _____
Work Phone: _____

MEDICAL INFORMATION:

Treating Physician's Name: _____
Physician's Address: _____

Phone Number: _____
Fax Number: _____

Employee Signature: _____ Date: _____

ATTACHMENT 9C

RETURN-TO-WORK EXAMINATION FORM

Exam Date: _____/_____/_____ **Employee Name:** _____

Birth Date: _____/_____/_____ **Social Security #:** _____-_____-_____

Job Title: _____ **Sex:** ❑ Male ❑ Female

Examining Provider: **Please complete this form and fax to Health Resources at (800) 853-2641. Please contact Health Resources at (800) 350-4511 to report status of employee post-treatment.**

DIAGNOSIS: _____

TREATMENT PLAN: _____

MEDICATIONS: _____

PHYSICAL THERAPY: _____

OTHER: _____

❑ May return to full duty work effective ____/____/

❑ May return to limited duty from ____/____/____ to ____/____/

❑ Unable to return to work from ____/____/____ to ____/____/____

WORK LIMITATIONS:

❑ Restricted lifting/pushing/pulling: maximum weight in lbs.: _____ (company limits all lifting to ≤ 60 lbs.).

❑ Work only with right/left hand.

❑ Restricted repetitive motion right/left hand.

❑ Sitting job only.

❑ Restricted operation of moving equipment.

❑ Other: _____

FOLLOW-UP PLAN:

❑ Release from care.

❑ Schedule for follow-up appointment on ____/____/____.
Time _____ AM/PM

❑ Referral to _____
Appointment date ____/____/____ Time _____ AM/PM

Comments: _____

Examiner's Name (*print*)	Examiner's Signature	Date

APPENDIX J

- *SAFETY OBSERVATION PROGRAM*
- *CRITICAL SAFETY PRACTICE CHECKLISTS*

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SAFETY OBSERVER REPORT

Observation Type: ☐ General ☐ Focused

1. Observer Name	2. Job Title	3. Project Name	4. Project Number	5. Date/Time

6. Task/Area Observed (check one)

- ☐ Tank Removal / Cleaning
- ☐ Confined Space Entry
- ☐ Filter Press Operations
- ☐ Thermal Treatment
- ☐ Excavation
- ☐ Rigging / Lifting
- ☐ Water Treatment
- ☐ Demolition
- ☐ Other_____
- ☐ Clearing/Grubbing
- ☐ Decontamination
- ☐ Facility Construction
- ☐ Drum Handling

7. Name/Job Position of Worker Observed (focused observation only)

8a. Background Information / Comments

8b. Job Safety Analysis (JSA) as

☐ Yes ☐ No

9. Positive Observations

a.

b.

c.

d.

10. Unsafe Practices / Conditions

a.

b.

c.

d.

11. Safety Observer's Recommended Action(s)

a.

b.

c.

d.

e.

12. Supervisor's Corrective Action Taken

a.

b.

c.

d.

e.

13a. Supervisor Review Date

13b. Site Safety Officer Review (if applicable) Date

Rev. 11/97

Shaw
The Shaw Group Inc.™

SAFETY OBSERVATION PROGRAM

OBJECTIVE

It is the objective of IT Corporation to involve all field personnel in a ***Safety Improvement Process***, through a systematic feedback process known as Safety Observation.

PURPOSE

Employees engaged in work activities are often the most knowledgeable about the hazards of their work and can provide valuable feedback on unsafe conditions and unsafe practices which require corrective action.

The Safety Observation Program is a tool for employees to provide information on actual or potential safety hazards that they observe in their workplace, which if left unreported might result in an accident or injury to an IT employee, subcontractor, client or public and to provide recommendations to correct the hazards.

A good Safety Observation Program will:

- Pinpoint practices that could cause accidents, injuries, damage, inefficiency and waste.
- Determine specific needs for coaching and training.
- Check the adequacy of existing job/task methods and procedures.
- Follow-up on the effectiveness of training.
- Give appropriate on-the-spot constructive correction.

This procedure outlines the basic elements of an effective Safety Observation Program for an IT Northern Region Project. The Project Superintendent/Supervisor is responsible for developing and implementing a site specific Safety Observation Program which meets the requirements for each element of an effective Program, within the first 10 days of the start of field work.

ELEMENTS OF AN EFFECTIVE SAFETY OBSERVATION PROGRAM

1. **Types of Observations** - Each project shall determine the type(s) of observations to be conducted. There are 2 types of observations: (1) focused observations; (2) general observations.

   Focused Observations are made when the Safety Observer is scheduled to observe a specific individual performing a specific job function/task. This type of observation is planned, resulting in a detailed review of how well safety procedures are being followed and to identify any unsafe conditions which may be present. The results are presented to the individual performing the observed task for his review and response, and a copy is provided to the Site Supervisor for his review.

   General Observations are planned and occur more or less during the normal course of work. The Safety Observer maintains his/her normal job function. During the shift the Safety Observer will make at least two safety observations of a work area/task to observe for unsafe conditions which might cause or contribute to an incident.

2. **Safety Observation Schedule** - Each project must develop a schedule for conducting Safety Observations. Projects should base their decision on the schedule (time period/number) of Safety Observations on project duration, number/complexity of tasks, degree of hazards, number of employees, experience of employees and other relevant factors. All principal tasks for which a Job Safety Analysis is required must be provided with at least an initial Safety Observation; follow-up Safety Observations are required for all observations resulting in corrective action recommendations. The schedule for observations should be posted for site personnel to review. The minimum requirements for an effective Safety Observation Program are as follows:

   General Observations: The minimum number of general safety observations is 2 per week.

   Focused Observations: The minimum number of focused safety observations is 1 per week.

3. **Follow-up Process** - The safety Observation Program must have an effective process to track action items observed by the Safety Observer and corresponding corrective actions approved by site management. The action items and corrective actions, including due dates and responsible person(s) must be documented in a log. The status of observations and corrective actions should be posted for site personnel to review.

4. **Safety Observer's Report Form** - The results of each Safety Observation shall be recorded on the standard form (attached) or a site specific form, which contains at least the minimum information described below. Reports must include observations on unsafe practices and unsafe conditions made during each observation. The information must be specific to the task/function observed so that any necessary corrective actions can be implemented. Additional information should include positive observations of good safety practices and the corrective actions taken to correct the observed deficiencies. The reports must be dated and include the Safety Observer's name and job title. Reports must be submitted to the Site Supervisor by the end of the shift on which the observation was made. General Safety Observation reports shall be reviewed by the Safety Observer at the next daily safety meeting and retained in the job safety files.

5. **Employee Information & Training** - Project personnel shall be informed of the site-specific Safety Observation Program developed by the site management. Site personnel are encouraged to solicit input from site personnel concerning the best approach. All Safety Observers shall be trained on-site to conduct effective safety observations. This training shall be provided by the Site Supervisor or his designated person. (Guidelines for conducting effective safety observations are attached and can be used for the training.)

6. **Employee Recognition** - A recognition program should be included to promote and maintain interest in the Safety Observation Program and to recognize significant achievements in contributing to the Safety Improvement Process. The recognition should by specified as part of the standard Safety and Health Awareness & Recognition Program (SHARPs) plan. Examples include Safety Observer of the Month or reaching a specified goal, e.g. 25 corrected observations.

SITE PREPARATION
CRITICAL SAFETY PRACTICES
Safety Observation Checklist

Procedure Site Preparation	**Safe**	**At Risk**
Understand and review hand signals	☐	☐
Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris	☐	☐
Mark, identify, or barricade site hazards	☐	☐
Review hazardous properties of site contaminants before beginning work	☐	☐
Provide Material Safety Data Sheets	☐	☐
Separate Flammables and Oxidizers by 20 feet minimum	☐	☐
Store flammable liquids in well ventilated areas, away from work areas	☐	☐
Assess noise level with sound level meter if possibility exists that level may exceed 85 dB A TWA	☐	☐
Monitor for Heat/Cold stress in accordance with IT Health and Safety Procedures # HS400, HS401	☐	☐
Provide an adequate break area to include fluids to prevent worker dehydration	☐	☐
Eliminate sources of ignition from the work area	☐	☐
Provide ABC fire extinguishers	☐	☐
Prohibit Smoking	☐	☐
Store flammable liquids in well ventilated areas	☐	☐
Prohibit storage, transfer of flammable liquids in plastic containers	☐	☐
Enforce use of approved flammable liquid safety cans	☐	☐
Post "NO SMOKING" signs	☐	☐
Store combustible materials away from flammables	☐	☐
Provide first aid kit/facility	☐	☐
De-energize or shut off utility lines at their source before work begins	☐	☐
Use double insulated or properly grounded electric power-operated tools	☐	☐
Provide an equipment-grounding conductor program or employ ground-fault circuit interrupters	☐	☐
Use qualified electricians to hook up electrical circuits	☐	☐
Inspect all extension cords daily for structural integrity, ground continuity, and damaged insulation	☐	☐
Cover or elevate electric wire or flexible cord passing through work areas to protect from damage	☐	☐
Inspect all electrical power circuits prior to commencing work	☐	☐

Procedure Site Preparation	Safe	At Risk
Keep all lines, plugs and receptacles out of water	☐	☐
Lockout/tag-out/de-electrical energize equipment before maintenance according to Procedure HS315	☐	☐
Follow all manufacturers instructions for operation of power tools	☐	☐

Body Use Site Preparation	Safe	At Risk
Use 3 point contact when ascending/descending heavy equipment	☐	☐
Observe proper lifting techniques	☐	☐
Obey sensible lifting limits (60 lb. Maximum per person manual lifting)	☐	☐

Personal Protective Equipment Site Preparation	Safe	At Risk
Wear reflective warning vests worn when exposed to vehicular traffic	☐	☐
Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads	☐	☐
Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects	☐	☐
Provide workers proper skin, eye and respiratory protection based on the exposure hazards present	☐	☐
Wear hard hats, safety glasses with side shields, and steel-toe safety boots	☐	☐
Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	☐	☐
Provide ABC (or equivalent) fire extinguishers for all flammable storage areas, powered cutting equipment re-fueling areas, fuel powered generators and compressors	☐	☐

Equipment/Tools/Vehicles Site Preparation	Safe	At Risk
Isolate equipment swing areas	☐	☐
Make eye contact with operators before approaching equipment	☐	☐
Verify proper operation of equipment backup alarms	☐	☐
Maintain all hand and power tools in a safe condition	☐	☐
Conduct daily heavy equipment inspections	☐	☐
Keep guards in place during use	☐	☐
Use approved water-proof, weather-proof type electrical components if exposure to moisture is likely	☐	☐
Store all compressed gas cylinders upright, caps in place when not in use	☐	☐
Prohibit use of defective tools/equipment	☐	☐

EROSION CONTROLS INSTALLATION
CRITICAL SAFETY PRACTICES
Safety Observation Checklist

Procedure Erosion Control Installation	**Safe**	**At Risk**
Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris	☐	☐
Mark, identify, or barricade site hazards	☐	☐
Identify and review poisonous plants with workers before work activity begins	☐	☐
Review injury potential of snakes/animals with workers	☐	☐
Avoid likely insect/animal nest areas habitats outside work area	☐	☐
Use insect repellant, wear PPE to protect against bite/sting injuries	☐	☐
Use the buddy system	☐	☐
Monitor for Heat/Cold stress in accordance with IT Health and Safety Procedures # HS400, HS401	☐	☐
Provide an adequate break area to include fluids to prevent worker dehydration	☐	☐
Provide first aid kit/facility	☐	☐
Restrict work area access to authorized personnel	☐	☐
Follow work/rest schedule established in H&S Plan	☐	☐

Body Use Erosion Control Installation	**Safe**	**At Risk**
Observe proper lifting techniques	☐	☐
Obey sensible lifting limits (60 lb. Maximum per person manual lifting)	☐	☐

Personal Protective Equipment Erosion Control Installation	**Safe**	**At Risk**
Wear reflective warning vests worn when exposed to vehicular traffic	☐	☐
Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads	☐	☐
Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects	☐	☐
Provide workers proper skin, eye and respiratory protection based on the exposure hazards present	☐	☐
Wear hard hats, safety glasses with side shields, and steel-toe safety boots	☐	☐
Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	☐	☐
Wear safety goggles when using sledge hammer, hatchet, maul or axe	☐	☐

Equipment/Tools/Vehicles Erosion Control Installation	**Safe**	**At Risk**
Isolate Equipment Swing Areas	☐	☐
Make eye contact with operators before approaching equipment	☐	☐
Wire tie hose connections closed	☐	☐
Barricade or enclose work areas	☐	☐
Hold stakes in place with tongs, vice-pliers or other remote grasping tools	☐	☐
Maintain all hand and power tools in a safe condition	☐	☐
Keep guards in place during use	☐	☐
Prohibit use of defective tools/equipment	☐	☐

Clearing, Grubbing, Tree Felling
CRITICAL SAFETY PRACTICES
Safety Observation Checklist

Procedure Clearing, Grubbing, Tree Felling	**Safe**	**At Risk**
Understand and review hand signals	☐	☐
Delineate fall hazard areas	☐	☐
Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris	☐	☐
Mark, identify, or barricade site hazards	☐	☐
Review injury potential and types of animal hazards with workers	☐	☐
Avoid insect nests areas, likely habitats of snakes outside work areas	☐	☐
Use the Buddy System	☐	☐
Use insect repellant, wear PPE to protect against sting/bite injuries	☐	☐
Identify and review poisonous plants with workers	☐	☐
Store flammable liquids in well ventilated areas, away from work areas	☐	☐
Prohibit smoking while operating clearing equipment	☐	☐
Assess noise level with sound level meter if possibility exists that level may exceed 85 dB A TWA	☐	☐
Monitor for Heat/Cold stress in accordance with IT Health and Safety Procedures # HS400, HS401	☐	☐
Provide an adequate break area to include fluids to prevent worker dehydration	☐	☐
Eliminate sources of ignition from the work area	☐	☐
Prohibit Smoking	☐	☐
Store flammable liquids in well ventilated areas	☐	☐
Prohibit storage, transfer of flammable liquids in plastic containers	☐	☐
Enforce use of approved flammable liquid safety cans	☐	☐
Post "NO SMOKING" signs	☐	☐
Store combustible materials away from flammables	☐	☐
Allow chainsaw to cool off before re-fueling	☐	☐
Prohibit chainsaw startup in re-fueling areas	☐	☐
Inspect chain saw fuel cup and hose for leaks	☐	☐
Verify trees/branches will not foul overhead utility lines	☐	☐
Isolate equipment operation, tree felling areas (2 ½ tree lengths)	☐	☐
Inspect tree for dead, broken limbs before cutting	☐	☐
Prohibit cutting overhead, above shoulder height	☐	☐
Identify/clear retreat path before beginning saw cuts	☐	☐

Procedure Clearing, Grubbing, Tree Felling	Safe	At Risk
Lockout/tag-out/de-energize chippers before clearing/ maintenance	☐	☐
Identify staging area for debris	☐	☐
Keep chipper approach free of ground debris	☐	☐
Follow all manufacturers instructions for operation of power tools	☐	☐
Prohibit handling, touching chain blade while chain saw is operating	☐	☐
Test/inspect chain brake, chain guards before each days use	☐	☐
Follow proper startup procedures	☐	☐
Prohibit 'drop start' of chain saw	☐	☐
Carry saw with blade pointing behind	☐	☐
Prohibit standing on, straddling logs while ground cutting	☐	☐
Stand uphill while ground cutting	☐	☐
Start relieving cuts on compression side of log first, then make bucking cut on tension side	☐	☐
Prohibit workers from holding logs while being cut	☐	☐
Stop saw motor to remove saw if pinched	☐	☐
Maintain both hands on chain saw while cutting	☐	☐
Notch cuts before through-cutting of trunks/limbs	☐	☐
Prohibit cutting of limbs/logs in piles	☐	☐
Avoid cutting actions that may pinch the chain blade	☐	☐
Idle or shut down chain saw when walking any distance	☐	☐
Operate chain saws only at 'full' power when cutting	☐	☐
Prohibit chain saw use for shrubs or brush	☐	☐
Make slow cuts of two inches on tensioned limbs/trees until it starts to break.	☐	☐
Position yourself on the inside of tree bends	☐	☐
Keep muffler/hot parts away from body while walking	☐	☐

Body Use Clearing, Grubbing, Tree Felling	Safe	At Risk
Wear reflective warning vests worn when exposed to vehicular traffic	☐	☐
Observe proper lifting techniques	☐	☐
Obey sensible lifting limits (60 lb. Maximum per person manual lifting)	☐	☐

Personal Protective Equipment Clearing, Grubbing, Tree Felling	Safe	At Risk
Wear reflective warning vests worn when exposed to vehicular traffic	☐	☐
Use mechanical lifting equipment (hand carts, slings, trucks) to move large, awkward loads	☐	☐
Wear face shield, goggles when operating powered clearing / grubbing equipment/chain saws	☐	☐

Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects	☐	☐
Wear PPE to avoid skin contact with contaminated soil, plants, or other skin irritants	☐	☐
Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions	☐	☐
Wear eye, face, hand & hearing protection when operating power clearing equipment	☐	☐
Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	☐	☐
Provide ABC (or equivalent) fire extinguishers for all flammable storage areas, powered cutting equipment re-fueling areas, fuel powered generators and compressors	☐	☐
Keep guards in place during use	☐	☐
Wear proper PPE for protection from hot motor parts, muffler	☐	☐

Equipment/Tools/Vehicles Clearing, Grubbing, Tree Felling	**Safe**	**At Risk**
Isolate equipment swing areas	☐	☐
Make eye contact with operators before approaching equipment	☐	☐
Maintain all hand and power tools in a safe condition	☐	☐
Keep guards in place during use	☐	☐
Close doors, windows on heavy equipment to prevent injuries from tree branches and other vegetation	☐	☐
Verify proper operation of equipment backup alarms	☐	☐
Conduct daily heavy equipment inspections	☐	☐
Shut-off / idle power tools walking between work areas	☐	☐
Shut off equipment during re-fueling	☐	☐
Provide ABC (or equivalent) fire extinguishers for all work	☐	☐
Prohibit use of defective chain saws	☐	☐

SOIL & SURFACE/GROUNDWATER SAMPLING
CRITICAL SAFETY PRACTICES
Safety Observation Checklist

Procedure Soil & Surface/Groundwater Sampling	**Safe**	**At Risk**
Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris		
Mark, identify, or barricade site hazards		
Review hazardous properties of site contaminants before beginning work		
Monitor breathing zone air to determine levels of contaminants		
Follow proper procedures for handling/preserving/ packaging/labeling analytical samples; chemicals/ preserving agents		
Follow proper decontamination procedures to prevent ingestion of contaminants		
Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
Monitor for Heat/Cold stress in accordance with IT Health and Safety Procedures # HS400, HS401		
Provide an adequate break area to include fluids to prevent worker dehydration		
Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP		

Body Use Soil & Surface/Groundwater Sampling	**Safe**	**At Risk**
Observe proper lifting techniques		
Obey sensible lifting limits (60 lb. Maximum per person manual lifting)		

Personal Protective Equipment Soil & Surface/Groundwater Sampling	**Safe**	**At Risk**
Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects		
Provide workers proper skin, eye and respiratory protection based on the exposure hazards present		
Wear hard hats, safety glasses with side shields, and steel-toe safety boots		

Equipment/Tools/Vehicles Soil & Surface/Groundwater Sampling	**Safe**	**At Risk**
Maintain all hand and power tools in a safe condition		
Keep guards in place during use		

SOIL EXCAVATION
CRITICAL SAFETY PRACTICES
Safety Observation Checklist

Procedure Soil Excavation	**Safe**	**At Risk**
Understand and review hand signals	☐	☐
Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris	☐	☐
Mark, identify, or barricade underground/overhead utilities, other obstructions	☐	☐
Review heavy equipment operations and injury potential	☐	☐
Avoid insect nests areas, likely habitats of snakes outside work areas	☐	☐
Emphasize The Buddy System	☐	☐
Use insect repellant, wear PPE to protect against sting/bite injuries	☐	☐
Identify and review poisonous plants with workers	☐	☐
Cease work immediately if unknown utility markers are uncovered	☐	☐
Review hazardous properties of site contaminants with workers before operations begin	☐	☐
Provide material safety data sheets	☐	☐
Provide ABC fire extinguishers	☐	☐
Monitor breathing zone air to determine levels of contaminants	☐	☐
Assess noise level with sound level meter if possibility exists that level may exceed 85 dB A TWA	☐	☐
Monitor for Heat/Cold stress in accordance with IT Health and Safety Procedures # HS400, HS401	☐	☐
Provide an adequate break area to include fluids	☐	☐
Dampen soil using light water spray to prevent fugitive dust emissions	☐	☐
Cover stockpiled soil with plastic sheeting to prevent fugitive dust emissions.	☐	☐
Construct diversion ditches or dikes to prevent surface water from entering excavation	☐	☐
Collect ground water/rain water from excavation and dispose of properly	☐	☐
Treat excavations over 4 feet deep as confined spaces	☐	☐
Complete confined space permit entry procedure as required	☐	☐
Monitor atmosphere for flammable/toxic vapors, and oxygen deficiency	☐	☐
Assign a competent person to inspect, decide soil classification, proper sloping, the correct shoring, or sheeting	☐	☐
Inspect excavations (when personnel entry is required) daily, any time conditions change	☐	☐
Provide at least two means of exit for personnel working in excavations	☐	☐
Cease work immediately if unknown utility markers are uncovered	☐	☐

Procedure Soil Excavation	**Safe**	**At Risk**
Identify underground/overhead utilities around the well head/excavation area before work begins	☐	☐

Body Use Soil Excavation	**Safe**	**At Risk**
Observe proper lifting techniques	☐	☐
Obey sensible lifting limits (60 lb. Maximum per person manual lifting)	☐	☐

Personal Protective Equipment Soil Excavation	**Safe**	**At Risk**
Wear reflective warning vests worn when exposed to vehicular traffic	☐	☐
Use mechanical lifting equipment (hand carts, slings, trucks) to move large, awkward loads	☐	☐
Wear face shield, goggles when operating powered clearing / grubbing equipment/chain saws	☐	☐
Provide workers proper skin, eye and respiratory protection based on the exposure hazards present	☐	☐
Wear hard-hat safety glasses, steel-toe work boots	☐	☐
Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects	☐	☐
Wear PPE to avoid skin contact with contaminated soil, plants, or other skin irritants	☐	☐
Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions	☐	☐
Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	☐	☐
Keep guards in place during use	☐	☐
Wear proper PPE for protection from hot motor parts, muffler	☐	☐

Equipment/Tools/Vehicles Soil Excavation	**Safe**	**At Risk**
Isolate equipment swing areas	☐	☐
Make eye contact with operators before approaching equipment	☐	☐
Use 3 point contact when ascending/descending heavy equipment	☐	☐
Park heavy equipment on level ground to avoid potential sprains/strains when ascending/descending	☐	☐
Store excavated material at least 2 feet from the edge of the excavation; prevent excessive loading of the excavation face	☐	☐
Provide sufficient stairs, ladders, or ramps when workers enter excavations over 4 feet in depth	☐	☐
Place ladders no more than 25 feet apart laterally	☐	☐
Slope, bench, shore, or sheet excavations over 5 feet deep if worker entry is required	☐	☐

Equipment/Tools/Vehicles Soil Excavation	**Safe**	**At Risk**
Close doors, windows on heavy equipment to prevent injuries from tree branches and other vegetation	☐	☐
Use manual excavation within 3 feet of known utilities	☐	☐
Utility clearance shall conform with 29 CFR 1926.955 (high voltage >700 kv) 15 feet phase to ground clearance; 31 feet phase to phase clearance	☐	☐
Maintain all hand and power tools in a safe condition	☐	☐
Keep guards in place during use	☐	☐
Verify proper operation of equipment backup alarms	☐	☐
Conduct daily heavy equipment inspections	☐	☐

BACKFILL AND COMPACTION
CRITICAL SAFETY PRACTICES
Safety Observation Checklist

Procedure Backfill and Compaction	**Safe**	**At Risk**
Understand and review hand signals	☐	☐
Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris	☐	☐
Mark, identify, or barricade site hazards	☐	☐
Barricade or enclose work area	☐	☐
Restrict work area entry to authorized personnel only during backfill and compaction activities	☐	☐
Assess noise level with sound level meter if possibility exists that level may exceed 85 dB A TWA	☐	☐
Monitor for Heat/Cold stress in accordance with IT Health and Safety Procedures # HS400, HS401	☐	☐
Provide an adequate break area to include fluids to prevent worker dehydration	☐	☐

Body Use Backfill and Compaction	**Safe**	**At Risk**
Use 3 point contact when ascending/descending heavy equipment	☐	☐
Observe proper lifting techniques	☐	☐
Obey sensible lifting limits (60 lb. Maximum per person manual lifting)	☐	☐

Personal Protective Equipment Backfill and Compaction	**Safe**	**At Risk**
Wear reflective warning vests worn when exposed to vehicular traffic	☐	☐
Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads	☐	☐
Wear hard hats, safety glasses with side shields, and steel-toe safety boots	☐	☐
Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	☐	☐

Equipment/Tools/Vehicles Backfill and Compaction	**Safe**	**At Risk**
Isolate equipment swing areas	☐	☐
Make eye contact with operators before approaching equipment	☐	☐
Verify proper operation of equipment backup alarms	☐	☐
Conduct daily heavy equipment inspections	☐	☐

STREAM DIVERSION / DE-WATERING
CRITICAL SAFETY PRACTICES
Safety Observation Checklist

Procedure Stream Diversion / De-watering	**Safe**	**At Risk**
Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris	☐	☐
Mark, identify, or barricade site hazards	☐	☐
Identify and review poisonous plants with workers before work activity begins	☐	☐
Review injury potential of snakes/animals with workers	☐	☐
Avoid likely insect/animal nest areas habitats outside work area	☐	☐
Use insect repellant, wear PPE to protect against bite/sting injuries	☐	☐
Use the buddy system	☐	☐
Release pump line pressure before opening hose connections	☐	☐
Monitor for Heat/Cold stress in accordance with SEI Health and Safety Procedures # HS400, HS401	☐	☐
Provide an adequate break area to include fluids to prevent worker dehydration	☐	☐
Provide first aid kit/facility	☐	☐
Restrict work area access to authorized personnel	☐	☐
Follow work/rest schedule established in H&S Plan	☐	☐

Body Use Stream Diversion / De-watering	**Safe**	**At Risk**
Observe proper lifting techniques	☐	☐
Obey sensible lifting limits (60 lb. Maximum per person manual lifting)	☐	☐

Personal Protective Equipment Stream Diversion / De-watering	**Safe**	**At Risk**
Wear reflective warning vests worn when exposed to vehicular traffic	☐	☐
Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads	☐	☐
Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects	☐	☐
Provide workers proper skin, eye and respiratory protection based on the exposure hazards present	☐	☐
Wear hard hats, safety glasses with side shields, and steel-toe safety boots	☐	☐
Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)***	☐	☐
Wear safety goggles when using sledge hammer, hatchet, maul or axe	☐	☐

Equipment/Tools/Vehicles Stream Diversion / De-watering	**Safe**	**At Risk**
Isolate Equipment Swing Areas	☐	☐
Make eye contact with operators before approaching equipment	☐	☐
Wire tie hose connections closed	☐	☐
Barricade or enclose work areas	☐	☐
Hold stakes in place with tongs, vice-pliers or other remote grasping tools	☐	☐
Maintain all hand and power tools in a safe condition	☐	☐
Keep guards in place during use	☐	☐
Prohibit use of defective tools/equipment	☐	☐

WELL INSTALLATION & DEVELOPMENT
CRITICAL SAFETY PRACTICES
Safety Observation Checklist

Procedure — Well Installation & Development	Safe	At Risk
Work areas, platforms, and walkways should be kept free of materials, debris, and obstructions such as ice, grease or oil that could cause a surface to become slick or otherwise hazardous	☐	☐
Mark, identify, or barricade site hazards	☐	☐
Driller and helper must be present during all active operations and TEST KILL SWITCH DURING EACH STARTUP	☐	☐
Review hazardous properties of site contaminants before beginning work	☐	☐
Monitor breathing zone air to determine levels of contaminants	☐	☐
Separate Flammables and Oxidizers by 20 feet minimum	☐	☐
Store flammable liquids in well ventilated areas, away from work areas	☐	☐
Test vessel atmosphere for flammable/toxic vapors and oxygen deficiency	☐	☐
Driller helper and other site personnel must know location of emergency shutoff switch	☐	☐
Unauthorized personnel must be kept clear of drilling rig	☐	☐
Area of drilling operation must be cordoned off/barricaded	☐	☐
Do not allow drillers to climb to mast while it is erected	☐	☐
Wear proper level of PPE for the type of atmospheric contaminants	☐	☐
Before raising the mast, check for overhead obstructions	☐	☐
Monitor for Heat/Cold stress in accordance with IT Health and Safety Procedures # HS400, HS401	☐	☐
Provide an adequate break area to include fluids to prevent worker dehydration	☐	☐
Eliminate sources of ignition from the work area	☐	☐
Prohibit Smoking	☐	☐
Store flammable liquids in well ventilated areas	☐	☐
Prohibit storage, transfer of flammable liquids in plastic containers	☐	☐
Enforce use of approved flammable liquid safety cans	☐	☐
Post "NO SMOKING" signs	☐	☐
Store combustible materials away from flammables	☐	☐
Shut down drill rig to make repairs or adjustments to drill rigor to lubricate fittings. Release all pressure on the hydraulic systems, the drilling fluid system, and the air pressure systems of the drill rig prior to performing maintenance	☐	☐
De-energize or shut off utility lines at their source before work begins	☐	☐
Utility clearance shall conform with 29 CFR 1926.955 (high voltage >700 kv) 15 feet phase to ground clearance; 31 feet phase to phase clearance	☐	☐
Follow work/rest schedule in Section 3.3 of the HASP	☐	☐
Identify all utilities around the site before work commences	☐	☐
Use manual excavation within 3 feet of known utilities	☐	☐
Cease work immediately if unknown utility markers are uncovered	☐	☐

Procedure Well Installation & Development	Safe	At Risk
Lockout/tag-out/de-electrical energize equipment before maintenance according to Procedure HS315	☐	☐
When hazardous conditions are deemed present, operation must be shut down	☐	☐

Body Use Well Installation & Development	Safe	At Risk
Ensure jewelry is removed, loose clothing is buttoned	☐	☐
Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads .	☐	☐
Use 3 point contact when ascending/descending heavy equipment	☐	☐
Observe proper lifting techniques	☐	☐
Obey sensible lifting limits (60 lb. Maximum per person manual lifting)	☐	☐

Personal Protective Equipment Well Installation & Development	Safe	At Risk
Wear reflective warning vests worn when exposed to vehicular traffic	☐	☐
Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads .	☐	☐
Wear splash shields and safety goggles when cleaning, decontaminating drilling equipment	☐	☐
Wear leather work gloves when the possibility of lacerations or pinchpoint injury may be caused by sharp edges or heavy objects	☐	☐
Provide workers proper skin, eye and respiratory protection based on the exposure hazards present	☐	☐
Wear hard hats, safety glasses with side shields, and steel-toe safety boots	☐	☐
Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	☐	☐
Provide ABC (or equivalent) fire extinguishers for all flammable storage areas, powered cutting equipment re-fueling areas, fuel powered generators and compressors	☐	☐

Equipment/Tools/Vehicles Well Installation & Development	Safe	At Risk
Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar injuries	☐	☐
Maintain minimum clearance of 18 inches between operating hand and cathead drum when driving samplers, casing or other tools, using the cathead and rope method	☐	☐
Maintain all hand and power tools in a safe condition	☐	☐
Keep guards in place during use	☐	☐
Stack pipe, drill rods, augers and similar drilling tools with order on racks or sills to prevent spreading, rolling or sliding	☐	☐
Store all compressed gas cylinders upright, caps in place when not in use	☐	☐
Shut-off / idle power tools walking between work areas	☐	☐

EQUIPMENT DECONTAMINATION
CRITICAL SAFETY PRACTICES
Safety Observation Checklist

Procedure Equipment Decontamination	**Safe**	**At Risk**
Understand and review hand signals	☐	☐
Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris	☐	☐
Mark, identify, or barricade site hazards	☐	☐
Review hazardous properties of site contaminants before beginning work	☐	☐
Provide material safety data sheets	☐	☐
Monitor breathing zone air to determine levels of contaminants	☐	☐
Wear proper level of PPE for the type of atmospheric contaminants	☐	☐
Assess noise level with sound level meter if possibility exists that level may exceed 85 dB A TWA	☐	☐
Monitor for Heat/Cold stress in accordance with IT Health and Safety Procedures # HS400, HS401	☐	☐
Provide an adequate break area to include fluids to prevent worker dehydration	☐	☐
Follow all manufacturers instructions for operation of power tools	☐	☐

Body Use Equipment Decontamination	**Safe**	**At Risk**
Observe proper lifting techniques	☐	☐
Obey sensible lifting limits (60 lb. maximum per person manual lifting)	☐	☐
Use 3 point contact when ascending/descending heavy equipment	☐	☐

Personal Protective Equipment Equipment Decontamination	**Safe**	**At Risk**
Wear reflective warning vests worn when exposed to vehicular traffic	☐	☐
Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads	☐	☐
Use proper work gloves, face shield/safety goggles, and leather apron to protect workers from skin burns when welding, cutting, and burning	☐	☐
Wear proper gloves, face shield/safety goggles, shin and toe guards, and splash suits to protect workers from skin burns and injury when operating pressure washers	☐	☐
Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects	☐	☐
Provide workers proper skin, eye and respiratory protection based on the exposure hazards present	☐	☐
Wear hard hats, safety glasses with side shields, and steel-toe safety boots	☐	☐

Personal Protective Equipment Equipment Decontamination	**Safe**	**At Risk**
Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	☐	☐
Provide ABC (or equivalent) fire extinguishers for all flammable storage areas, powered cutting equipment re-fueling areas, fuel powered generators and compressors	☐	☐

Equipment/Tools/Vehicles Equipment Decontamination	**Safe**	**At Risk**
Isolate equipment swing areas	☐	☐
Make eye contact with operators before approaching equipment	☐	☐
Park heavy equipment on level ground to avoid potential sprains/strains when ascending/descending	☐	☐
Conduct daily heavy equipment inspections	☐	☐
Provide ABC (or equivalent) fire extinguishers for all work	☐	☐
Prohibit use of defective tools/equipment	☐	☐

APPENDIX K

– *SAFETY IMPROVEMENT PROCESS*

The Shaw Group Inc.™

Shaw Environmental & Infrastructure, Inc.

Commercial Services

Safety Improvement Process

- Zero Incidents Goal on all projects
- Recognize people and projects that demonstrate excellence in safety performance
- Use safety observation programs to identify and correct unsafe practices and conditions
- Identify all Critical Safety Practices for each task prior to beginning work
- Inspect work areas regularly
- Evaluate Improvement Process periodically
- Investigate all incidents to determine root causes and corrective actions to prevent recurrence
- Provide and enforce safety rules to protect employees, subcontractors, clients, and the public

Shaw Environmental & Infrastructure, Inc.

Project Safety Rules

Project #_____

- ☐ All unsafe practices/conditions must be corrected promptly and reported to the supervisor at first opportunity
- ☐ Participate in the Safety Observer Program
- ☐ Good housekeeping standards must be maintained at all times
- ☐ Non-work injuries that could become aggravated on the job must be reported to supervisor within ½ hour of starting work
- ☐ Lockout/tagout procedures must be followed at all times
- ☐ Use fall protection above 6 feet
- ☐ Inspect all vehicles and equipment before use
- ☐ Know proper emergency response procedures and location of emergency equipment
- ☐ Use safety guards on all machinery where installed
- ☐ Know what contaminants are present in the work area and their exposure routes and symptoms
- ☐ Only authorized personnel may operate equipment
- ☐ Use the "buddy system" at all times when working in an exclusion zone area
- ☐ Any person present in, or passing through, an area must observe the rules of that area
- ☐ Suit up and de-suit according to HASP requirements
- ☐ Wear proper personal protective equipment for the task
- ☐ Inspect, wash, store, and care for respirator properly
- ☐ Eat, drink, smoke, chew only in designated area of support zone
- ☐ Sign in and out whenever entering or leaving exclusion zone
- ☐ Be clean shaven
- ☐ Use a "spotter" for backing up all equipment/vehicles
- ☐ Back in to all parking spaces
- ☐ Use 3-point contact for ascending/descending all ladders and equipment

_____

Site Supervisor

Shaw Environmental & Infrastructure, Inc.

Cardinal Safety Rules

- No failures to report accidents/injuries immediately; no misrepresentation of injuries
- No failure to comply with all safety requirements, procedures, or policies
- No illicit drugs/alcohol
- No fighting
- No horseplay
- No malicious destruction of company property
- No firearms

APPENDIX L

– *TAILGATE SAFETY MEETING FORM*

PROCEDURE

Subject: TAILGATE SAFETY MEETINGS

1.0 PURPOSE AND SUMMARY

This procedure establishes the requirement for the conductance of tailgate safety meetings. These meetings are to be conducted at each company project site, on a daily basis, prior to the start of any work activities.

2.0 TABLE OF CONTENTS

3.0 RESPONSIBILITY MATRIX

3.1 Procedure Responsibility

The Vice President, Health and Safety is responsible for the issuance, revision, and maintenance of this procedure.

3.2 Action/Approval Responsibilities

The Responsibility Matrix is Attachment 1

4.0 DEFINITIONS

Company - All wholly-owned subsidiaries of Shaw Environmental & Infrastructure, Inc. (Shaw E & I).

Tailgate Safety Meeting - A short training or informative session that provides safety guidelines for the planned work activities for the day or shift.

5.0 TEXT

The project supervisor or his/her designee conducts a tailgate safety meeting at the beginning of each shift or whenever new employees arrive at the work site. The topics discussed at the tailgate safety meeting should cover the work assignments for the day, the expected hazard(s) presented by the work, and an explanation on how employees will protect themselves from those hazards.

The meetings are to be documented by the completion of a Tailgate Safety Meeting Form. The project supervisor will assure that the form is properly completed and signed by all attendees. Completed forms will be maintained in the project files.

The following sections provide guidance for the completion of the form:

A. **Project Name/Number** - Specific project name and number assigned to the project.

B. **Date** - Date of meeting.

C. **Time** - Time at which meeting is held.

D. **Client** - Identification, name, etc. of entity for whom work is to be performed.

E. **Work Activities** - Detailed description of the work activities to be performed that day.

F. **Hospital Name/Address** - Hospital name and address designated to be used for the project.

G. **Phone Number** - Designated hospital non-emergency phone number.

H. **Ambulance** - Phone number for medical emergency transportation.

I. **Safety Topics Presented:**

1. **Chemical Hazards** - Specific chemical name and adverse properties of all chemicals to be encountered on the job that day. A Material Safety Data Sheet (MSDS) for each should be available and discussed in accordance with Procedure HS060.

2. **Physical Hazards** - Address physical hazards associated with the work site, such as slipping/tripping/falling hazards, pinch points, overhead hazards, and nearby operations that could pose a hazard.

3. **Personal Protective Equipment** - Specify levels of protective clothing and protective devices to be used by employees for each of the day's activities.
4. **New Equipment** - Indicate proper work techniques and any hazards associated with new or unfamiliar equipment.

5. **Other Safety Topic(s)** - List any remaining safety topics pertinent to the potential hazards of the job for that day. This is an area where different, unique subjects can be introduced to make the tailgate safety meeting more interesting.

J. **Attendees** - Printed name and signature of all persons in attendance. (Also, list affiliation if not employed by the company.)

K. **Meeting Conducted By** - Printed name and signature of individual conducting the tailgate safety meeting.

6.0 EXCEPTION PROVISIONS

Variances and exceptions may be requested pursuant to the provisions of Procedure HS013, Health and Safety Procedure Variances

7.0 CROSS REFERENCES

HS013 Health and Safety Procedure Variances
HS060 Hazard Communication Program

8.0 ATTACHMENTS

1. Responsibility Matrix
2. Tailgate Safety Meeting Form

ATTACHMENT 1
TAILGATE SAFETY MEETINGS

Responsibility Matrix

Action	Procedure Section	*Responsible Party*	
		Vice President of Health and Safety	Project Supervisor
Issuance, Revision, and Maintenance of Procedure	3.1	X	
Conduct Meeting	5.0		X

ATTACHMENT 2

TAILGATE SAFETY MEETING FORM

Project Name/Number: _____ Date: _____ Time: _____

Client: _____

Work Activities: _____

Hospital Name/Address: _____

Hospital Phone No.: _____ Ambulance Phone No.: _____

Safety Topics Presented

Chemical Hazards: _____

_____

Physical Hazards: _____

_____

Personal Protective Equipment:

Activity: _____ PPE Level: _____

Activity: _____ PPE Level: _____

Activity: _____ PPE Level: _____

Activity: _____ PPE Level: _____

Activity: _____ PPE Level: _____

New Equipment: _____

Other Safety Topic(s): _____

_____

Attendees

NAME PRINTED	SIGNATURE
	_____
	_____
	_____
	_____
	_____
	_____
	_____
	_____

Meeting conducted by: _____

APPENDIX M

– JOB SAFETY ANALYSIS H&S PROCEDURE HS045

PROCEDURE

Subject: JOB SAFETY ANALYSIS (JSA)

1.0 PURPOSE AND SUMMARY

This procedure provides the guidelines to perform a Job Safety Analysis.
The (JSA) is an effective management technique for identifying hazardous conditions and unsafe acts in the workplace. A JSA is intended to analyze the individual steps or activities, which together create a job or specific work duty, and to detect any actual or potential hazards that may be present. This process can identify less obvious potential hazards that may go undetected during routine management observations or audits. **A new JSA must be completed every day, before commencement of any work activity and updated in the event of changing conditions. It should be understood that changing conditions that a work crew encounters during a work period (inclement weather, another contractor began work in area, etc.) requires that the JSA be modified to address the new hazards. The JSA should be changed to reflect new conditions in the task being performed or new hazards not identified previously.**

2.0 TABLE OF CONTENTS

3.0 Responsibility Matrix

3.1 Procedure Responsibility

The Manager/Supervisor is responsible for implementing and enforcing this procedure.

The Safety Representative is responsible for monitoring compliance with this procedure.

Each Employee is responsible for complying with the project safety program, along with the rules and regulations as stipulated in this procedure and instructions issued by the employee's supervisor.

It is the responsibility of management and supervision to ensure that this policy is followed. Accordingly, should the project / site requirements stipulate the use of another method of job safety analysis, it is the responsibility of management and supervision to ensure that the proposed method either meets or exceeds this JSA policy and the accompanying JSA form. Any policy or JSA form that does not cover the items contained herein shall not be used.

3.2 Action/Approval Responsibilities

The Responsibility Matrix is Attachment 1

4.0 DEFINITIONS

HAZARD - A potential danger. Oil on the floor is a hazard.
ACCIDENT - An unintended happening that may result in injury, loss or damage.
EXAMPLE - Slipping on the oil is an accident.
INJURY - The result of an accident. A sprained wrist from the fall would be an injury.

5.0 TEXT

5.1 General Requirements

The first page of the JSA form is a checklist that should be used for reference purposes and serves to assist the work crew and supervisor in completing the second page of the JSA. The first page of the JSA form is used to write out the various tasks involved, potential hazards, recommended actions, etc.

Job Safety Analysis is a procedure used to review job methods and uncover hazards:

- That may have been overlooked in a Hazard Analysis, project layout or design of the

equipment, tools processes or work area.

- That may have developed after production started.
- That may have resulted from changes in work procedures or personnel

The three basic steps in performing a job safety analysis are

(Job Task) Break the job down into successive steps or activities and observe how these actions are performed.

- (Potential Hazards) Identify the hazards and potential accidents. This is the critical step because only an identified problem can be corrected or eliminated.
- (Recommended Actions) Develop safe job procedures to eliminate the hazards and prevent potential accidents.

5.2 Methods of Conducting JSA's

There are two basic methods for conducting the Job Safety Analysis:

— Direct observation

— Group discussion

A fast and efficient method of conducting a JSA is through direct observations of job performance. In many instances, however, this method may not be practical. However, through direct observation, one can gain knowledge concerning an activity and use it on a future JSA.

For instance, new jobs and those that are done infrequently do not lend themselves to direct observation. When this is the case, the JSA can be made through discussions with persons familiar with the job. Individuals often involved in the process include, but are not limited to, first line supervisors, safety specialists, engineers, experienced employees and outside contractors.

5.3 Analyzing The Job

When analyzing the job, most people start with the worst first. You should be guided by the following factors:

- **Frequency of Accidents** (Including "near misses"):
  An element of a job that repeatedly produces accidents is a candidate for starting a JSA. The greater the number of incidents associated with a job element, the greater its priority claim for a JSA.

- **New or Revised Jobs:**
  Jobs created by changes in equipment or in processes obviously have no history of accidents, but their accident potential may not be fully appreciated. Analysis should not be delayed until accidents or near misses occur.
  Any changes from the original task/job shall be noted on the form as a revision. Once this has occurred the new found hazards must be reviewed with the crew.

- **Multiple Employee Exposure**
  Jobs that expose more than one individual to potential hazards should also be analyzed.

5.4 Common Errors

Five common errors that are often made when performing a job analysis are:

- Making the breakdown so detailed that an unnecessarily large number of steps are listed. Making the job so general that basic steps are not recorded.
- Failure to identify the education and experience level of the target audience.
- Failure to identify end use(s). (i.e., training, actual procedure, basis for procedure, etc.)
- Always relying on the Supervisor for completing the JSA. Supervisor should describe work scope to the crew. The crew should then assist in identifying hazards and controls at the job site with active involvement from the Supervisor. Ultimately, the supervisor is responsible, however, crew members and the Supervisor should be actively involved in each JSA.

5.5 Identifying the Hazards and Potential Accidents

The purpose is to identify all hazards, both **physical** and **environmental**. To do this, ask yourself these questions about each step:

- Is there a danger of striking against, being struck by, or otherwise making harmful contact with an object?
- Can the employee be caught in, on, by or between objects?
- Is there a potential for a slip, trip or fall? If so, will it be on the same elevation or to a different elevation?
- Can he strain himself by pushing, pulling, lifting, bending or twisting?
- Is the Environment hazardous to one's safety or health? Has the weather been considered as a factor? Has the work product of others, as it pertains to the environment, been considered???

5.7 Accident Types

- Struck by
  - moving or flying object
  - falling material
- Struck against
  - stationary or moving object
  - protruding object
  - sharp or jagged edge
- Contact with
  - acid
  - electricity
  - heat
  - caustic
  - cold
  - radiation
  - toxic and noxious substances
- Overexertion / repetitive
  - Lifting
  - pulling
  - pushing
  - reaching
  - twisting
- Caught
  - in
  - on
  - between
- Fall to
  - same level
  - lower level
- Bodily reaction from
  - voluntary motion
  - involuntary motion
- Rubbed or abraded by
  - friction
  - pressure
  - vibration

5.8 Writing Instructions

Put any qualifying statements first, not last.

- Start each instruction with an action word.
- Each instruction should be observable.
- Each instruction should be measurable.

When evaluating a given procedure, ask the following question.

"What should the employee do -- or not do -- to eliminate this particular hazard or prevent this potential accident?"
Answer must be specific and concrete to be beneficial. General precautions such as "be careful"; "use caution" or "be alert" are useless. Answers should state what to do and how to do it.

This recommendation, "Make certain the wrench does not slip or cause loss of balance" is incomplete. It does not tell how to prevent the wrench from slipping. Here is a more complete recommendation. "Set the wrench properly and securely. Test its grip by exerting a slight pressure on it. Brace yourself against something immovable, or take a stance with feet wide apart before exerting full pressure. This prevents loss of balance if

the wrench slips."

Job Safety Analyses can be very beneficial if they are performed correctly. They not only result in a safer job, but also increase productivity and eliminate waste. Take the time to do them correctly; **and more importantly, use them.**

5.9 Develop Solutions

The final step in conducting a JSA is to develop a recommended safe job procedure to prevent the occurrence of potential accidents. The principle solutions are:

- Find a new way to do the job.
- Change the physical conditions that create the hazard.
- Try to eliminate remaining hazards by changing work methods or procedures.
- Try to reduce the necessity of doing a job, or at least the frequency that it must be performed.

6.0 Specific Requirements

Instructions for Completing Job Safety Analysis Form

Job Safety Analysis (JSA) is an important accident prevention tool that works by finding hazards and eliminating or minimizing them before the job is performed, and before they have a chance to become accidents.

- Use your JSA for job clarification and hazard awareness
- as a guide in new employee training
- for periodic contacts and for retraining of senior employees
- as a reference tool to be used prior to commencing a job which is performed infrequently
- as an accident investigation tool
- Informing employees of specific job hazards and protective measures.

6.1 Sequence of Basic Job Steps

Break the job down into steps. Each of the steps of a job should accomplish some major task. The task will consist of a set of movements used to perform a task, and then determine the next logical set of movements.
For example, the job might be to move a box from a conveyor in the receiving area to a shelf in the storage area. How does that break down into job steps? Picking up the box from the conveyor and putting it onto a hand truck is one logical set of movements, so it is one job step.

Everything related to that one logical set of movements is part of that job step. The next logical set of movements might be pushing the loaded hand truck to the storeroom. Removing the boxes from the truck and placing them on the shelf is another logical set of movements. Finally, returning the hand truck to the receiving area might be the final step in this type of job.

Be sure to list all the steps in a job. Some steps might not be done each time -- checking the casters on a hand truck, for example. However, that task is part of the job as a whole, and should be listed and analyzed.

6.2 Potential Hazards

Identify the hazards associated with each step. Examine each step to find and identify hazards -- actions, conditions and possibilities that could lead to an accident. It is not enough to look at the obvious hazards. It is also important to look at the entire work environment and discover every conceivable hazard that might exist.

- Be sure to list health hazards as well, even though the harmful effect may not be immediate. A good example is the harmful effect of inhaling a solvent or chemical dust over a long period of time.
- Hazards contribute to accidents, injuries and occupational illnesses. In order to do part three of a JSA effectively, you must identify potential and existing hazards. That's why it's important to distinguish between a hazard, an accident and an injury. Each of these terms has a specific meaning:

Some people find it easier to identify possible accidents, illnesses, and work back from them to the hazards. If you do that, you can list the accident and illness types in parentheses following the hazard. However, be sure you focus on the hazard for developing recommended actions and safe work procedures.

6.3 Recommended Action Procedure

Decide what actions are necessary to eliminate or minimize the hazards that could lead to an accident, injury or occupational illness. Among the actions that can be taken are:

1) engineering the hazard out

2) administrative controls

   - job instruction training

   - good housekeeping

- good ergonomics
  (Positioning the person in relation to the machine or other elements in the Environmental in such a way as to eliminate stresses and strains)

3) providing personal protective equipment

- List recommended safe operating procedures on the form, and list required or recommended personal protective equipment for each step of the job.
- Be specific. Say exactly what needs to be done to correct the hazard, such as "lift, using your leg muscles." Avoid general statements like "be careful."
- Give a recommended action or procedure for every hazard.
- If the hazard is a serious one, it shall be corrected immediately.

The JSA should be changed to reflect new conditions in the task being performed or new hazards not identified previously.

7.0 REFERENCES

"Job Hazard Analysis", U.S. Dept. of Labor -- OSHA Publication No. 3071

"Job Safety Analysis" - Safety Manual No. 5, U.S. Dept. of Interior, Mining Enforcement and Safety Administration

8.0 ATTACHMENTS

1. Responsibility Matrix
2. Job Safety Analysis Form

ATTACHMENT 1
EMPLOYEE AND SUBCONTRACTOR TRAINING REQUIREMENTS

Responsibility Matrix

Action	Procedure Section	*Responsible Party*		
		Manager/ Supervisor	H&S Representative	Employee
Responsible for implementing and enforcing procedure	3.1	X		
Monitoring for compliance with the procedure.	3.1		X	
Complying with the project JSA program, along with the rules and regulations as stipulated in this procedure	3.1			X
Review completed JSA forms for any errors and communicate to the originator of the changes.	5.5		X	

Shaw The Shaw Group Inc.

JOB SAFETY ANALYSIS

DATE:
JOB#:
PERMIT#:
ISSUED BY:

SUPERVISION/FOREMAN _____ _____

Consider the following and check the items which apply to the job, then review with the work crew.

PERMITS
- ____ Required
- ____ Cold Work
- ____ Hot Work
- ____ Entry Permit
- ____ All Conditions Met
- ____ Signed Off When Complete
- ____ Other _____

PERSONAL PROTECTIVE EQUIP. (PPE)
- ____ Type of Gloves
- ____ Composition of Gloves
- ____ Special Purpose Gloves
- ____ Tyvek Suit
- ____ Acid Suit /Slicker Suit
- ____ Rubber Boots
- ____ Mono Goggles (vented/non-vented)
- ____ Face Shield
- ____ Respirator
- ____ Fresh Air
- ____ Ear Protection
- ____ Safety Harness
- ____ Burning Goggles
- ____ Other _____

TOOLS
- ____ Current Inspection
- ____ Proper Tools for the Job
- ____ Good Tool Condition
- ____ Qualifications
- ____ Other _____

EMERGENCY EQUIPMENT
- ____ Fire Extinguishers
- ____ Safety Shower
- ____ Evacuation Route
- ____ Other _____

ACCESS
- ____ Scaffold (properly inspected)
- ____ Ladder (Tied off)
- ____ Manlift
- ____ Personnel Basket (inspected & approved)
- ____ Operator Training
- ____ Special Provisions
- ____ Other

WELDING
- ____ Flashburns
- ____ Combustibles
- ____ Spark Containment
- ____ Shields
- ____ Grounding
- ____ Water Hose
- ____ Fire Extinguisher
- ____ Fire Blanket
- ____ Fire Watch
- ____ Sewer Covers
- ____ Other _____

OVERHEAD WORK
- ____ Barricades
- ____ Signs
- ____ Hole Cover
- ____ Handrail
- ____ Other _____

ELECTRICAL
- ____ Locked & Tagged out
- ____ Try Start/Stop Switch
- ____ GFCI Test
- ____ Assured Grounding
- ____ Extension Cord Inspection
- ____ Other _____

LIFTING
- ____ Forklift
- ____ Cherry Picker
- ____ Load Chart
- ____ Angle
- ____ Crane
- ____ Chainfall
- ____ Proper Rigging Practices
- ____ Manual Lifting
- ____ Condition of Equipment
- ____ Operator Certificate

HAZARDS (ENVIRONMENTAL)
- ____ Electrical Shock
- ____ Heat Stress
- ____ Heavy Objects
- ____ Hot/Cold Surf. Or Mat.
- ____ Inadequate Lighting
- ____ Line Breaking
- ____ Noise
- ____ Poor Access/Egress
- ____ Sharp Objects
- ____ Other _____

HAZARDS/CHEMICALS
- ____ Chemical Burn Shin/Eyes
- ____ Flammable
- ____ Ingestion
- ____ Inhalation
- ____ Skin Contamination

HAZARDS/BODY
- ____ Fall Potential
- ____ Pinch Points
- ____ Slip-Trip Potential
- ____ Other _____

OTHER WORK IN AREA
- ____ Others Working Overhead
- ____ Type Work Others Doing
- ____ PPE Due to Other Work
- ____ Other _____

Confined Space

Know the Following:

- Possible hazards within the confined space
- First signs of exposure
- How to summons help
- How to track personnel
- Entering and exiting the confined space
- Maintain contact with all entrants by voice or visual
  Do not attempt to rescue unless you are a part of a coordinated effort
- Remain at entry point assume no duties with take you from there.

SUPERVISOR/FOREMAN RECOMMENDATION: _____

Shaw The Shaw Group Inc.

JOB SAFETY ANALYSIS

DATE:
JOB#:
PERMIT#:
ISSUED BY:

Location of Job
(Unit/Location on Project):

Required PPE:	**Safety Access/ Location**	Supervisor of Work:
	Safe Haven:	JSA Prepared By:
	Wind Direction:	Are other crews in area?
Pre-Job Preparation	Evacuation Route:	
1. Fill out JSA 2. Review JSA (EVERYONE) 3. Sign JSA (EVERYONE)	Assembly Point:	New: / Revised:

Job Task (What are You Doing)	**Audit the Job** Audit Time:
Potential Hazards	**Supervisors Comments**
Recommended Action or Procedure	**Supervisor's Initials:**

Crew Name Signatures:		